EU Project “Enhance Innovation Strategies, Policies and Regulation in Ukraine”

INNOVATION POLICY: EUROPEAN BENCHMARKING FOR UKRAINE

VOLUME 2

The analysis of the legislation of Ukraine in the sphere of research, developments and innovation activity and suggestions for amendments for legislation

October, 2011
The analysis of the legislation of Ukraine in the sphere of research, developments and innovation activity has been performed by the group of Ukrainian and European experts consisting of:


**Innovation Policy: European Experience and Recommendations for Ukraine. – Volume 2. - The analysis of the legislation of Ukraine in the sphere of research, developments and innovation activity and suggestions for amendments for legislation. – K.: Fenix, 2011.- 324 p.-**

(EU Project “Enhance Innovation Strategies, Policies and Regulation in Ukraine”)

The analysis of the legislation of Ukraine and the EU in the sphere of innovation activities was performed by the group of Ukrainian and European experts in the framework of the EU Project “Enhance Innovation Strategies, Policies and Regulation in Ukraine”. The following topics are covered: regulation of direct financing of scientific and technical and innovation activity, determination and realization of the priorities for innovation and technological development, development and implementation of state programs in R&D and innovation sphere, legal status of innovation infrastructure entities; public research institutions activities, public procurement of research and developments, competitive financing of R&D, financial and credit support to innovation activity, tax incentives for innovation activity, support to SMEs innovative development, creation of territorial innovation structures, innovation development at the regional level, PPP in the sphere of research and innovation activities.

Suggestions on amendments to the legislation of Ukraine as well as the legislation efficiency assessment are presented.

The publication also contains materials on the issues of international patenting support introduction, harmonization of Ukrainian legislation with the European Patent Convention prepared by the Project.

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**ANALYSIS OF THE R&D AND INNOVATION LEGISLATION IN FORCE AND SUGGESTIONS ON INTRODUCTION OF AMENDMENTS TO THE LEGISLATION**

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Introduction

Project terms of reference included the following activities:

- conducting analysis of the effectiveness of current legislation in the sphere of research and innovation,
- comparative analysis of national legislation in the sphere of innovation and research in Ukraine and the EU and in EU Member States,
- development of proposals (amendments) to improve the legislation in force on the basis of activities performed.

In addition, a short list of acts of Ukraine and draft regulations specifying the whether they are effective or ineffective had to be prepared.

Organization of work

The performing of the following tasks were carried out as follows.

1. On the basis of the study of innovation policy in EU Member States and Ukraine, which were held during the first phase of its implementation, were identified the following areas of law for further analysis:
   1. Legal regulation of the definition and implementation of priorities of innovation and technological development, research and development;
      Legal regulation of forecasting of scientific, technological and innovation development;
   2. Legal regulation of direct financing of science, technology and innovation activity;
   3. Legal regulation of the development and implementation of state programs for Ukraine in the sphere of research and development and innovation development;
   4. Legal regulation of the competitive funding of research and innovation projects. State order of research and developments projects;
   5. Implementation of legal analysis of gaps in the legal regulation, coordination of legal regulations, assessment of the effectiveness of their performance in respect to the legal status of business innovation system subjects;
      Legal analysis of the legal status of public institutions working in research and innovation sectors;
   6. Legal analysis of the stimulation of innovation activities (direct and indirect support of innovation activity);
   7. Tax incentives for innovation activity;
   8. Analysis of the legislation of Ukraine on the credit support for innovation activity;
   9. Analysis of Ukraine's legislation on public-private partnerships in the sphere of research and development and innovation;
   10. Analysis of the legislation of Ukraine on creation of regional innovation structures (innovation clusters);
   11. Legal regulation in the sphere of supporting of innovation development of the small and medium enterprises and innovation development of large enterprises;
   12. Scientific Researches and production of science-intensive products in the field of materials’ science in Ukraine: the incentives and development opportunities;
   13. Analysis of the legal regulation of innovation development of coal and steel regions of Ukraine;
2. The Project were prepared draft guidelines on the training materials for the analysis of legislation. According to the guidelines the providing of the experts with the materials of the following structure was anticipated:

1. Analysis of the regulation of relations in a particular area of innovation, research and development.  
   Sections:
   1.1. Acts regulating legal sphere
   1.2. Analysis of the effectiveness of legislation
   1.3. Issues to be resolved
      1.3.1. Issues to be addressed at the level of legislation.
      1.3.2. Issues addressed at the legislative level, but not implemented (partially implemented).

2. Comparative analysis of the experience of legal regulation of relations in the sphere of innovation, research and development on a particular issue in the EU Member States and Ukraine
   Experts use:
   - Materials on innovation policies of EU Member States, EU, prepared by experts of the Project;
   - Materials on the experiences of legal regulation in the EU Member States on some questions posted in the databases of the European Commission and the EC;
   - Other materials.

3. Proposals on improving legislation in the field of innovation, research and development
   Extra short proposals to improve legislation considering Ukraine’s, EU Member States’ and other countries’ experience in the prescribed form in the recommendations, are provided.

Appendix. According to the ToR of the project a list of existing regulations with the specified effective or ineffective acts, or certain provisions of such acts in a single form are provided by experts of certain industries.

3. Together with the work mentioned above, questions have been identified for conducting special analysis of legal regulation of innovation in the EU and EU Member States by European experts. The abovementioned concerned:
   1. Analysis of EU regulations in the sphere of innovation activity
   2. Preparation of the review of the legislation of EU Member States in the field of innovation, research and development
   3. Analysis of legal regulation of innovation activities in France
   4. Analysis of the laws of EU Member States on the tax incentives for innovation and research and development

It should be noted that the reviews and presentations of relevant European experts were discussed during the International Symposium on Innovation Policy and Legislation in the European Union and Ukraine: Formation, Experience, Fields of Convergence, Kyiv, Ukraine, 2 to 3 June 2011 and the International seminar “Stimulate Innovation with Generous Tax Incentives” (Kyiv, 21/6/2011), organized by the Project.

4. Work of Ukrainian expert was carried out in collaboration with European experts that developed the proposals on innovation policy and reviews prepared on the law and in cooperation with permanent experts of the Project.
   - The results of the legislation analysis were discussed at the Working Group Meeting “Legislation in the field of innovation activity and intellectual property protection” May 11, 2011. The discussion resulted in some materials have been elaborated.
5. In the analysis of current legislation in the field of innovation and proposals for amendments to the legislation, that are attached to a particular field of legal analysis, there is an analysis of the efficiency of the legislation indicating issues that need resolution, providing analysis of the EU and Ukraine’s legislation.

Proposal for amendments of R&D and innovations legislation are attached.

6. The work on the analysis of the legislation was carried by an international team of experts:

Avigdor G., Expert of InnoPolicy Project, Italy;
Atamanova Y.E., Prof., Deputy Director of the Research Institute of Legal Support of Innovation Development of the National Academy of Legal Sciences (NALS), Kharkiv;
Bulkin I.A., PhD, G.M.Dobrov STEPS Centre of the National Academy of Sciences (NAS) of Ukraine;
Butnik-Siversky O.B., Prof., Head of the Department of the Research Institute of Intellectual Property of NALS of Ukraine;
Galenko I.V., Ph.D., expert of the project, member of Expert Council of the Verkhovna Rada of Ukraine on Regulatroy and Industrial Policy and Entrepreneurship,
Isakova N.B., PhD, G.M.Dobrov STEPS Center of the NAS of Ukraine,
Kapitsa Y.M., Dr., expert of InnoPolicy project, Director of the Center for Intellectual Property and technology transfer of NAS of Ukraine;
Kyr'yan V.I., Prof., Head of the Department of the Paton Institute of Electrowelding, National Academy of Sciences of Ukraine,
Leo H., Expert of the InnoPolicy Project, Austria;
Orlyuk O.P., Prof., corresponding member of NALS of Ukraine, Director of the Institute of Intellectual Property of NALS of Ukraine;
Popovich O.S., Prof., Head of cross-laboratory for problems of formation and realization of scientific-technical policy of Ukrainian Ministry of Education and Science and the National Academy of Sciences of Ukraine;
Simson O.E., PhD, National Law Academy of Yaroslav Mudriy, Kharkiv,
Tiede V., Expert of InnoPolicy Project, Germany;
Vahrenwald A. Expert of InnoPolicy Project, prof., Germany;
Hymenko O.A., head of research and legal support of innovation activities of the Department of innovation and technology transfer of State Agency of Ukraine for Science, Innovation and Information (position indicated on the preparation of analysis);
Khrebtov A.O., Ph.D., Advisor to the Chairman of the Donetsk regional council
Shkvorets Y.F., Ph.D., Research Institute of Ministry of Economic Development of Ukraine.
1. Legal regulation governing direct financing of scientific and technical and innovation activity

1.1. Legal acts governing mentioned legal field:

7. Law of Ukraine “On Special Regime for Innovation Activity in Technological Parks” No 991-XIV of 16 July 1999 (as amended on 1 January 2011) [7].
20. Law of Ukraine “On the State Regulation of Activity in the Sphere of Technology Transfer No 143-V of 14 September 2006 (as amended on 1 January 2011) [20].
22. Decree of the Cabinet of Ministers of Ukraine “On Approval of State Target Economic Program ‘Creation of Innovation Infrastructure in Ukraine’ for Years 2009-2013” No 447 of 14 May 2008 [22].
23. Law of Ukraine on Collective Investment Schemes (Mutual Investment Funds and Corporate Investment Funds)” No 2299-III of 15 March 2001 (as amended on 27 July 2010) [23].

1 Numbers in brackets are shown to indicate the code for references to legal acts in the text.
24. National Action Plan for Year 2011 for Implementation of Economic Reforms Program for Years 010-2014, Section ‘Development of Research and Technology, Innovation Spheres’ (proposals to the draft for approval by the President of Ukraine) [24].

1.2. Legislation Analysis

Ukrainian regulatory environment governing procedures of financing of scientific and technical and innovation activity contains contradiction between quite developed provisions of framework legal acts and weakness and comparative narrowness of range of tools that should be applied for their implementation.

a) State financing of research and development works

Amongst other objectives and directions of state policy in scientific and research and technology activity (hereinafter referred to in as “R&D”) Article 1 of framework Law [1] indicates that State shall provide with social, economic, institutional and legal conditions for generation and effective application of R&D potential, including state support of entities engaged in scientific and R&D activity. It is mentioned that this concisely ‘pro-scientific’ state position should be implemented via its participation in: creation of infrastructure for science and information support system for R&D activity; integration of education, science and production; training and postgraduate education of scientific personnel; increasing of stature of research and development activity, support and motivation of young scientists; financing and supply support of fundamental researches; arranging forecasting of trends of research and development, innovation development for long-term and medium-term perspectives; support for priority directions of science and R&D; creation of market for R&D products and application of scientific developments; legal protection of intellectual property and creation of conditions for its effective application; encouragement of scientific, research and development creativeness, inventions and innovation activity (only paragraphs relevant to the topic are listed). Ukrainian regulatory environment does not separately indicate regulation of R&D activity in private sector of economy.

Provisions of the Law [1] fully correspond to requirements of the Laws [4] and [5]. Particularly, the Article 17 of the Law [4] indicates that in order to create and develop the national system of R&D information, the State shall provide with the creation of state networks for initial collection, processing and keeping of all types of such information; actions for distribution and increasing quality of informational products and services; financial support (including through foreign currency) for receiving of R&D information by state authorities and services responsible for such information, scientific and R&D libraries, creation of networks of such libraries and support for their equipment; training of personnel in the computer sciences and scientific and information activity through the system of higher and secondary education establishments, improvement of informational training of economic experts; allocation of funds and equipment for creation and development of state resources of R&D information and their application, and also for intersectional information exchange on scientific advancements. The Article 31 of the Law [5] presumes that state scientific and technical expert examination shall be financed through state budget, extra-budgetary funds or customer’s funds. Appropriations for R&D shall include allocations for state scientific and technical expert examination and shall be indicated in separate line. Expert examination conducted by the state institution financed from state budget on instructions from state authorities may be financed through budget funds allocated for operation of such institution. According to the Article 34 the State provides with financial support of operations of experts in the field of state scientific and technical expert examination. Legal requirements are mainly complied with, though practice of Ukrainian state academies, first of all National Academy of Sciences, demonstrates that expert examinations of draft state legal acts, requests for R&D and their results are performed free of charge, nevertheless this does not contradict their charters.

Considering that lack of state financial resources in the context of economic instability, the Law actually contains fundamental provision (not stipulated in the legal terms) regarding necessity of selection of separate range of entities needed top-priority direct state support. Namely for this the Article 12 of the Law [1] introduces special State Register of Scientific Establishments to which state support is granted. It is stated that mentioned Register shall include scientific establishments (irrespective of the ownership form) pursuing activity, that is of high importance for science, economy and production. Inclusion shall be performed by the central state authority in the field of R&D and innovation activity (currently – State Agency of Ukraine for Science, Innovations and Information) subject to state certification. Scientific establishments enjoying the right to be included to the State Register of Scientific Establishments cannot change R&D activity to other types of activity and should reinvest not less than 50% of profit generated by
their activity to R&D and development of their research infrastructure. Also, with the purpose of preservation of unique scientific objects, such as collections, information files, research installations and equipment, conservation areas, arboreta, scientific test sites having exceptional significance for Ukrainian and world science, the Article 14 presumes creation of State Register of Scientific Facilities constituting national inheritance. Mentioned Agency shall submit to the Cabinet of Ministers of Ukraine for adoption a decision on inclusion of individual facility to the mentioned Register. Ukrainian state budget shall annually allocate funds for financing the actions on maintenance and preservation of scientific facilities included to the State Register constituting national inheritance. In practice such expenses according to program classification of the state budget are allocated only within the National Academy of Sciences of Ukraine. Such actions someway distort the principle of determination of facilities to be included to the Register, which is independent from the authorities. Special (historically determined) status of state academies was established by the Article 15, according to which the State transfers to the National Academy of Sciences and sectoral academies key assets and floating capital for unlimited use free of charge without the right to change the ownership form. Application of these legal provisions was successful in significant limitation of negative trends in development of academic sector of Ukrainian scientific system, but industrial and particularly branch sectors experienced material losses (mainly, in terms of personnel), without having substantial impact on inclusion to such registers and economic privileges connected with them.

Budget financing dominates amongst the forms and methods of state regulation in the field of R&D activity (the Law [1], the Article 34). It is mentioned that the State provides with the budget financing of R&D activity (except for defence expenses) in the amount not less than 1.7 % of Ukrainian gross domestic product (GDP). Expenses for R&D activity are protected expense lines of Ukrainian State Budget. Historically the provision regarding the reference rate for budget financing was proposed due to urgent necessity in radical changes to state R&D policy during the last decade of XX century, and in fact it was revolutionary, since it was not grounded on analysis of empirical trends of budget support intensity (including those in developed world countries), and that is why later it was subject to aggressive criticism: following the data from State Statistics Committee of Ukraine, during all period of Ukrainian independence actual level of budget financing was less than normative one in almost 4 times; particularly, in last decade its rate varied from 0,325 to 0,420 % of GDP. World practice demonstrates that the rate of budget allocations of civil nature never exceeded 1.7 % of GDP during all observation period. During 1985-1990 in Soviet Union and during 1965-1969 in USA mentioned level was achieved, but this amount included appropriations to finance the works of military nature. Recurrence of this experience by modern Ukraine is prevented both by absence of extreme foreign policy factors (military opposition in Cold war times) and by particularities of current globalization status, when possibilities for distribution of achieved R&D results are numerous, which lead to further distinguishing between countries that generate scientific and research knowledge and countries that consume them (currently only 18 countries exceed the world average level in terms of share of GDP spent for financing R&D). Despite number of amendments introduced to the Law, mentioned reference rate was kept and its figure has not undergone any changes, though under Ukrainian conditions it cannot be deemed realistic. Regarding protection of expenses for R&D activity, this requirement was complied with only in 2000s and only in terms of securing the appropriations for remuneration of labour and payment for public utilities needs of R&D establishments.

According to the Article 34, budget financing of scientific researches is performed via basis and target financing, nevertheless there is no clear definition of these support channels (indeed Ukrainian legislation generally does not contain this definition). Only the list of directions for their application is available. Namely it is mentioned that basis financing shall be provided to: fundamental scientific researches; researches in the field of utmost importance for the State, including those in the field of national defence and security; development of research and technical infrastructure; preservation of scientific facilities constituting national inheritance; education of scientific personnel etc. The Cabinet of Ministers of Ukraine adopts the list of scientific establishments and higher education establishments eligible to receive basis support for R&D activity. This means that in fact administrative mechanism of distinguishing separate sector of scientific system is applied, which enjoys economic privileges. There are no clear criteria for distinguishing this sector. However, target financing may be applied for any range of entities performing R&D. At the same time it is mentioned that target financing shall be granted on competitive basis for: R&D programs and individual developments implementing priority development directions of science and researches; providing most important applied R&Ds performed under the state order; projects performed in the course of international R&D cooperation.
According to the Article 35 the State Collection of Fundamental Researches was established with the purpose of supporting the fundamental scientific researches in natural, technical and humanitarian sciences performed by scientific establishments, higher education establishments and individual scientists. The State Budget of Ukraine contains separate expense line for mentioned Collection. Contributions to the Collection’s fund are budget appropriations, voluntary contributions of legal entities and natural persons (including foreign ones). Collection’s funds are granted on a competitive basis. In fact the only Collection’s contributor is the State, at the same time the amount of allocations always was less than 1 % of the total amount of allocations for science and researches. This means that its role appeared to be significant only for financial support of individual groups of scientists for performing generally non capital intensive researches. From the other hand, the Collection operation acts as a sample of competitive financing channel, operating for a long period. But in order to ensure the significant impact of the Collection on general development of Ukrainian science under domination of institutional financing through state academies of sciences and higher education establishments, allocations to this Collection should be increased in 8-10 times. In other case the role of Collection will remain in fact auxiliary.

According to the Law [3], the State Budget funds reserved for fundamental researches shall be granted subject to availability of opinion on appropriateness of financing each individual scientific project, issued by the Expert Council of the National Academy of Sciences (NAS) involving experts of the central authority responsible for R&D and innovation activity. In fact, this is the way to strengthen the privilege of the Academy of Sciences in terms of leverages for implementation of R&D policy and limitation of possibilities for scientists not belonging to academies. The role of NAS is further increased by provisions of the Law [2], the Article 4 of which stipulates that in order to generate the priority directions of science and technology development, the Cabinet of Ministers of Ukraine involving NAS, sectoral academies and central executive authorities shall draft and implement state target program of forecasting the R&D and innovation development of Ukraine. According to author, expert opinion regarding fundamental researches should be rendered by independent body without link to the decision of NAS Expert Council – despite substantial role played by NAS, it is not the monopoly in performing fundamental researches and should bear responsibility exclusively within its internal expenses (nevertheless, NAS scientists may be involved to issuing expert opinion as private persons in any kind).

The Law [3] provides details on budget tools for implementation of priority directions of science, research and technology development (Article 5), which shall be provided by drafting and implementation of state target programs, state order for R&D products, education of scientific personnel, information support and material supply of scientific researches, research and technology developments within determined priority objects of scientific researches, research and technology developments. The Law on State Budget of Ukraine for respective year set the amount of funds to be granted for implementation of each priority direction of science and technology development (in practice this provision was mainly ignored).

Implementation of the Law [9] formally strengthened the role of State Target Scientific and Technical Programs (STSTP) (the Article 36 of the Law [1]), which became to be considered as the main tool for implementation of priority science and technology developments through concentration of research and technology capabilities of the state for solving most important natural, technical and humanitarian problems. At the same time it was clarified that the programs of priority directions of science and technology development are issued by the central authority responsible for R&D and innovation activity on the basis of target projects selected on competitive basis (this means that the mechanism of issuing the programs was also clarified). Practice shows that the share of financing STSTP within priority science and technology developments never reached reference rate of 30 % of total amount of financing R&D activity envisaged by ‘old’ editions of the Law [1], and starting from 1995 this share shown strong trend to decreasing (according to O. Popovychn – to the amount less than 1 % of total amount of budget financing). Additionally, actual amount of funds reserved for implementation of programs is almost unlinked with the amounts determined in substantiation and approval of programs. It is necessary to mention the major deficiency in statistical recording of financing R&D within priority directions of science and technology development – practice demonstrates that this recording is performed through independent identification by scientific and R&D establishments of own scope of work in terms of its relevancy to the priorities without mandatory link of funds to individual programs for which funds are granted. Following manipulative procedures aimed at creation of positive image of establishment implementing STSTP, the amount of financing R&D priorities (information on which is aggregated in recording forms) appears to be overestimated.
State order for research and technology products was legally defined in the Article 37 of the Law [1], which stipulates that the central authority responsible for R&D and innovation activity and central authority responsible for economic policy shall annually make up state order on the basis of the list of most important developments aimed at creation of new technologies and products, which shall be approved by the Cabinet of Ministers of Ukraine. Correct estimation of value of state order as the financing channel on the basis of budget appropriations is complicated by the current practice of making up the budget expense lines, where in vast majority of cases the order is combined in the same line with other expenses – applied researches, scientific parts of state target programs, sometimes even with education of scientific personnel. Such actions give the administrator of budget funds wide discretion for internal redistribution of funds within the same expense line in the case of under-financing, i.e. removing implementation of state plans out of civil control.

It is interesting to mention that the Article 3 of the Law [9] contains provision that according to their focus state target programs are divided to (inter alia) scientific, aimed at ensuring performance of fundamental researches in natural, social and technical sciences, and research and technology programs, developed for solving most important R&D problems, creation of fundamentally new technologies, production facilities, materials, other science-driven and competitive products. That means that program approach may also be applied to financing fundamental researches, but this formally contradicts the provisions of the Article 34 of the Law [1], though in fact this extends its provisions due to validation of additional channels of financial support.

Recommendations of the Hearings of the Parliamentary Committee for Science and Education ‘State of play and problems of implementation of the Law of Ukraine ‘On Scientific and Scientific and Technology Activities’ of 30 June 2010 stress the necessity to ensure the faster development of science in general, particularly fundamental science, comparing with other areas of social activity. Yet again were voiced the requirements of the Laws [1, 2] regarding the necessity to reach the level of financing R&D activity of not less than 1.7 % GDP over 3-5 years, providing for financing the implementation of priority science and technology directions on the level not less than 30 % of total financing. Additionally, the necessity to transfer 10 % of privatization revenues to innovation activity was emphasized. Requirements are traditional; they are expressed in the Parliamentary Decrees since 1999.

According to author, the idea on basis and target financing under realities of last two decades is in fact similar to correlation between scheduled and off-scheduled financing in Soviet times (first one will be granted for sure, second one is optional). However, presently, in strict sense the term ‘basis’ has no semantic link to certain base level. Additionally the reference points of ‘basis-target’ features in fact are confused: target financing is set by those who grant funds, and basis one – by those who receive funds. This means that the features are not harmonized. Basis financing according to its nature is linked to support of operations of R&D establishments: one of its requisites is labour remuneration system linked to staff and wages, which regulates certain guaranteed level of remuneration to scientific personnel, i.e. there is semantic relation between basis financing and guaranteed one (but not just with calculated on certain basis). Not only sufficient level of labour remuneration should be guaranteed, but also expenses for infrastructure should be ensured in order for scientists to keep their sector of employment unchanged and remove such reasons as lack of personal realization and professional deskilling. This means that financing becomes basis due to its ability to fulfil basis needs of R&D establishments (but before it should be guaranteed somehow).

It is also fundamental that the form of program is not single issue for implementation of target principle. Here one should realize that program presumes comprehensive cycle of works within various kinds of R&D activity, preferably oriented to consumer of final product. Not many programs being implemented in Ukraine has proper level of comprehensiveness. From other side, not all R&D works should be made in the form of program (particularly when final consumer is not defined). Another factor is that in practice there are programs of works within the same type (particularly, programs of fundamental researches), but in this case they are mostly financed according to basis principle, and their administration is not sufficiently oriented to transferring intermediate product on further stages, i.e. target orientation is poorly expressed. Target program financing indeed does not concern R&D establishments as object of support since it is oriented to execution of certain works but not to support vital functions of establishments. Financing of individual works according to available R&D capabilities may be distributed between several establishments and even can be addressed to temporary multidisciplinary team consisting of scientists from various establishments. Namely that is why target program financing cannot and should not be the substitute of basis financing. Henceforth it is necessary to give definition of basis financing or abandon the application of this term, recognizing it insufficiently adequate to the tasks of support for R&D activity.
In order to solve the issue of application the basis financing it is necessary to develop special Procedure for institutional, grand and target financing, where their essence and procedure of application of these financial support tools would be clearly defined. This Procedure shall be the ground for revision of the current budget classification in terms of systemic reflection of expenses for R&D and innovation activity (this is the aspect of the method of granting the support – see above). In order to fully reflect the financing channel which usually is interpreted as basis financing, one should introduce logical pair of terms ‘target financing’ (where activity targets are set by customer and contractor tune to them) – ‘philanthropist (options – missionary or donation) financing’ (where activity targets are set by contractor, and donor or administrator conform to its interests on the basis of importance considerations of the contractor’s mission – namely that is why the term ‘missionary’ is proposed). Donor shall grant funds irrecoverably – that is why the option ‘donor’ was used. At the same time contractor commits itself to perform certain volume of works in the field deemed perspective by it, but final result of such works cannot be clearly forecasted. I.e. in determination of financing regime two factors should be taken into account simultaneously – precision level of setting the targets and its sources. When external setting the targets is insufficiently precise, this function should be logically shifted to direct contractor.

From the point of view of funds administrator, ‘untargeted’ is logical pair term to ‘target’, but in practice this is incorrect, since any granted work has its target. From the beneficiary’s point of view, basis financing should have pair term which must be ‘non-basis financing’, i.e. unlinked, random or probabilistic. Though in practice this financing channel can be employed, its application in management seems to be problematic. Hence we can conclude that current provisions of the Law [1] cannot be deemed clear and sufficient. Practice does not prove the sufficient effectiveness of the provision regarding mandatory tender for target program financing, which is connected with numerous facts of bureaucratic imitation and distortion of tenders. It is necessary to legally define and set the procedure for application of such pair of terms as tender financing (with the number of applicants for financing) and financing without any alternative (despite number of applicants there is only one real challenger). Not all the cases justify the application of tender which is caused by high specialization of labour in modern science. We should note that the appropriateness of application of tenders also depends on precise formulation of external targets to science: insufficient preciseness lead to the competition of developments, projects and even scientific directions which cannot be correctly compared on the basis of fair criteria. Such pairs of terms as ‘tender – non-alternative’ and ‘target – missionary’ are unrelated between themselves, i.e. wide range of financing channels can be employed, which should be legally defined in respective procedures. Improving classification (nomenclature of types) of budget financing of R&D activity should involve validation of third pair of features: ‘institutional financing’ (though customers which are individual authorities) – ‘centralized financing’ (though independent national organizations responsible for nationwide research, technology and innovation development). Considering the abovementioned, procedure for institutional, grant and target financing of R&D activity should be drafted, key terms of which should be reflected in the Article 34 of the Law [1], and amend the general essence of Section V ‘Forms and methods of state regulation and management of science and technology activity’.

B) State financing of innovations

The Article 1 of framework Law [6] indicates that all entities regardless their ownership type implementing innovation projects in Ukraine, and companies regardless their ownership type having the status of innovating companies shall receive state support. This means that Ukrainian legislation does not separately provide with the regulation of innovation activity in private sector.

The Law clearly defines connection between the decision on granting the support with the eligibility procedures of project statuses and activities of companies. Eligibility criterion of the first is project orientation to creation and application of innovation product. To treat enterprise as innovative company at first glance transparent criteria are applied: development, production and selling of innovative products or services, share of which in pecuniary terms exceeds 70 % of the total amount of their production (Article 16). Nevertheless, procedures for verifying eligibility may significantly decrease this share and leave the enterprise beyond the list of companies benefiting from innovative status. There are no other intermediary eligibility statuses of enterprises which deserve other state support in terms of intensity, thus enabling manipulations with accounts in order to reach desired share for benefiting from privileges.

According to the Article 12 of the Law the state support for the innovation project shall be granted subject to its state registration. Specially authorized central authority responsible for innovation activity (currently – State Agency for Investments and Development) shall include projects recognized following expert examination as innovation ones (Article 13) to the State Register of Innovation Projects. It is worth

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noting that state registration of innovation project does not entail any obligations regarding budgetary credits for its implementation or other state financial support (paragraph 10 of the Article 13), that substantially reduce the innovators’ motivation to expose their project to numerous expert procedures. This is particularly explained by the logic of competitive selection of priority innovation projects (Article 9), that enables various options of interpretation of connection between proposed projects and approved innovation priorities. According to the Law, financial support of selected projects shall be granted by the state innovation financial institutions (in practice – State Innovation Financial Institution established according to the Decree of the Cabinet of Ministers of Ukraine No 654 of 13 April 2000, which is cessionary of property rights and obligations, including those arising from contracts on granting innovation loans, of State Innovation Fund and its local authorities).

In addition to (the Article 6 of the Law [6]) financial contribution to implementation of national, regional and local innovation programs, implementation of individual innovation projects, the State grants support to operations and development of innovation infrastructure. This provision of the Law [6] was implemented by the Decree [22], which presumed appropriation of UAH 104.25 Mio and UAH 79.4 Mio from the State Budget and local budgets respectively during 2009 – 2013 for development of innovation infrastructure. Evaluation of the effectiveness of program implementation is complicated due to undeveloped monitoring system of its implementation. According to the estimations of former Ministry of Education and Science of Ukraine, in 2009 program was not financed. Moreover, procedure of drafting the act [24] presumes amending the program, but this initiative is still not made up in the form of respective draft Law.

Speaking about purely credit incentives for innovation activity as type of financial support of innovation activity (the Article 17, indents (A) and (B), paragraph 1), for implementation of innovation projects entities developing innovations may receive financial support of the following types: full or partial compensation (through the State Budget funds, funds of budgets of Autonomous Republic of Crimea and local budgets) of interests paid by entities developing innovations to commercial banks and other financial institutions for loans for innovation projects implementation, granting state guarantees to commercial banks issuing loans for implementation of priority innovation projects.

Similar to the laws governing science and technology activity [1, 2], the Article 6 of act [10] stipulates that pursuing of strategic priority directions of innovation activity shall be implemented through system of nationwide programs of economic, science and technology, social, cultural development and protection of environment. This means that in this case program approach is also employed, but program description uses semantics of those activity field, to the development of which innovations are planned to be applied (R&D programs are only one of possible variations), that is why clear localization of innovation programs according to their names is complicated. Mentioned Article also states that ‘middle-term innovation priorities of sectoral level shall be implemented on competitive basis through state programs, innovation programs, innovation projects and innovation projects of technological parks. Works on implementation of nationwide and sectoral level innovation projects which are of utmost importance to the State shall be performed on competitive basis through state contracts for innovation projects’. Example of application of this approach in Ukraine is the range of State Target Scientific and Scientific and Technology Programs, approved by the acts [14], [15], [16], [17], [18], [19], in which direct budget financing of R&D is combined with application of budget funds to cover the loan interest rate of commercial banks. Nevertheless, according to author, quality of legal acts is materially worsening by using provision that ‘Program shall be financed considering capabilities of the State Budget’ [15]. This negates the principle of programming the expenses.

Attention should be focused on certain constriction of the range of tools applied for state support of innovations. This process was launched in 2000 by winding up State Innovation Fund, but current edition of the Law [1] preserved provision on this Fund. The Article 38 indicates that ‘With a view to ensure financing of the state policy implementation in the field of scientific and scientific and technology activities and carrying out of measures aimed at development and application of scientific achievements in Ukraine, the State Innovation Fund shall be established. State Innovation Fund on a competitive basis shall render financial, material and technical support of measures, aimed at manufacturing application of priority scientific and technology developments and advanced technologies, technical re-equipment of industry, introduction of new competitive products. The resources of the State Innovation Fund shall be formed from the fund charges and from the extra-budgetary funds, received in a result of repayment of loans, investments, leasing payments, incomes obtained in a result of joint activity with performers of innovation projects, voluntary contributions of legal entities and individuals’. This provision of the Law introduced charge to
innovation fund as the alternative channel of financing of final stages of scientific and production cycle (rate – 1 % of value of products sold by Ukrainian companies). In the late 1990s levying of this charge was recognized unacceptable since it creates additional tax burden on business entities – in combination with detected facts of inappropriate and inefficient spending Fund’s resources this lead to winding up the Fund. Activity of Fund’s successor (see above) is limited to indirect methods of regulation of innovation activity. We should mention that during 1995 – 2000 up to 19 % of Ukrainian R&D was financed through resources of the State Innovation Fund. That is why, according to the author, it would be more effective to constrict with the adjustment of Fund’s practice.

In 2005 the Law of Ukraine “On Amending the Law of Ukraine on State Budget of Ukraine for Year 2005 and Certain Other Legal Acts of Ukraine” significantly reduced the privileges for innovators, and cancelled provisions of the Articles 21 and 22 of the Law [6] and its final provisions were never renewed. In this connection approach to implementation of provisions regarding stimulation of innovation activity was shifted from improvement of framework law to segmentation of objects of support and introduction of special additional provisions for them. Framework law preserved this possibility for them; particularly, according to the Article 16, ‘innovation enterprise may operate as innovation centre, business-incubator, technopolis, technological park’. Due to this the system of incentives later started to evolve namely regarding individual segments of national innovation system, both on the level of certain types of innovation structures, and on the level of individual entities developing innovations. Representative combination of both approaches appeared to be the Law [17], which set legal and economic background for introduction and operation of special regime of innovation activity for 16 (later – 15) technological parks: ‘Semiconductor Technologies and Materials, Electrooptics and Sensor Equipment’ (Kyiv), ‘Institute of Electric Welding Named After Y. Paton’ (Kyiv), ‘Institute of Monocrystals’ (Kharkiv), ‘Vughlemash’ (Donetsk), ‘Institute of Technical Thermophysics’ (Kyiv), ‘Kyivs’ka Politehnika’ (Kyiv), ‘Intellectual Information Technologies’ (Kyiv), ‘Ukrinfotech’ (Kyiv), ‘Agrotechnopark’ (Kyiv), ‘Eco-Ukraine’ (Donetsk), ‘Scientific and Educational Tools’ (Sumy), ‘Textiles’ (Kherson), ‘Donbass Resources’ (Donetsk), ‘Ukrainian Microbiological Centre of Synthesis and New Technologies’ (UMBICENT) (Odessa), ‘Yavoriv’ (Lviv Oblast).

The Article 1 defines special regime of innovation activity as legal regime presuming granting of state support to stimulate the activity of technological parks, their members and joint companies in the course of project implementation within priority directions of technological parks. This regime shall be introduced for 15 years (Article 3) and shall be applied in the course of implementation of technological parks’ projects. In this context the fundamental principle is state facilitation of innovation activity of technological parks via state financial support and target financing of their project. Additionally to the mechanism of full or partial (up to 50 %) interest-free loans (subject to inflation indexation) for technological parks’ projects, the Law presumes introduction (starting from 2007) of budget program for support of technological parks’ activity through full or partial compensation of interests to be paid by entities implementing technological parks’ projects to commercial banks and other financial institutions for loans granted for implementation of technological parks’ projects (Article 6). According to the Article 7, with the purpose of implementation technological parks’ projects, the State grants to technological parks, their members and joint companies implementing technological parks’ projects target subsidies in the form: amounts of customs liabilities to be levied according to Ukrainian customs legislation in the course of importation of new equipment, facilities, supplies and materials not produced in Ukraine with the purpose of implementation technological parks’ projects. Amounts of the customs liabilities shall be transferred to the special accounts of technological parks, their members and joint companies implementing technological parks’ projects target subsidies in the form: amounts of customs liabilities to be levied according to Ukrainian customs legislation in the course of importation of new equipment, facilities, supplies and materials not produced in Ukraine with the purpose of implementation technological parks’ projects. Amounts of the customs liabilities shall be transferred to the special accounts of technological parks, their members and joint companies (50 % of the amount of customs liabilities shall be transferred to the accounts of entities implementing technological parks’ projects, and 50 % – to the special accounts of management body of respective technological park).

It is worth mentioning that extension of special regime requires undergoing special expertise and state registration of technological parks’ projects (Article 5), which shall be performed by the central authority responsible for science under submission of NAS (this additionally strengthens the status of NAS). Certificate on state registration of the technological park’s project is valid through the period of implementation of this project, but not longer than for 5 years. This Certificate is the ground for granting the special regime of innovation activity and opening of special accounts of technological parks, their members and joint enterprises. Numbers of complicated bureaucratic procedures combined with quite strict regulation of spending of amounts of granted tax privilege fairly discourage majority of businesses to receive state support, particularly those who has no links with scientific circles. It is no coincidence that during last decade the share of budget financing in total amount of innovation expenses in Ukrainian industry never
exceeded 3%. Additionally, during previous four years Laws on State Budget for respective year have not provided with budget incentives for technological parks’ projects. According to the author, target subsidies trailing mechanism of transferring of partial amount of taxes to the special accounts of technological parks, since it appears to be more bureaucratically complicated and not always transparent mechanism and reduces possibilities of technological parks’ members in administration of respective funds. Nevertheless subsidies may appear to be important auxiliary stimulation tool should there will be state interest in development of particular fields of innovation activity.

The Article 17 of the Law [8] which generalized provisions of earlier adopted Law of Ukraine “On Scientific Park Kyivska Politehnika” No 523-V of 22 December 2006 (vivid example of focused segmentation of support measures) presumes that scientific park’s projects can be developed and implemented out of the funds of scientific parks and its partners and/or out of the funds of state and local budgets. At the same time scientific park’s projects executed out of scientific park’s funds and therefore need no state support, shall not undergo state registration procedure. Provisions of the Article 18 are important – applications of scientific parks to receive government orders to supply products, perform works and render services for top-priority needs of the state are reviewed on a priority basis – sort of administrative privilege. Additionally the Law [8] presumes privilege in the form of exempt from import customs duty of scientific, laboratory and research equipment, as well as supplies and materials not produced in Ukraine in the list and amounts defined for the scientific park project (in this case application of complicated mechanism of special accounts. Additionally this Law contains provisions on privilege in application of special regime of payment for utility services and lease payments. The Law does not provide with the particularities of direct budget financing of scientific parks’ activity.

Despite the requirement regarding documentary reflection of program approach to direct financing of R&D and innovation activity, contained in the Laws of Ukraine on State Budget, in practice this requirement was complied with only in several cases. Particularly, the Article 32 of the Law [11] clearly stipulated: ‘provide with budget appropriations within state program ‘Development of scientific, research and technology potential of Ukraine’ in the amount of UAH 1.687.118,7 thousand, including for following priority directions: state order in priority scientific directions in fundamental researches – UAH 767.855,2 thousands; R&D and innovation and information development of Ukraine – UAH 512.352,3 thousands’. Later in the Law [12] the manner of presentation of state intentions changed: there were no single word on development of scientific, research and technology potential of Ukraine, and only in the Article 13 regarding plan of extension of budget guarantees for repayment of debts, next to liabilities of the State Service of Ukraine for Automobile Roads, National Agency for Preparation to EURO-2012 Tournament and State Mortgage Authority there is a sole indication ‘financing of investment, innovation, infrastructure and other development projects having strategic importance and implementation of which shall contribute to development of Ukrainian economy’ without stating amounts for individual objects of support. Further, in Article 74 this approach is clarified: ‘establish that in 2010 resources of Stabilization Fund shall be transferred to finance measures provided in the Law of Ukraine on Priority Measures for Prevention of Negative Consequences of Financial Crisis and Amending Certain Legal Acts of Ukraine, and measures in the following fields: … state support for implementation of innovation and investment projects in real economy, including through easing of loans, - UAH 1.000.000 thousands’. This means that the State along with management levers (extension of guarantees for debts) gradually launches to apply indirect methods of state stimulation. Though this trend is reflected in legislation [13, the Article 9], list of objects to which state guarantee for full or partial (here we already see partial possibility) repayment of debts should be applied, is substantially eroded: here the guarantees to be granted by the Cabinet of Ministers of Ukraine concern only ‘financing of investment, innovation, infrastructure and other development projects having strategic importance and implementation of which shall contribute to development of Ukrainian economy’. The body text of Law does not contain distribution of support amounts broken down by aggregated groups of objects. In majority of cases in annexes to the State Budget (structure of budget expenses broken down by program classification is presented in Annex 3) this type of expenses also not separated (exceptions include

\[\text{In terms of segmentation level it is compared with the State program for development of state enterprises ‘Production Association Southern Machine-Building Plant Named After O. Makarov’ and ‘Design Bureau ‘Southern’ Named After M. Yangel’ [18], State integrated program for development of aircraft industry until year 2010, which provisions are directly applicable to Kharkiv state aircraft production enterprise and state enterprise ‘Kyiv aircraft plant ‘Aviant’ [19].}\]
multianual servicing the loans for projects on construction the booster ‘Cyclone - 4’ and National satellite communication system, compensation of loan interests granted to companies producing equipment for agrarian sector).

c) **State financing for technologies transfers**

The Article 1 of the Law [6] states that innovation activity means activity directed towards application and commercialization of outcomes of scientific researches and developments. The Law [20] implements this provision: its Article 1 introduces term ‘target-oriented subsidy for technology transfer’, which means financial contribution granted by the State to implement technology transfer. Subsidy amount and distribution of subsidies depending on the terms of their extension shall be included to the financial plan of implementation of technology transfer and shall be approved by the Commission of the Cabinet of Ministers of Ukraine on administration of operations of technological parks and innovation structures of other types. Amount of the subsidy cannot be less than the amount of taxes levied in the course of technology transfer. Technology transfer performed within nationwide priority directions of innovation activity (Article 22) enjoys target subsidy regime. Target subsidy shall be granted in the amount of import customs duty levied according to Ukrainian customs legislation upon importation with the purpose of technology transfer of equipment, facilities, supplies and materials not produced in Ukraine. According to the Article 21, in the course of drafting the State Budget principal administrators of budget funds shall foresee necessary expenses within budget programs which can be transferred to: performing of patent, conjuncture, scientific, marketing researches, designs for technology transfer constituting part of state programs of technological renovation of national production according to state and society needs in respective technologies and products; ensuring legal protection of technologies and their components in Ukraine and in states to which such technologies are intended to be transferred; payment of awards to authors of technologies and their components, and also to persons performing their transfer. However Article 20 contains certain pattern entrenching property rights of the State for technologies and their components, particularly, for intellectual property in his field generated out of state funds: ‘funds received due to transfer of technologies generated or purchased out of state funds, property rights to which belong to the State, should be transferred to the special fund of the State Budget to the accounts of principal administrators within budget appropriations’. Thus, the Law [20] preserves current practice of withdrawal from R&D establishments of outcomes of researches performed out of State Budget funds, interests and incentives of scientific establishments and scientists are negated.

d) **Public-private financing of research and development, technology transfer and innovation activity**

Procedure of joint financing of R&D and innovation activity by the State and private sector in Ukraine is not still legally provided, though the grounds for consideration of this issue arose with recent adoption of the Law [21]. Its Article 4 sets the fields of application of public-private partnership, majority of which emerged due to necessity in implementation of projects connected with EURO-2012 tournament. Though text does not contain indications on R&D and innovation activity, the Law states that public-private partnership may be applied in other sectors, except for activities that only state enterprises and authorities are allowed to pursuit. The Article 18 lists the tools of state support for implementing public-private partnership: extension of state guarantees, guarantees of Autonomous Republic of Crimea and local governments; financing out of State Budget or local budgets funds within nationwide and local programs. According to author, experience of legalization of partnership can be partially adopted from the practice of joint financial support of scientific projects by Ukraine and foreign scientific funds, particularly US CRDF.

1.3. **Issues to be resolved**

When declaring the references of state research and technology policy in terms of budget support for research and development in the framework Law it is necessary to take political decisions on the following provisions:

a) For next 10 years in recognizing measures for stimulation of activity of research and technology policy entities as protected from annual budgetary adjustments, limit the reference rate of budget expenditures for research and technology activity to 1.0 % of GDP. At the same time it is necessary to abandon the current legal provision [1] regarding separation of additional reference for share of expenditures for research and development not connected with national defence to stimulate the works of military and
dual-use nature. Implementation of this reference rate should involve stepwise reaching of fixed intermediary levels of budget support for research and development, which should be reflected in the Program of economic reforms for 2010 – 2014 [22]. When the general economic dynamic is positive, these measures shall allow approximating aggregated national expenditures to 1.7 % of GDP;

b) Ensure positive dynamic of budget expenditures by setting reference share of volumes of state expenditures for research and technology, for instance, 3-4 % of budget expenditures (range of values of this reference share can be found in majority of OECD countries, USA reached 6.8 % of budget expenditures, France – 5.7 %, scheduled value for 2011 in Ukraine – 1.6 % including auxiliary works). In this case it is not necessary to set the reference share of aggregate expenditures for scientific purposes as share of GDP. In the case this approach would be adopted, all periods for reaching the share of 1.0 % of GDP should be neglected: the main issue is to be prompt introduction of budget expenditures volume as percentage of legally established reference rate set in terms acceptable for making up the budget appropriations, that is as share of total volume of scheduled budget expenditures;

c) In the course of administering strategic approach to reformation of research and technology sector, it is necessary to legally define the maximum possible task: fix certain minimal level of expenditures from all national sources, and at the same time the State commits itself to contribute to reaching this level (by all means, including full financing out of own funds when other sources appear to be incapable). Reference share could be preserved – well-known 1.7 % as this rate is the closest value to current average world figures. Last position is mostly oriented on final result: though arrangement of cooperation with private entities interested in research and development appears to be a novelty in national research and technology policy, experience of countries occupying top positions in the world in last decade demonstrates that this task should be solved by all means;

d) Sectors of application of direct budget financing of R&D and innovation activity in current legislation should be divided according to objects of support and tools used to grant support. Objects of support should include the following:

- reproduction of research and technology potential in terms of all its components, but not just support of separate components as it is done presently (not only education of personnel, but also modernization of equipment and information and communication basis for research and development);

- implementation of such external function of science as productive force of society, which presumes through planning of implementation of R&D and innovation projects at least until the pilot production stage;

- arrangement of participation in joint financing of R&D and innovation activity with private and foreign entities, including through venture financing. For this legal basis of public-private partnership should be extended to cover joint financing and joint implementation of R&D and innovation projects;

- providing international research and technology cooperation within complete scientific and production cycle by all interested authorities (but not exclusively by Ministry of Education and Science and National Academy of Sciences, as it was in budget expenses schedule during last decade);

- development of patent and license activity to assist national inventors to partially cover the costs for expertise in foreign patent authorities and further maintenance of patent protection, and to develop the mechanism of participation of the State in trade in objects of intellectual property rights, including international one;

e) In the course of improvement of current budget classification it is necessary to examine the correctness of attribution of number of lines to section of current budget classification of the State Budget ‘Research and development in state administration sector’. Preliminary analysis of their content demonstrates their too indirect connection with state administration issues. Also it is necessary to decrypt expenses provided for integrated projects broken down by individual types of research and technology activity. First of all this concerns programs of National Space Agency of Ukraine (official figures of expenses for applied researches evidently do not correspond to science-intensive activity of this authority). That is why introduction of special Procedure for codification of expenses of budget program classification (in particular those connected with support of R&D and innovation activity) is important. This Procedure shall enable application of through approach to presentation of expenses in budget appropriations according to structural and functional features, similar to those valid until 2001. Additionally this will enable distinguishing expenses for research and technology sector within integrated projects and programs, which is not presently presumed on the State Budget level;
Monitoring of application of state expenditures according to legally defined nomenclature of channels of budget support of R&D and innovation activity should be arranged on the level of R&D establishments and industrial enterprises. For this it is necessary to introduce additional official statistics forms. The point is that such statistics reports shall be made up by direct contractors, which, contrary to state authorities responsible for distribution and transfer of budget expenditures, have no reasons to overestimate actual volumes of received resources. This system will accomplish budgetary and institutional reporting and fulfill requirement regarding transparency and publicity of information regarding public part of state expenditures. Quite detailed classification of budget expenditures (i.e. from the point of view of distribution of funds) in present Ukraine is not harmonized with current forms of statistics reporting. In practice this leads to the situation where amount of budget expenditures received by R&D establishments and enterprises (beneficiaries of funds) differs from volumes of budget appropriations, and it is next to impossible to reveal the reasons of differences due to absence of comprehensive differentiated reflection of budget financing in forms of statistics reports in terms of groups which are similar to lines of program classification of budget. Solving of this problem will enable to receive more or less reliable source of independent estimations of application of budget expenditures.

2. Comparative analysis of experience of regulation

Comparing Ukrainian legislation with leading world and EU countries it is necessary to consider two important factors. First one is caused by the necessity to implement ‘survival strategy’ of national research and technology sector – that is why legislation has expressive protectionist emphasis regarding functioning of science in unfavourable economic environment, and this is envisaged on the level of basis framework legislation. It is not coincidence that it contains precise qualitative references, which in practice of other countries as a rule are shifted on the level of current national strategies and even individual programs (except for second edition of framework Law in France, which presumes increasing of GDP share for research and development up to 3 %, legislation of Argentina and Portugal). That is why nature of national legislation is more homogenous with NIS legislation. Second factor is connected with shifting emphasis in the policy of leading countries mainly to indirect mechanisms of regulation of innovation sector, resulting from well-developed coordination of mechanisms of direct state support, reaching certain limitation of its effectiveness and searching for additional measures for stimulation of innovation activity first of all through application of measures of cooperation with all interested entities. In Ukraine this search is performed under lack of effective budget support, and involvement of private entities is de-facto considered not as the booster of budget resources, but rather as their substitution. Due to this comparative analysis of similar legal elements is combined with the description of practice of leading countries, which may be deemed perspective for application in Ukrainian innovation sector (where correct comparison of foreign experience with provisions of national legislation is impossible due to the absence of the latter).

Legislation of leading NIS countries governing innovation activity significantly varies in terms of itemization and is similar in Ukraine and in Russia (first of all this concerns Russian Law on Innovation Policy and State Innovation Activity in Russian Federation’ and range of implementing acts). In Kazakhstan, despite numerous programs of general economic development, only provisions of framework Law of the Republic of Kazakhstan on Innovation Activity (2002) are applicable. Belarus tends to regulate the development not the innovation sector as such, but only certain elements of national innovation system (the Law of the Republic of Belarus on Foundations of State Research and Development Policy (1997)). In terms of subject orientation legislation of Russia and Belarus mainly governs state policy in innovation sector, and in Ukraine and Kazakhstan – innovation activity as social and economic phenomenon. Legislations of Ukraine and Belarus do not contain the very definition of innovation policy. Russian Law gives extremely narrow definition – in the context of setting general foals and validation of mechanisms of support of individual priority programs. The Law of Kazakhstan proposes broader definition of innovation policy – as component of social and economic policy, but without specification of concrete state functions. Ukrainian Law, unlike that of Russia and Kazakh, does not contain any list of specific types of innovation activity, which complicates their identification and further granting of financial support. Eligibility procedures (regarding innovation features) in Ukrainian legislation shifted to the level of individual projects under consideration – in the case projects presume application of state stimulation, management of companies fill in appropriate statistics forms upon their discretion.

Regarding attraction of investments, Ukrainian Law emphasizes on relations with commercial banks, but the Russian one is also oriented towards attraction of foreign investments and establishment of venture
funds. Kazakh Law presumes state assistance for promotion of goods on external markets, and guarantees of marketing of innovation products produced within state order. Latter provision is reflected also in Russian Law, which also stipulates focused education of personnel for innovation activity, including innovation managers. Comparing with Kazakh and Russian laws, Ukraine appears to distance itself from direct innovation processes (for example, only specialized industry-specific programs contain provisions regarding purchases of science-intensive products and advanced technologies for state needs). Amongst other mechanisms of support of innovation activity Russian Law includes provisions regarding its irreversible budget financing, which leaves significantly behind provisions of Ukrainian Law, which at best presumes granting interest-free loans (with 0 rate of interest in the case of state funds and compensation of interest in the case of financing out of private funds). Even guarantees to commercial banks shall be granted only subject to priority innovation status of the project. Noticeable, though state may act as the guarantor before commercial banks, in the case of consideration of application for loans from State Innovation Financial Establishment managers of innovation project should seek for guarantor themselves, including amongst commercial banks. In Russian Law state innovation venture funds are responsible for extending guarantees. Russian Law contains three articles governing external issues of innovation activity, including one dedicated to cooperation with NIS. There is also separate provision on possibility of application of protection measures, on availability of special preferences for foreign investors, and vice versa – for Russian investments abroad. Though mentioned provisions are natural result of development of globalization processes, legislation of other NIS have no similar intentions.

Vast majority of measures on EU level are provided through direct support by grants or loans from EU structural funds. In particular, this features the arrangement of operations of European Research Council under Section ‘Ideas’ of Seventh Framework Program – for support of target fundamental researches by individual researchers or research groups on competitive basis. Majority of EU states and EU itself (namely in the course of implementation of recent EU Framework programs) allocate budget funds for research projects only subject to responsibility of contractors for distribution of their results. At the same time distribution should not necessarily take form of commercialization, since not any project financing presumes further commercialization (also it is not necessary to ensure IPR protection as conclusion of research and development outcomes). Number of countries (Germany, Italy, United Kingdom, Netherlands) encourage conclusion of agreements on future division of IPR for potential results between inventor, employer and intermediary. In other countries this process if governed by law and is more universal. Particularly, in France inventors receive 50 % of total amount of royalty received by scientific establishment from its industrial partners, and universities receive remain 50 %. Shares can vary depending on the type of research and development establishment from 30 % in favour of inventor. Regulation of development of commercialization infrastructure in EU is provided not on the basis of special laws, but through implementation of special programs and individual projects.

Currently EU Member States employ various tools for stimulation of commercialization of technologies. Within direct impact mechanisms one should focus attention on special commercialization projects implemented by both state agencies and specialized funds with participation of state capital. They include programs of joint financing of contracted scientific researches, subsidies for management services, granting of start-up capital for start-up companies. We should notice that public-private partnership programs provide not only joint financing by the parties, but also joint use of outcomes of research and development, information, new technologies, IPR, etc. These programs are addressed to the market of research and development outcomes generated out of state funds for finalization; support for SME innovation enterprises, including stimulation of establishment of start-up and spin-off companies; speeding up the processes of transfer of research and development outcomes generated in state establishments using budget funds; development of information support. Except purely financial incentives ‘services instead of money’ approach is widely used, which has anti-corruption nature since instead of financial transactions companies receive services which discourages companies from seeking benefits from their cooperation with the State. Such services may include training of personnel, assistance in patenting, certification of products, granting facilities in incubators and technological parks. Vivid example of this approach is Norwegian program BUNT, which presumes state support through financing consultants’ services on estimation of appropriateness of employment of technologies on individual enterprises within implementation of their technological strategies.

In France, the Law on Innovations and Researches (1999) provides with assistance for transfer of technologies form public to private sector and establishment of innovation companies. Most large-scale
national initiative, in which participate Ministry of Education, Scientific Researches and Technologies and with other authorities, is the program ‘Centers of Competitiveness’ (Poles de Competitivité). Its tools are simultaneous application of direct subsidies and subventions by number of ministries and agencies, and decreasing the rate of corporate profit tax and social contribution. Under the auspice of the Ministry of Industry the Agency of Industrial Innovations is established, which is responsible for financing large scientific and research projects of national level connected with high technologies relying on public-private partnership (with the aim of increasing research and development share in private sector). Program of Mobilization of Industrial Innovation supports innovation projects with the value over euro 100 Mio and duration up to 5 years. Fundamental technological novelty of the project and leading role of private sector in every consortium are amongst eligibility criteria for granting the support. Program can compensate up to 50 % of expenditures for research and development that significantly reduces the risks of innovation activity. In terms of public-private partnership, program of creation of so called ‘Research and Innovation Technology Networks’ is of high importance. These networks shall arrange cooperation links of public and private entities in research and development sector. In order to encourage innovations in industrial enterprises, mainly in SME, National Agency for Raising Innovation Attractiveness of Scientific Researches (ANVAR) with combined industrial and commercial status was established. This status means that ANVAR operates as independent concern, but its mission is defined by the Government which grants major share of funds (other definition of the mission – infrastructure establishment acting as state agent on implementation of special programs and empowered to grant incentives). For 25 years ANVAR was the main source for support for innovation companies and scientific establishments, including for patenting abroad (50 % of expenditures for this purpose are covered by the Agency). Since 2004 ANVAR operates using title OZEO and extended its activity profile to grant assistance to SME for development and implementation of technological innovations. Average budget of the program enjoying OZEO support is euro 100 000\(^1\). With the purpose of encouraging public-private partnership one more establishment – National research Agency – was created to coordinate and support fundamental and applied researches.

Under the auspice of Federal Ministry of Education and Researches operates the Federal Agency for Development and Implementation of High-technology Strategies. Its mission is assistance to specific fields of researches in the energy, aerospace machine-building, information and communication technologies sectors, etc. Direct budget support is granted to innovation SME’s emphasizing development of cooperation between scientific establishments and companies, as a rule, in the form of irreversible grant. Maks Plank Society plays an important role in commercialization of research and development results. It established private company Garching Innovation GmbH, which mission is commercialization of research and development results through Maks Plank Society. Earlier Garching Innovation was involved only in registration and commercialization of patents, but since 1990 this company started to render consulting services and support for establishment of spin-off companies by Maks Plank Society. Maks Plank Society is financed mainly by German Federal Government. Similar company was established by Fraunhofer Society - Fraunhofer Venture Group specializing on financing of small scale researches, establishment of new innovation companies and administration of IPR of Fraunhofer Society. Similar practice is applied by Belgian company ‘Sopartec’ performing technology transfer for Louvain University. Additionally to using own investment capital for establishment of new companies, it undertakes expenses for providing patent protection and commercialization of inventions. This serves as important incentive for investors and University departments (since their budgets are not responsible for these expenses). Fraunhofer Venture Group may grant to perspective projects financing in the amount euro 50-150 thousands for finalization of research and development and creation of business model, and amount up to euro 500 thousands in the form of shares or loans – for establishment of new company. Small innovation companies in Germany can benefit from state financial support for patenting the inventions, and the Patent Department assists in promoting development product on the market and its selling. In 1990 Germany launched program of venture capital for small technological enterprises - Beteigungskapital für Technologieunternehmen (BTU). This program is designed to reduce the risk of partners investing venture capital in technological companies. Within Early Stage program oriented to science-intensive companies, venture capital is granted on ‘pre-seeding’ and ‘seeding’ stages of development of technological companies. Similar functions are performed by ERP-EIF Dachfonds fund created in 2005, which renders services specifically to start-up technological companies.

Government programs for attraction of venture capital in Israel are based on experience of ‘Yozma’ program. An eligibility criterion of funds was availability of one Israeli and one reputable American of EU partner. In exchange fund received USD 8 Mio from Yozma fund (remaining USD 12 Mio partners should provide jointly), which in case of project failure they were not obliged to repay. But in the case of project success partners were empowered to repurchase of state share for the same amount and additionally pay interest rate (7 % of profit for this share). In total, private partners received more than 90 % of profit. In some limited form this practice is applied in operations of Fund for Assistance to Small Enterprises in Research and Development Form of Russian Federation (nevertheless, this fund is not venture fund) that presumes three-year process of development of small innovation company, during which support is granted. On the first stage Fund’s resources are granted to develop the product prototype, its testing, patenting, drafting business-plan, enabling to ensure the commercialization of research and development results. Financing of second and third year is subject to attraction of private investments. Financing of research and development activity by the Fund is granted on stage-by-stage basis irreversibly and interest-free.

In Sweden support for research and development commercialization is provided through Swedish Industrial Development Fund (IDF), which grants loans and direct investments in small innovation companies developing products related to priority fields of technological development. IDF provides investments on various stages of project implementation (‘seeding’, initial, business development). At the same time IDF does not provide financing in the form of grants (irreversibly). Namely, until 2007 Technological Bridge Program functioned, oriented towards support of technological companies not separated from leading Swedish universities. In 2005 National Incubators Program was launched with the purpose of increasing the number of new companies performing research and development. Within this program companies on ‘pre-seeding’ stage receive budget support.

Finnish National Fund of Research and Development SITRA assists economic development through direct financing of companies and own projects. Programs of the Fund presume both direct financing of start-ups and investing in regional funds of support of technological companies. SITRA finances companies on venture basis with further exchange for their shares (15-40 %), granting amounts from EUR 0.2 up to 2.0 Mio. Important role in research and development commercialization is played by Finnish Fund of Technologies and Innovation Support Tekes. Starting from 1993 Tekes finances program TULI for launching new high-tech companies established for commercial use of results of scientific researches. At the same time Tekes provides investment financing on early stages of companies’ development, financing of business-plans drafting and development of international cooperation of research establishments. To provide resources, Tekes uses mechanisms of project financing (up to 40 % of the amount) through direct financing; grants to companies (up to 50 % of expenses) in the case where company not just develops new product but performs researches in cooperation with university; granting risk loans (60-70 % of expenses for development of new product or process). Projects are financed for the period up to two years, and in the case of successful results of new product development financing shall be extended for additional 2-3 years in the form of risk loan. Company that received such support is obliged to repay the loan in the case where development was successfully marketed. Main emphasis of program is development of competitive research environment through competitive financing.
2. Legal regulation regarding determination and realization of the priorities for innovation and technological development, R&D, forecasting of scientific, technological and innovation development

1.1. Legislative acts regulating the given sphere


5. The Law of Ukraine “On Priority Areas of Innovation Activity in Ukraine” No 433-IV of 16.01.2003 p. (the new version draft, introduced by the Cabinet of Ministers of Ukraine and assumed as a basis by the Verkhovna Rada of Ukraine in the first reading 21.12 2010 - No 7333)


1.2. Analysis of Legislation

a) Determination and realization of the priorities for innovation and technological development, research and developments

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4 The appropriate foreign experience, specified in the reports of Project PR3, PR4 was used in the course of preparation of the recommendations.
The first of the abovementioned legislative acts are fundamental and determine the whole system of the state regulation in the scientific, technological and innovation development of Ukraine. It is characterized by a certain division between the scientific process and the innovation development in the production sphere. The matter is that the phase of scientific research and development differs from the phase of their commercialization and manufacturing application, by which the innovation is finalized. Correspondingly, the mechanism of the state regulation of research and development process differs from the levers of state influence, which could be applied in the production sphere.

According to the Law of Ukraine “On Scientific and Scientific and Technology Activity”, the priorities of the national policy, specified by the Law of Ukraine “On Priority Areas of Science and Technology Development”, shall be formed. The Law of Ukraine “On Innovation Activity” stipulates the formation of the priority directions of innovation activity, which are phrased in the Law “On Priority Areas of Innovation Activity in Ukraine”.

The Law stipulates that the state scientific and technology programs (SCTP), which are formed on a competitive basis by the central body of the executive power in the sphere of science and innovations and are approved by the decree of the Cabinet of Ministers of Ukraine, shall be the main mechanism of the realization of the priority directions of the development of science and technology. Funds (unfortunately, very scant!) for the realization of such programs were allocated in the course of adoption of the national budget for the next year, which, following the approval of the priority directions, allowed to open competitive bidding initially to determine the list of programs (according to the proposed concepts) and, following the selection of the programs and approval of their concepts by the Cabinet of Ministers of Ukraine, to open competitive bidding to find the best projects directed at the realization of SCTP. It should be noted, that the Cabinet of Ministers of Ukraine adopted a special decree regarding coordination councils for all approved priority directions, which consisted of highly skilled specialists and provided professional approach to the formation of programs.

Instead of this, the Law “On Innovation Activity” determines the innovation programs only as one of the possible means of realization of the innovation priorities (the Article 6 envisages that state regulations in the sphere of innovation activity shall be carried out by way of “formation and realization of national, branch, regional and local innovation programs” alongside with tax stimulation, protection of intellectual property, direct financial support etc.) but provides neither for mechanisms of the formation of such programs nor for such programs fund allocation.

And the regulation in the Article 8, authorizing the Cabinet of Ministers of Ukraine, stipulates that the Cabinet of Ministers of Ukraine shall “prepare and submit a proposal to the Verkhovna Rada of Ukraine regarding the priority directions of innovation activity, state innovation programs and regarding the needed amount of the budget funds for their financing to the Cabinet of Ministers of Ukraine”, by which only complicates the matters. In fact, the Article allows to form none programs at all and limits itself by the statement that innovation priorities are implicitly present in all programs which one could only invent.

Though the Law (Article 9) stipulates, among the authorities of the duly authorized central body of the executive power in the sphere of innovation activity and other central bodies of the executive power, that such a body shall “prepare and submit proposals regarding the priority directions of innovation activity, state innovation programs and regarding the needed amount of the budget funds for their financing to the Cabinet of Ministers of Ukraine”. The constructive essence of this regulation was blocked fully by the fact that the needed amount of the funds had never been allocated by the state budget to the mentioned body in order to form the state innovation programs. The state finance and credit institutions limited themselves to financing different innovation projects.

An attempt to specify the mechanism of realization of the priority directions of the innovation activity and to approve the special status of the state innovation programs was made in the course of the Draft Law of Ukraine “On Priority Areas of Innovation Activity in Ukraine”. The key idea under such Draft Law was

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5 The terminology is not correct to the full extent. Traditionally, it deals with priority directions of applied research, and the directions of engineering and technology development should be put under the Law “On Innovative Activities”.

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introduction of the hierarchy of state priorities (strategic, medium-term at the national level, medium-term at the branch and regional levels) together with different mechanisms of realization which were specific for every level. In principle, this idea was supported at large by the Committee of the Verkhovna Rada dealing with Issues of Science and Education and the Verkhovna Rada of Ukraine but the specific character of these mechanisms was “omitted” in the course of the final editing of the Law. The status of the state innovation programs was another very important omission: the Draft Law stipulates that such programs shall be formed provided that their financing is carried out on a parity basis and the funds from the state budget are allocated provided that the industrial structures, interested in the introduction of the innovations, admit, in the last resort, a half of the needed expenses. Nobody objected to this in the course of discussion regarding this Draft Law but the appropriate regulations are not present in the its final version.

Meanwhile in the acting system of the laws of Ukraine, the mechanism of realization of the priority directions of the development of science and technology are specified more precisely but the mechanism of realization of the priority directions of innovation activity is not determined to the full extent. In fact, the innovation priorities are taken into consideration only while granting a status to the innovation projects which are carried out in the framework of industrial parks (in accordance with the Law of Ukraine “On Special Regime of Innovation Activity of Industrial Parks”) as well as during evaluation of the projects taking part in the bidding to receive financing from the government credit institutions. Besides, the Law “On Scientific Parks” stipulates, that the priority directions of the activities of scientific parks should be agreed with “the directions of the activities specified by the Laws of Ukraine “On Priority Areas of Development of Science and Technology” and “On Areas Directions of Innovation Activity in Ukraine”.

The quality of the wording of the priorities, specified in the Law “On Priority Areas of Development of Science and Technology” and the wording of the directions of the development of science and technology in the Laws of Ukraine and the absence of its content filling, as well as the quality of the wording of the priorities, specified in the Law “On Priority Areas of Development of Science and Technology” and the wording of the priorities, specified in the Law “On Priority Areas of Development of Science and Technology” is another problem as regards the efficiency of the priority policy. Experts are almost unanimous in their opinion that these wordings, as a rule, are so broad that, in practice, they contradict the very idea of priority – it is difficult to find a research issue, which would not comprise at least one of the priority directions determined by the law.

Such state of affairs results from the absence of definition of the very term “priority directions for the development of science and technology” in the Laws of Ukraine and the absence of its content filling, as well as a concrete role in the system of laws regulating national scientific and technology policy. Many of those who formulated proposals regarding priority directions tried to put on the list everything which would be supported by the state, that is the financing of the scientific research and development which do not comprise the determined priorities should be terminated. Hence, they tried to formulate them as broad as possible so that “nobody could be forgotten”.

In its turn, a low level of the innovation culture among administrative personnel results in the fact that they do not perceive the state support of science as a purposeful orientation at the innovation development of the economy, but as a form of charity work, that is as a direction of unproductive expenses in the budget. It is obvious that, under such circumstances, the determination of priority directions also boils down to a question of who deserves a certain social support and who may wait so far.

The new version of the Law of Ukraine “On Priority Areas of Science and Technology Development” adopted by the Verkhovna Rada in September 2010 solves this problem at the theoretical level. The Law contains the following definition: “priority directions of science and technology development are scientifically, economically and socially reasonable directions of scientific and technical development for a period of more than 10 years, to which the priority state support is given for the purpose of forming an effective sector of R&D to ensure the competitive national production, sustainable development, national security of Ukraine and rising of the standards of living”. It follows from this that, apart from priority directions, the non-priority R&D directions have also the right to existence, and the priorities are, in fact, the directions of more concentrated efforts, the breakthrough directions. That is why a purposeful work should be carried out so that the apparatus of public administration would become properly aware of it.

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6 Liquidation of this omission is stipulated in the Law of Ukraine “On Amendments of Certain Some Legislative Acts of Ukraine on Stimulation of Innovation Activity”, submitted for public discussion by the State Committee for Science, Innovation and Informatization.
Precise and reasonable determination of priority directions is directly connected with the problem of determining the amount of state support given to every direction. The acuteness of the problem will be solved if the hierarchy methodology is applied, which was applied for the first time in the Law of Ukraine “On Priority Areas of Innovation Activity in Ukraine” (2003). But the insufficiently precise determination of the mechanisms for realization of the priorities – concrete forms of state influence on providing priority development of appropriate directions of innovation activity – did not allow to make the most of such possibility. Not the half of the formulations of strategic priority directions in the sphere of innovation activity development could be considered to be very good formulations. It is hardly expedient that this Law should contain the following: “The Verkhovna Rada of Ukraine proclaims as a special priority for Ukraine to develop harmoniously human potential, the economy and natural environment of the state”, which is perceived in the context of the Law as a populist slogan, committing nobody to nothing. In quite a number of formulations, the substitution of notions occurred when the branches of economy, in which they are supposed to be realized (machine building, agriculture, transport, building industry, healthcare, production of aircrafts etc), are used instead of the directions of innovation activity. In the new version of the Law, submitted by the Cabinet of Ministers of Ukraine and adopted by the Verkhovna Rada of Ukraine in the first reading 21 December 2010, the attempt to reduce formally the number of priority directions to five priorities lead to the formulation of strategic priority: “Development of high tech industries and technologies in the sphere of transport, adoption of new high-accuracy technologies for producing materials, their processing and joining, creation of nanomaterials industry”. Although the transport, nanotechnologies and joining of materials comprise one and the same unite, the real number of directions is not smaller.

None of the mentioned Laws specify how to adhere to the policy of priorities in case the validity of the lists, approved by the Verkhovna Rada of Ukraine, expired. Such state of affairs took place in Ukraine in 2006 as regards the priority directions in the sphere of science and technology development, which had been approved for a period of five years in 2001. Because of political instability and other causes, the new Law had not been adopted before September 2010. In the country, where the problems of innovation development are the issue for all bodies of the state authority, the validity term of the list adopted in 2001 would be prolonged up to the date of adoption of a new Law. In Ukraine, for a period of 4 years, the formation of state scientific and technical programs in the sphere of R&D priority directions had been terminated. The Ministry of Finance allocated no funds, considering that no programs should exist because the new priorities had not been approved.

Apart from the direct losses in the form of possible but not fulfilled R&D, it lead to more severe degradation of the program and target approach, which to some extent is a world tendency and, in the course of some years, has become a very characteristic feature in Ukraine. The main cause of such tendency is insufficient attention paid to the management of program realization, absence of possibilities for their heads to respond operatively and flexibly to new circumstances, arising in the course of solving problems stipulated by a program, that is optimization of the program by way of introducing changes into application of funds and resources. Should one take into consideration, that, in spite of the high-profile title (“priority directions program”), the allocated resources were really scant, the one would not wonder that as a result of it the formation of state scientific and technical programs gradually started to be considered exceptionally as a means of attraction some additional budget funds to support the work which have been already carried out.

The adoption by the Verkhovna Rada of Ukraine, in March 2003, of the Law of Ukraine “On State Target Programs” contributed to the degradation of the program and target approach. The Law could be considered the masterpiece of red tape thinking, as it contains in great detail all the procedures under which the program projects are agreed, and formal requirements to the contents of the numerous documents as well as the sequence of their passing through the government institutions. As far as the management of their realization, the Article 8 stipulates only that the government client carries out general management and control over the working out of a state target program as well as over the fulfilment of its tasks, that the government client appoints the head of the government target program, whose main duties are operatively to manage and control over working out and fulfillment of the program, and presents proposals regarding introducing amendments into the state target program, as well as regarding its termination (the Article 12 also stipulates that such changes could be introduced only by the decision of the body which approved the program, that is the Cabinet of Misters of Ukraine). So one should not be surprised that a Ukrainian head of SCTP was very impressed when he, having visited FRG, got to know that the funds for realization of the similar programs in this country are transferred at the account of the scientist, appointed by the head of the
program, who personally is responsible for the expediency of their spending. Ukrainian scientists have never enjoyed such a state confidence and, naturally, could not experience such a great responsibility for attaining the aims of the program.

As far as the Scientific and Technical Councils are concerned, the Law does not even mention them. But it should be said that “Procedures for Working out and Fulfilment of the State Target Programs”, approved by the Cabinet of Ministers of Ukraine, contain the following Item: “The Government Client forms, in case of need, a Coordination Council as a consultative and advising body (for the programs in the sphere of scientific and technical issues – the Scientific and Technical Council), comprising the representatives of the Government Client, the interested bodies of the executive authority, National and Branch Academies of Science, enterprises, institutions and organizations participating in the fulfillment of the program. The Coordinative Council (scientific and Technical Council) is headed by the head of the program. The Composition of the Council is approved by the Government Client following submission by the head of the program”. The very wording of the item of this regulative document testifies to the fact that its authors doubted the expediency of formation of scientific and technical councils within such programs, and admitted their formation (“in case of need”) only in the form of a representative body which agrees the interests of the institutions and organization involved on the fulfillment of the program. They do not see any need in the formation of the scientific and technical council as a brain centre of the program, which is called to deliberate its essence and structure, thoroughly analyse the progress of the program, find the ways to optimize the attainment of the program aims.

One might dwell on the availability of some legislative provision for forming national scientific and technical programs before February 2006. According to the Law of Ukraine “On Foundations of State Policy in the Sphere of Scientific and Technical Activity”, adopted in 1991, making the list of such programs and financing every of them was in the reference of the Verkhovna Rada of Ukraine7. In February 1994, the list of the national scientific and technical programs was approved by the resolution of the Verkhovna Rada of Ukraine. The List contained three programs: “Energy Resources”, “Agricultural and Industry Complex” and “Materials and Substances”. The attention should be paid to the fact that the list included the main goals of every program, the directions of their realization and stipulated that the first program should receive 10% of the budget funds allocated for the development of science, the second – 13 %, and the third – 12 %. Apart from that, the resolution stipulated that up to 50 % of yearly revenues of the innovation funds of the interested ministries and institutions shall be allocated to realize the mentioned national programs.

Hence, the legislative body of Ukraine resolved that at least 35 % of all R&D budget funds should be allocated to these three national programs. It should be noted that these programs corresponded only with the three out of the seven priority directions, stipulated by the Resolution of the Verkhovna Rada of Ukraine of 16 October 1992. It could be understood that even larger amount of money would be allocated to science in order to realize all the priorities (but during none of the next years, it came true: the largest amount of money was allocated to the programs according to all the seven priority directions in 1995 – 7.3 % of all the funds, stipulated in the state budget for R&D financing, and beginning from the year 2001 – less than 1%).

As far as forming national scientific and technical programs is concerned, a sort of problem occurred. In order to avoid the long term and labour consuming formation, agreement and approval of such programs the following wording was adopted: “national scientific and technical programs shall be realized through the fulfilment of the state scientific and technical programs on the R&D priority directions (it meant that there was no necessity to create any national programs!)”. Though some of the national programs were worked out, in particular, in 1996, “National Energy Program of Ukraine for a Period up to the year of 2010”. It was quite a profound document (though there were experts who criticized some of its aspects). But the resolution of the Verkhovna Rada of Ukraine, as a result of parliamentary hearings, said: “The National Energy Program up to the year 2010 does not have efficient mechanisms of realization, in particular, any real financial provision”. In 1998, the Verkhovna Rada of Ukraine approved “The National Program of Computerization” by a separate Law, but, again, the necessary funds were not allocated for efficient realization of the program.

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7 The regulation was preserved in the Law “On Scientific and Technical Activity”, which substituted the given Law in 1998.
The very title “national program”, taking into consideration the real attitude of the Ministry of Finance to these documents, became somewhat sardonic. Maybe, precisely for these reasons, a special Law “On Amendments into Certain Legislative Acts of Ukraine in Connection with Adoption of the Law of Ukraine ‘On State Target Programs’”, by which the very term “national program” was eradicated from the Ukrainian legislation. The Law introduced amendments into 27 legislative acts in order to withdraw the word “national” from them or, in the last resort, to substitute it with the term “nation-wide” and to add the word “target” to the word “program”.

In Ukraine, during the years of independence, the legislators or the government approved hundreds of scientific and technical and social and economic programs (with a large scientific and technical component), and the overwhelming majority of them were directed at solving really important and urgent problems. But none of them influenced seriously the development of economy. The reasons are as following:

1. The practice was established, under which the government decision and even the law on approval of the program (in spite of approval of the allocations for its fulfilment) did not mean that the Ministry of Finance would find it necessary to finance them. As a result, none of them was financed to the already approved extent. A number of programs (for example, a program for introducing high technologies, which was approved by a special law) received only less than 1 % of the allocations provided for.

2. Degradation of the very target-program approach application mechanism has taken place: an appropriate attention is not paid to the mutually agreeing and mutually stipulating tasks of the program in the course of its formation. The program process, in fact, is deprived of any real management, and the heads of the programs do not have any real levers of control over the process of its realization.

The priorities of scientific and technological and innovation policy are formed and determined, practically, in all EU countries, though the approaches to their forming and regulative approval of them are different. At the same time, the analysis shows that, in the most cases, their forming methods resemble the methods which are applied in Ukraine – it is true as regards the priorities of a separate countries and the common priorities of EU. The key difference is that, proclaiming a priority in Europe, as a rule, the decision on the amount of financial support and on the realization strategy is made and then the government exerts every effort to realize these decisions. Such a practice is not characteristic of Ukraine which has some sort of “divided responsibilities”: some institutions form the priorities and the other institutions make a decision regarding their support or just ignore the laws adopted on this issue.

b) Forecasting of scientific and technological and innovation development

The regulative legal provision for the forecasting of the scientific and technological and innovation development in Ukraine started to form itself as early as 1991. The Law of Ukraine “On Foundations of State Policy in the Sphere of R & D” contained the following clause: “The integrated prognoses for social and economic and scientific and technical development of Ukraine are a foundation for determining the priority directions in the sphere of R&D” (Article 13).

In the year 2000, the Law of Ukraine “On State Forecasting and Working out Programs for Economic and Social Development of Ukraine” was adopted. Its Article 2 says that the science character principle is one of the key principles of the state forecasting. In spite of the fact that the policy for innovation development of economy had been proclaimed at the highest state level many times before the adoption of the Law, the scientific and technological forecasting, which would determine the landmarks for social and economic development pace, was totally ignored in the Law. Article 4 of the Law contains a list of possible forecasting documents, with the exception of technological prognoses. And the scientific and technical potential is mentioned only in the articles regulating regional prognoses. It testifies to the fact that the workers of the Ministry of Economy, who prepared the draft of this Law, did not consider the science and new technologies as a factor of economic and social development.

The Article 2 of the Law “On Priority Areas of Science and Technology”, adopted in 2001, says: “Priority areas of the development of science and technology are formed for a period of five years on the basis of forecasting for the development of science and technology …” Unfortunately, this regulation has never been realised in practice.
Decree of the Cabinet of Ministers of Ukraine No 1086 of 25 August 2004 “On Approval of State Program for Forecasting of Scientific and Technological and Innovation Development for a Period from 2004 to 2006” provided for the organization of forecasting and analytical research in order to:

“create the system of forecasting of scientific and technological and innovation development of Ukraine, as well as scientific justification for the state social and economic policies;

study the modern directions of development of science and technology, as well as the advanced directions of innovation activity”.

As a result of fulfilment of this program with a participation of 700 experts, the proposals regarding the kind and character of the permanent system of scientific and technological forecasting were worked out and the precise priority directions for R & D were proposed. But they, in fact, were not taken into consideration in the course of preparation of the appropriate laws. The Article 4 of the Law of Ukraine “On Priority Areas for the Development of Science and Technology”, adopted in 2010, says: “For the purpose of forming priority directions for the development of science and technology, the Cabinet of Ministers of Ukraine with a participation of the National Academy of Science of Ukraine, branch academies of science, central bodies of the executive authority, shall work out and carry out the state target program for the forecasting of scientific and technological and innovation development of Ukraine according to the Law of Ukraine “On State Target Programs”. It means that the authors of the Law rejected the proposals regarding creation of the permanent system of technological forecasting and confirmed legally the necessity only periodically to form and approve, by the Cabinet of Ministers of Ukraine, the forecasting and analytical programs with all bureaucratic procedures, provided for by the Law “On State Target Programs”. The practice testifies that compliance with these procedures takes more than a year. Thus, in 2006, following the completion of the abovementioned program of forecasting, the functioning of the new and more modest program, which came in the stead of the previous program, began only in 2008.

This approach differs drastically from the European one, where the foresight research has been conducted for many decades, and, recently, the so called European technology platforms – permanent structures, which attract a wide circle of the researchers, business and authority representatives in order to find the most promising directions of scientific, technological and innovation development (36 European technology platforms are in function now) – are of paramount importance.

1.3. Issues to be solved

1. The system of scientific, technological and innovation priorities needs to be drastically improved (introduction of amendments into the laws in force is necessary) and the consistent realization of the regulation stipulating formation of the priority directions on the basis of profound forecasting and analytical studies should be carried out. It is expedient to introduce into the R&D priority directions a more distinct hierarchic structure, resembling the one stipulated by the Law for innovation priorities. It is necessary that the bulky comprehensive wordings and, all the more, substation of notions (for example, instead of directions of innovation activity, the branches of economy are mentioned) should be avoided in the long-term strategic priorities.

2. It is necessary to work out and legally provide for the mechanisms of realization of R&D priority directions and innovation activity (their absence is one of the largest drawback in the regulative and legal control over the state policy in this sphere).

3. One of the most efficient mechanisms for realization of this policy could become the application of program and target approach, as an ideology for the most expedient application of the available funds, but in order to achieve this, it is necessary to have the legislative provision for application of the main principles of such approach both in the stage of forming scientific and technical programs and in the stage of their realization. The Law “On State Target Program”, which, in fact, fails to stipulate a flexible management of this process, should be improved substantially.

4. It is a matter of profound importance that Ukraine should stipulate that the public administration be based on the modern principles of strategic planning and management, and should work out and regulate, by a special law, efficient mechanisms for realization of strategic concepts and programs, as well as provide for the responsibility of the bodies of executive authority and concrete civil servants for the realization of such concepts and programs.
5. It is necessary to take efficient and goal-oriented measures, directed at rising the standards of innovation culture among executive personnel: many workers of the state apparatus are not aware to the full extent that Ukraine has no alternatives but to develop its economy in terms of innovations and that the corpus of laws regulating the sphere of science and innovations are interconnected and should form a single system. That is why the changes and amendments, introduced into these laws, quite often contradict their concepts and violate the systemic legislative field.
3. Legal analysis of gaps in legislative regulation, co-ordination of legislative acts, their evaluation regarding legal status of subjects of innovation system

1. Analysis of activity regulation of subjects of innovation system of Ukraine

1.1. Acts regulating the field of legal relations:

1.1.1. Codes:


1.1.2. Laws:

1. Law of Ukraine “On Innovation Activity” № 40-IV of 04.07.2002 (last amended 23.06.2010) \[5\].

\[8\] Figures in brackets serve as codes for references to statutory acts in the text.
17. Law of Ukraine “On State Program of Economic and Social Development of Ukraine for 2010” No. 2278-VI of 20.05.2010 [21].

18. Law of Ukraine “On State Target Programs” No. 1621-IV of 18.03.2004 [22].


21. Law of Ukraine “On Institutes of Mutual Financing (Share and Corporate Investment Funds” No. 2299-III of 15.03.2001 (last amended 01.07.2010) [25].


24. Law of Ukraine “On Education” No. 1060-XII of 23.05.1991 (as amended) [28].


1.1.3. Acts of the Verkhovna Rada of Ukraine:


1.1.4. Decrees of the President of Ukraine:


1.1.5. Acts of the Cabinet of Ministers of Ukraine:

1. Decree of the Cabinet of Ministers of Ukraine “On Approval of the Order of Agreement of Decision on Creation of Scientific Park” No. 93 of 03.02.2010 [42].

2. Decree of the Cabinet of Ministers of Ukraine “On Approval of the Order of Receipt of the Amounts of Import Duty to Special Accounts of Technology Park, its Participants and Joint Ventures, Use of the Mentioned Funds and Control Over their Expenditure” No. 118 of 02.02.2011 [43].


4. Decree of the Cabinet of Ministers of Ukraine “On Approval of the Procedure of State Accreditation of Individuals and Legal Entities for Conduct on Constant Basis of Intermediary Activity in the Sphere of Technology Transfer” No. 861 of 26.06.2007 (last amended 04.11.2009) [45].

5. Decree of the Cabinet of Ministers of Ukraine “On Approval of Minimum Rates of Remuneration to Authors of Technologies and Persons who Carry out Transfer” No. 520 of 04.06.2008 [46].

6. Decree of the Cabinet of Ministers of Ukraine “Some Issues of Implementation of the Law of Ukraine “On State Regulation of Activity in the Sphere of Technology Transfer” No. 995 of 01.08.2007 [47].


8. Decree of the Cabinet of Ministers of Ukraine “On Approval of the Procedure of Development and Execution of State Target Programs” No. 106 of 31.01.2007 (last amended 25.03.2009) [49].


13. Resolution of the Cabinet of Ministry of Ukraine “On Entering Changes to Item 14 of the Procedure of Consideration, Expertise and State Registration of Projects of Technology Parks” No. 1310 of 08.11.2007 [54].

14. Decree of the Cabinet of Ministers of Ukraine “On Approval of the Procedure of Monitoring and Control over Implementation of Projects of Technology Parks” No. 517 of 21.03.2007 [55].

15. Decree of the Cabinet of Ministers of Ukraine “Some Issues of Organization of Activity of Technology Parks” No. 1657 of 29.11.2006 [56].


18. Decree of the Cabinet of Ministers of Ukraine “On Approval of the Regulation on Commission on Arrangement of Activity of Technology Parks and Innovation Structure of Other Types” No. 1219 of 06.08.2003 (as amended) [59].

19. Decree of the Cabinet of Ministers of Ukraine “On Approval of the Regulation on Procedure of Creation and Functioning of Technology Parks and Innovation Structures of Other Types” No. 549 of 22.05.1996 (as amended) [60].

20. Decree of the Cabinet of Ministers of Ukraine “On Statutory Acts Regarding Provision of Implementation of the Law of Ukraine “On Special Regime of Innovation Activity of Technology Parks” N 2311 of December 17, 1999 (as amended; the Resolution adopts the “Regulation on Procedure of Consideration and Approval of Priority Directions of Activity of Technology Park” and “Procedure of Consideration, Expertise and State Registration of Projects of Technology Parks”) [61].


22. Decree of the Cabinet of Ministers of Ukraine “Issues of State Innovation Financial and Credit Organization” No. 979 of 15.06.2000 (last amended 07.02.2011) [63].


24. Decree of the Cabinet of Ministers of Ukraine “On Approval of the Regulation on State Higher Educational Institution” No. 1074 of 05.09.1996 (as amended) [65].

25. Decree of the Cabinet of Ministers of Ukraine “On Approval of the Procedure of Formation and Performance of Order for Conduct of Scientific Researches and Developments, Project and Design Works on Account of the Funds of State Budget” No. 1084 of 25.08.2004 No. 1084 (as amended) [66].


27. Decree of the Cabinet of Ministers of Ukraine “On Approval of the List of Paid Services, which May be Provided by Educational Establishments, Other Institutions and Educational Institutions that Belong to State and Public Form of Ownership” No. 796 of 27.08.2010 (as amended) [68].

28. Resolution of the Cabinet of Ministers “On Approval of the Regulation on National Scientific Center” No. 174 of 19.03.1994 No. 174 (as amended) [69].

29. Decree of the Cabinet of Ministers of Ukraine “On Approval of Concept of State Target Economic Program “Creation of Innovation Infrastructure in Ukraine for 2008-2012” No. 381-of 06.06.2007 [70].


32. Decree of the Cabinet of Ministers of Ukraine “On Transfer to the MES of Authorities for Approval of the Order of Keeping State Registry on Technology Transfer” No. 252-p of 06.02.2008 [73].

1.1.6. Departmental statutory acts:

1. Order of State Agency of Ukraine on Investments and Development “Issue of Competitive Selection of Innovation and Investment Projects for their Financing on the Account of the Funds of State Innovation Financial and Credit Institution” No. 122 of 23.11.2010 [74].

2. Order of State Committee of Ukraine on Science, Innovations and Informatization “On Approval of the Procedure of Organization and Accompaniment of Performance of Works According to the Agreements for Creation (Transfer) of Scientific-Technical Products” No. 100 of 18.11.2010 [75].

4. Order of State Agency of Ukraine on Investments and Innovations “On Organization of Advanced Training of Specialists in the Sphere of Investment and Innovation Activity” No. 61 of 04.08.2008 [77].

5. Order of the Ministry of Education and Science of Ukraine “On Approval of Procedure of State Registration of Agreements on Technology Transfer and Keeping of State Registry of Agreements on Technology Transfer” No. 409 of 14.05.2008 [78].


8. Order of State Agency of Ukraine on Investments and Innovations “On Organization of Advanced Training of Specialists in the Sphere of Investment and Innovation Activity” No. 61 of 04.08.2008 [77].


12. Decision of National Security and Defense Council of Ukraine “On Rights and Protection of Intellectual Property and Enhancement of its Role in Formation of the National Wealth” of 21.11.2008 (Decree of the President of Ukraine on Decision of NSDC was not taken) [86].


15. Order of State Committee of Ukraine on Science, Innovations and Informatization “On Approval of Model Charters and Methodological Recommendations” No. 150 of 27.12.2010. (Annexes: Methodical recommendations regarding creation and activity of innovative Business Incubator; Methodological recommendations regarding creation and activity of centres of technology transfer; model charter of the Centre of technology transfer (legal entity); model charter of Centre of technologies transfer (not legal entity) [89].

1.2. Analysis of legislation

In general in Ukraine exists the relevant legal framework that determines legal status of subjects of innovation system, and which allows to function within the frame legislation. At the same time, efficiency of such functioning is not high, which is promoted to by not perfect legal mechanisms and non-concordance between the acts of legislation of various spheres. Besides, there are no legal tools in Ukraine, which would promote development of innovation business incubators, centres of innovation development, centre of technology transfer, venture funds and other organizational and legal forms, that in general form the national infrastructure of innovation system.

Moreover, issues related to determination of the circle of subjects of innovation legal relations and their legal status, is the key during development of mechanism of legal regulation of the national innovation.
Taking into consideration provisions of the EC of Ukraine [2], Article 1 and Article 5 of the Law of Ukraine “On Innovative Activity” [5], provisions of Decree of the Cabinet of Ministries of Ukraine “On Approval of Concept of Development of the National Innovation System” [72], other statutory acts of Ukraine [including 1-2, 7, 11-12, 24-25, 31-32, 38-39, 71, 89], as well as provisions of analysed scientific researches, it is necessary to state the following list of participants of innovation legal relations:

(a) subjects of innovation activity, which are participants of innovation-production, organizational and innovative and internal innovative relations;

(b) subjects of innovation infrastructure;

(c) state authorities and local self-government authorities as well as other subjects, having organizational and economic competence regarding subjects of innovation activity in innovation sphere;

(d) owners of right of property for objects of intellectual property, ensuring keeping of the introduction of the latter to economic circulation and possibility of their realization as innovations.

**Main problems related to legal status of the mentioned subjects.**

System of state management and regulation of innovation process in the state is not perfect, there is distribution of functions of management on various power subjects, single state centre of management and coordination of efforts is absent.

Thus, bodies, to which tasks on provision of realization of state innovation policy are assigned, include:

- State Agency on Investments and Management of National Projects of Ukraine;
- State Agency on Science, Innovation and Information of Ukraine;
- State Agency of Ukraine on Management of State Corporate Rights and Property;
- Ministry of Education and Science, Youth and Sport of Ukraine;
- Ministry of Economic Development and Trade of Ukraine (has separate adjacent authorities in this sphere);

- other state authorities, carrying out separate powers on realization of innovation policy within its competence.

In general, bodies of state management, engaged in realization of state innovation policy, are represented by various departments, competence between which is not unambiguously divided, clearly separated and even often is duplicated.

**Consequences of such situation** are absence of positive results on the way of achievement of tasks determined by the state, impossibility to determine responsible persons, “selling out” and non-target use of public funds.

In such conditions it is impossible to count on formation of really unified state innovation policy.

It should be noted that performed at the end of 2010 – beginning of 2011 administrative reform partially solves issue regarding differentiation of competence between executive authorities, but not in full.

**Technoparks**

Based on the analysis of provisions of the EC of Ukraine [2], Law of Ukraine “On Innovation Activity” [5], Law of Ukraine “On Special Regime of Innovation Activity of Technology Parks” [7], Decree of the Cabinet of Ministers of Ukraine “On Approval of the Regulation on Order of Creation and Functioning of Technoparks and Innovation Structures of other Types” [60], Decree of the Cabinet of Ministers of Ukraine “On Approval of Concept of Development of National Innovation System” [72], other statutory acts of Ukraine [including 8, 43, 54-56, 59, 61, 70, 80], as well as researches, that were performed by scientists in this field, may be determined the following blocks of problems related to legal status of technoparks of Ukraine.
Problems related to determination of legal nature of technopark.

Scientific literature does not have single view on whether it is necessary to assign technopark to subjects of innovation activity (that is to such structure, which develops, produces and realizes innovation products and (or) products or services), or to subjects of innovation infrastructure (that is to such structures, which provide services (financial, consulting, marketing, informative and communicative, legal, educational etc.) on provision of innovation activity, that is do not create independently innovation product/products etc.).

There is not unity in determination of nature of technoparks and in the effective statutory acts. Thus, in particular, in the Law of Ukraine “On Innovation Activity” [5] technoparks are assigned to innovation companies, that is such structures, which develop, produce and realize innovation products and (or) product or services, that is to subjects of innovation activity. At the same time according to the Convention of development of the national innovation system (Decree of the Cabinet of Ministers of Ukraine “On Approval of Concept of Development of the National Innovation System”) [72] technopark together with scientific parks, techno polices and business incubators etc are assigned to subjects of innovation infrastructure.

There is no unity in determination of organizational and legal form of technopark.

Thus, according to the Law of Ukraine “On Innovation Activity” [5], Law of Ukraine “On Special Regime of Innovation Activity of Technology parks” [7], Resolutions of the Cabinet of Ministers of Ukraine “On Approval of the Regulation on Order of Creation and Functioning of Technoparks and Innovation Structures of other types” [60] technopark is either legal entity (innovation company) or group of legal entities, acting according to the agreement on mutual activity.

Besides, according to Article 403 of the EC of Ukraine [2] and Article 3 of the Law of Ukraine “On General Fundamentals of Creation and Functioning of Special (Free) Economic Zones” [30] technopark is in general positioned as one of types of special (free) economic zones. Thus, in general as territory with special regime of activity.

There are problems related to determination of legal capacity of technoparks.

As in the Law of Ukraine “On Special Regime of Innovation Activity of Technology Parks” [7] this issue is not assigned any word, this provides grounds for technoparks of general legal capacity according to provisions determined by the CC and the EC of Ukraine [1, 2].

However, in opinion of experts, it is hard to agree with such position of the legislator as the mentioned structure due to its nature should be determined as subject with special status.

There are problems related to activity of such form of technopark as group of persons acting on the basis of agreement on mutual activity.

First of all, in case of choice of this very form of organization of activity of technopark, the latter according to Article 55 of the EC of Ukraine [2] cannot be recognized as economic subject.

Second of all, according to provisions of the Law of Ukraine “On Special Regime of Innovation Activity of Technology Parks” [7] the agreement on mutual activity of participants of technopark remained non-adjusted set of important for activity of the latter issue. Among them should be named absence of fixing of legal grounds of possible termination of activity of technopark and its liquidation as well as the very procedure of liquidation of technopark. The thing is that the last aspect is assigned according to item 2 of Article 1 of the Law in opinion of the very participants of technopark and should be determined in the agreement on mutual activity.

Legal consequences of termination of term of agreement on mutual activity are not determined, if such legal fact will occur prior to expiration of performance of registered project of technopark. Besides, it should be worth noting that by the law it should lead to liquidation of technopark, however, this very situation remains not changed that can be deemed permissible, taking into consideration that role of technoparks, which is assigned to them by state for promotion of processes of scientific and technical and innovation development.

Besides, contractual relations between participants of technoparks are not exhausted by the very agreement on mutual activity – in general they have complex nature, as they are supplemented by various
legal acts for implementation of project. As a result, they establish “multi-layer” relations, which however are interrelated and create system unity of successful implementation of innovation project. Such mutual conditionality requires drawing of attention of the legislator to the contractual aspects of operation of technopark.

Particular form of technopark as groups of economic entities without availability of status of legal entity causes the necessity of regulatory determination of issues related to the responsibility of participants of technopark against obligations on project implementation. Besides, it is sufficient to fix the rule on keeping obligations of the participants of technopark in case of withdrawal of participant from technopark (withdrawal from agreement on mutual activity) prior to termination of implementation of project, for which performance this agreement was concluded.

Another gap in adjustment of activity of technoparks is absence in the Law of provisions on distribution of rights to intellectual property objects and innovation products between participants of technopark. Besides, if regarding the first objects gap is filled in via addressing general provisions on intellectual property rights determined by the CC of Ukraine [1], then regarding innovation objects, participation in creation of which is taken by several subjects, such detailing would not impede in relation to full legislative uncertainty regarding them aimed at prevention of disputable situations.


The mentioned regime actually is formed in receipt by technoparks, their participants and joint ventures of certain concessionary terms for innovation activity performed by them. According to part 1 of Article 3 of the mentioned Law special regime of innovation activity is implemented for technopark for the term of 15 years and acts during performance of its projects.

However, such regime is de-facto extended not to all activity of technoparks, their participants and joint ventures – it relates only terms and conditions of performance of certain, registered project of technology park. In other words, special regime is provided not to innovation operation of technopark and performers of its project in general, and only the relevant project, which underwent expertise and regarding which was received certificate on its state registration. Thus, actually it should be told about not special regime of innovation activity of technopark, and on special regime of performance of innovation project of the latter.

General provision did not change even in relation to approval of the Tax Code of Ukraine [3].

Also we cannot omit available legal uncertainty, gaps and collisions related to determination of special regime of innovation activity for technoparks. Thus, registration of technoparks is assigned to competence of central body of executive power on science, however ground for this is their inclusion to the list of technoparks, indicated in preamble of the Law of Ukraine “On Special Regime of Innovation Activity of Technology Parks” [7], that actually means necessity of entering changes to the Law, and it is competence of the Verkhovna Rada as senior legislative body of the state. Thus, provision on competence on registration of technoparks is ambiguous. The mentioned issues are partially solved on the level of bylaw regulatory and legal regulation (for example, see “Regulation on Order of Creation and Functioning of Technoparks and Innovation Structures of Other Types” [60], “Regulation on Order of Consideration and Approval of Priority Directions of Activity of Technology Park” and “Order of Consideration, Expertise and State Registration of Projects of Technology Parks” [61]).

Besides, use of the terms and conditions of special regime during implementation of innovation projects was restricted for technopark by 15-year term. However, certificate on registration of project of technopark, which is ground for implementation of special regime, is valid during the period of implementation of project of technopark, but not more than 5 years. It should be noted that the aforementioned Law of Ukraine does not provide for possibility of prolongation of term of certificate or receipt of the new one in case if real term of performance of project does not exceed five year term and term of activity of technopark has not expired yet.

Also, according to provisions of the Law implementation of innovation project may be performed not only due to the very technopark, but also by the way of creation of joint enterprise, as well as by engagement
of co-performers and producers of products. However, in the aforementioned Law there is actually absent determination of legal status for this category of subjects involved into implementation of project of technopark, not determined legal grounds for their participation in the project.

In general availability of the aforementioned problems, as well as the fact that statutory acts, which regulate activity of technoparks, were amended not once, which cancelled and supplemented benefits granted to these structures, does not promote regular and full indicated subjects of NIS.

Techno policy

Regarding functioning of such innovation structure in Ukraine we can state the following.

Till now no techno policy was created in Ukraine.

Experts suppose that reason for this is, first of all, the fact that in Ukraine there were no so-called scientific towns, pertaining to historical development of science and education of other countries. Secondly, world experience of creation of techno polices solely on state initiative, for example, such as techno policy Tsukuba in Japan or techno policy Taidok in Southern Korea, appeared to be functionally incapable associations. More successful techno policy of Japan Kanzai appeared spontaneously; considerable role in its creation played initiative of large Japan corporations.

Now Ukraine does not contain any innovation active territories, which would be investment attractive for domestic and foreign investors, and support of state in today complicated economic conditions is able only to apply certain promoting mechanisms for restricted circle of persons and for now cannot provide considerable financial investment for implementation of initiative of creation of techno policy, which requires considerable investments, that may be not sufficient in Ukraine at all.

Thirdly, Ukrainian legal framework (in particular, the EC of Ukraine [2], Law of Ukraine “On General Fundamentals of Special (Free) Economic Zones Creation and Functioning” [30], Law of Ukraine “On Innovation Activity” [5] etc.) determines legal regime of functioning of techno policy, element composition of regime of which, determined by various laws, does not coincide and is not correlated with each other, that not only complicates application of the effective legislation of Ukraine regarding creation of techno policies, but makes it impossible to apply the effective legislation of Ukraine regarding creation of techno policies and makes its use impossible at all. Institutional and legal realities in Ukraine will not allow simultaneous combination of such important components of innovation development of state as education and science with regional principle of organization of innovation and active associations.

So, for example, on legislative level, as in case with technoparks, there is not unity in determination of their nature. According to the provisions of the EC of Ukraine [2] and the Law of Ukraine “On General Principles of Special (Free) Economic Zones Creation and Functioning” [30] techno policy is assigned to one of types of FEZ. In its turn, Law of Ukraine “On Innovation Activity” [5] assigns these structures to legal entities, in particular, - innovation companies (Article 1).

The first attempt of creation of the very techno policy on the basis of the National Technical University of Ukraine “Kyiv Polytechnic Institute”, purpose of functioning of which should have become promotion of activation of R&D and innovative activity of higher educational institutions, improvement of results of domestic sector of R&D via increase of share of R&D researches, aimed at creation of new types of innovation products, on the basis of the effective Ukrainian legislation ended with refusal from application of this very type of innovation structure and organization in Ukraine of the first scientific park “Kyiv Polytechnic”.

Scientific parks

The first law, which established statutory rules regarding order of creation and activity of such type of innovation structures, as scientific park, became Law of Ukraine “On Scientific Park “Kyiv Polytechnic” [12]. Besides, drawbacks and obvious legal collisions contained in this law, were reproduced in the basic Law of Ukraine “On Scientific Parks” [11]. Legal status, authorities, tasks of activity are detailed in bylaws [in particular, 42, 50, 53, 71-72, 75].
Certain peculiarity of the mentioned two laws on scientific parks is that for the first in Ukraine in regulatory document there is indicated on determination of legal regime of rights of property on technologies and objects of intellectual property rights created with attraction of the funds of the State Budget of Ukraine, however Article of the law contains banquet regulation of the law, in which it is determined that the order of restriction of use and disposal of such objects of intellectual property rights is determined by the law, which should be developed and adopted. At present such law is absent in Ukraine. These issues are not regulated in the effective Budget Code of Ukraine [4].

The main issue is legislative recording of guarantees of storage and efficient use of OIPR, created on the account of budget funds.

Legal ground for acquisition is necessary as well as legal mechanism of implementation of the right to use developments for “own needs” by subjects, which efforts were realized, but intellectual property rights belong to the state; terms of transfer of property rights for objects, created with involvement of budget funds, to scientific park and its partners with determination of status of rights to patenting of invention etc. in Ukraine and abroad; granting irrevocable license and license for use of technologies or other objects of intellectual property rights, created for budget funds, other commercial structures; distribution of the received income from license payments between state, developers of objects of intellectual property rights, users of technologies and other developments, inventors; responsibility and consequences of non-use and non-attraction into economic circulation of technologies, other objects of intellectual property rights, created for budget funds if rights for such objects are granted to their developers.

Issue of relations between educational and scientific organizations and scientists regarding disposal of objects of scientific works and other objects of intellectual ownership, being result of intellectual researches is not fully regulated. Their legal nature may differ – such objects may be created under the agreement or in process of performance of labour function, and also created not in relation to labour activity. For solving the mentioned issue it is necessary to determine regime of protection and security of scientific works. First of all, the point is that such objects may not contain objects of patent security and then they will be protected only by copyright that, as known, protects form. Today, the most important is the very content of scientific information, containing objects of scientific works and which, mainly, is not protected. Secondly, both the Law of Ukraine “On Scientific Parks” [11] and the Law of Ukraine “On Scientific Park “Kyiv Polytechnic” [12] for overcoming available collision, when determined by the law principle of recognition of property rights to created intellectual result disregards rights of their authors, require bringing into compliance with the requirements of the civil legislation regarding distribution of property rights to objects of intellectual property rights between investor, performer of project and creator.

**Venture funds**

In the effective legislation of Ukraine venture funds are elements of system of institutes of joint investment introduced by the Law of Ukraine “On Institutes of Joint Investment (share and corporate investment fund)” [25]. According to the Law venture fund – non-diversified institute of joint investment (hereinafter – IJI) of closed type, which performs solely private (closed) placement of securities IJI among legal entities and individuals. Available situation confirms that venture funds operating in Ukraine do not perform those functions inherent to them in international practice.

Besides, for full value functioning of venture funds in Ukraine it is necessary to introduce set of organizational and legal measures. Thus, for attraction to investment of venture entrepreneurship of not only legal entities but also individuals it is necessary to create system of the relevant guarantees from the side of the state and from the side of municipal authorities and introduce incentive mechanisms of tax benefits, which are not clearly indicated in the Tax Code of Ukraine [3].

Other direction of expansion of circle of potential investors of projects is creation of economic and legal and organizational and legal terms and conditions of involvement to investment of pension funds.

Legislation effective in Ukraine does not provide for participation in venture funds of such institutional investors, being insurance companies and pension funds and the very network of pension funds in the country is not sufficiently developed and activity of the very private pension funds and functioning of venture funds in general is aimed rather at use for implementation of speculative schemes of management of property and optimization of tax burden of their participants than at implementation of investment function of these instruments aimed at receipt of investment income.
To provide liquidity of venture business there is necessary availability of not only developed stock market but also other possibilities of implementation of shares of innovation enterprises, unknown to wide circle of buyers. In this regard, using experience of other states, it is sufficient to create the Ukrainian Association of exchange dealers with system of automatic quotation, that will allow to conclude agreements through systems of telecommunications on the whole territory of Ukraine.

The need to create effective mechanism of promotion of venture investment by the funds of local budgets with perspective of organization of network of regional funds, which would provide new companies not only with financial assist, but also will carry out highly qualified supervision of their activity is very important. Real investment sources of venture entrepreneurship could become funds of the Bank development.

An interesting form of promotion of risky financing is the possibility of provision of state guaranties against investments of venture funds of small business in small technological firms.

Activity of venture structures, as principally new organizational form of facilitation of R&D progress, is closely related to aggregate of legal relations in the field of intellectual property. Experts point out that principal meaning has solving of issue regarding joint ownership of the rights to intellectual property by the employee and the employer. In this regard, another ground is determined, which demonstrates actualization of the necessity in adoption of the Law on “official” objects of intellectual property rights, that is, on objects of intellectual property rights created during performance of labour agreement.

**Centres of technology transfer**

Legal status, task and order of functioning of centres of technology transfer are determined by the effective legislation of Ukraine. Basic law is the Law of Ukraine “On State Regulation of Activity in the Sphere of Technology Transfer” No. 143-V of 14.09.2006 [10]. Issue is regulated also by the Decree of the Cabinet of Ministers of Ukraine “Some Issues of Realization of the Law of Ukraine “On State Regulation of Activity in the Sphere of Technology Transfer” No. 995 of 01.08.2007 [47], other bylaws [in particular, 34-35, 38-39, 45-46, 50, 52-53, 72-73, 75, 77-78, 81-83, 89].

At the same time, in the process of formation of the national innovation system, it is necessary to further create actually little distributed and weak action centres of transfer, which are designated for determination in scientific organizations of directly commercially attractive researches and launching them to innovation cycle, which output will be the requested good.

It should be noted that at present in Ukraine activity on commercialization of objects of intellectual property created both within the aforementioned institutions and within scientific institutions is not a regular practice. First of all, only separate educational institutions, on own initiative, introduced analogous structural units, and since 2004 under the order of the Ministry of Education they became binding for higher educational institutions of the III and IV levels of accreditation and for scientific institutions. At present, according to the order of the Ministry of Education of 01.11.2005 in structure of higher educational institutions of the III and IV levels of accreditation, subordinated to the Ministry of Education and Science, Youth and Sport, should operate units on intellectual property or specialist or expert in the mentioned field [84]. Higher educational institutions of the III and IV levels of accreditation subordinated to other central bodies of executive power as well as higher educational institutions of public utility and private form of ownership are recommended to create such units or introduce the mentioned positions. The necessity of activity of such units is provided for scientific institutions.

Activity on commercialization of objects of intellectual property assumes invention and justification of justified variants of implementation of such non-materials products in industrial sector or social field, as well as their issue and maintenance in economic commercial circulation as independent good. For efficient performance of such work and receipt of real results there is necessary combination of efforts of specialists in different fields of knowledge, which can be hardly found in one educational institution (or scientific institution). Output means only involvement of third specialists. However, management of educational institution needs invention of additional funds for payment of their work, that is under present conditions it cannot be deemed easily performed task. Moreover, for successful results of activity of such specialists on commercialization of results of research activity of scientific and pedagogical employees their work should be highly qualified that is highly paid, that can be hardly imagined talking about the national educational system. Moreover, unit on commercialization of objects of intellectual property does not have, according to
the content of the mentioned order, rights of independent subject of management but form part of higher educational establishment. At the same time, in the opinion of experts, granting such unit the rights of independent legal entity would provide them with the possibility to become commercially attractive and competitive subject at the market of innovation services.

The aforementioned circumstance gives reasons to consider idea of creation within higher educational institutions of unit on commercialization of objects of intellectual property less effective measure. That is why experts made proposal on expediency of creation of single Center of innovation technologies, which will have status of legal entity. This will help, on one side, not to overload higher educational institutions with additional structures and functional obligations. From the other side, – it will become institution, which, on professional basis, will provide services of high quality to state R&D institution.

Thus, the system of innovation infrastructure existing in Ukraine is functionally incomplete, not sufficiently developed. It not only comprises all elements of innovative process, but in innovation environment are practically absent such structures formations as venture funds and really functioning centres of transfer of technologies.

It should be also noted that the Law of Ukraine “On Innovation Activity” has rather restricted efficiency, as it determines only principles of state regulation of innovation activity. At the same time the mentioned law does not determine general terms and conditions and rules of functioning of non-public sector of the national innovation system, determined interrelations and organizational forms of their other elements, executed structure of national innovation system in general. Without clear legislative determination of these moments it is impossible to ensure efficient formation of the national innovative policy.

1.3. Issues to be solved:

On the basis of the aforementioned analysis of statutory acts of Ukraine and scientific literature the following issues requiring solution, may be determined.

1. On legislative level there should be determined notion “national innovative system”, its structural elements, varieties and peculiarities of innovation relations, clearly indicate subjects of NIS and their legal status.

2. It is necessary to clearly determine differentiation of authorities between all bodies, involved to realization of innovation policy, with exclusion of duplication of functions performed by them as well as compliance of principle of logical interrelation with the very innovation process.

3. Clearly indicate nature and organizational and legal forms of such structures and technoparks, scientific parks, business incubators, venture funds etc.

4. Determine which legal capacity (general or subjects with special legal status) are assigned such structures as technoparks, scientific parks, business incubators etc.

5. If legislator will conclude that such form of functioning of technopark as group of persons acting by virtue of agreement on joint activity, is expedient, then it is necessary to eliminate gaps, which exist, in particular: clearly fix legal circumstances of possible termination of activity of technopark and its liquidation as well as the very procedure of liquidation of technopark; determine legal consequence of termination of agreement on joint activity, if such legal fact will occur prior to termination of performance of registered project of technopark; it is necessary to statutory determine issues related to the responsibility of participants of technology park under liabilities on performance of project of technological park; determine issue of distribution of rights on OIPR and innovation products between participants of technopark.

In this regard, it is also necessary to determine the following issues: determine such notions as “innovations”, “innovation product”, their qualification criteria, separation and correlation with objects of intellectual property, classification of innovations (innovation products) etc.

6. Legislator should pay attention to contractual aspects of activity of technopark, as contractual relations between participants of technopark are not exhausted by the agreement on joint activity. Between participants of technopark exist “multilayer” relations, which are interrelated and create system unity with the aim to successfully perform innovative project. Reference solely to the provisions of the effective CC and
EC of Ukraine during regulation of contractual relations of technoparks may create certain problems in application of the law.

7. Determine who/what is provided with special regime of innovation activity – technology park or its certain project.

Eliminate available statutory collisions and gaps, related with determination of special regime of innovation activity of technoparks. In particular, registration of technoparks is assigned to the competence of central body of executive power on issues of science, however, reason for this is acknowledged its inclusion to the list of technoparks, indicated in preamble of the Law of Ukraine “On Special Regime of Innovation Activity of Technology Parks” [7], that actually means the necessity of entering into the Law, and it is competence of the Verkhovna Rada as the higher legislative body of state. Thus, provision on competence on registration of technoparks is ambiguous. The mentioned issues are partially solved on the level of bylaw statutory regulation, for example, see “Regulation on Order of Creation and Functioning of Technoparks and Innovation Structures of Other Types” [60], “Regulation on Order of Consideration and Approval of Priority Directions of Activity of Technology Park” and “Order of Consideration, Expertise and State Registration of Projects of Technology Parks” [61]).

Besides, use of terms of special regime during implementation of innovation projects is restricted for technopark by 15-year term. However, in this regard certificate on registration of project of technopark, which is basis for introduction of special regime, is effective during the period of implementation of the project of technopark, but not more than 5 years. It should be noted that the aforementioned Law of Ukraine does not provide for possibility of prolongation of certificate or receipt of new one in case real term of performance of project five-year term and term of activity of technopark has not expired yet.

8. It should be mentioned that legal status of such category of subjects that involved in implementation of project of technopark as co-performers and producers of products. Legal grounds of their participation in the project of Technology Park.

9. It is necessary to solve set of issues related to OIPR: clearly determine mechanism of distribution of rights of intellectual property to “official” OIPR; OIPR created for state funds; issues of payment of remuneration to creators of OIPR; issues of assessment of OIPR; their putting on balance; determine reasons of entering property rights of intellectual property to the authorized funds of legal entities etc.

10. Regarding activity of venture funds: it is necessary to create system of the relevant guarantees from the side of the state and from the side of local authorities and introduce incentive mechanisms of tax benefits, which are at present not indicated in the Tax Code of Ukraine; create economic and legal and organizational and legal involvement to investment of pension funds, insurance companies; it is sufficient to create the Ukrainian association of exchange dealers with system of automatic quotation that will allow to conclude agreements through system of telecommunications across the whole territory of the country; create effective mechanism of promotion of venture investing of the funds of local budgets with the perspective of organization of network of regional venture funds, which would provide new companies not only with financial assist, but also perform highly qualified detailed management of their activity; create mechanism of provision of state guarantees for investments of venture funds of small business in small technological companies etc.

11. Taking into consideration the existing complexities during creation and activity of centres of transfer of technologies, consider expediency of creation of single Centre of innovation technologies, which will have status of legal entity. This will help, on the one side, not to overload higher educational institutions with additional structures and functional obligations. On the other side, - it will become institution which on professional basis will provide highly qualitative services for state R&D and educational institutions.

2. Comparative analysis of experience of regulation

Experience of Italy

First innovation structures, technoparks or R&D parks (R&D parks) began to create in Italy at the beginning of the 70th with the aim of coordination and activation of scientific researches in the interests of support of general R&D, implementation of new technologies in production, fastening of development in depressive, economically backward regions of country in particularly on the south of Italy.
As of year 2008 under data of the Association of R&D parks of Italy, in the country there are 31 R&D parks, which staff includes about 600 highly technological enterprises, 140 of which are incubators, 14 business incubators, specialized in the direction of creation and development of new enterprises, and 150 research centres.

Within R&D parks in the process of development of innovation projects issues of satisfaction of the needs of internal product market are solved as well as accumulation of volumes of production of competitive high technological products and number of working places is increased. About 2 500 of Italian companies enjoy services of the existing scientific and technology parks, in which number of those involved in highly technological production constitutes nearly 6 300 persons.

As a rule, legal form of execution of R&D parks in Italy is consortium of enterprises (organizations), to which may belong R&D institutions, local (regional) powers, separate companies etc.

According to the information of the Association of R&D parks of Italy, among promoting mechanisms applied with the aim of establishment and development of R&D parks, for companies, that belong to R&D, there are the following advantages:

- release from payment of registration tax for new enterprises, established in R&D park;
- release from payment of income tax during the first two years and payment of income tax at benefit rate in the subsequent years for enterprise that already operates as part of R&D park;
- release from payment of land tax and property tax.

One of the largest R&D park in Italy is R&D park AREA Science Park located near Triest.

R&D park AREA Science Park is located on area of 55 ha, counts 1400 employees, who work in 60 separate enterprises-participants of consortium, that according to typology are divided into the following:

- national and international scientific centres and scientific institutions, regional authorities, in particular, Administration of Autonomous oblast of Italy Friuli-Venezia Julia, University of Triest, University of Udine, National Council of Italy on scientific researches (analogue of NAS of Ukraine), international Centre of researches in the field of gene engineering and biotechnologies, complex of laboratories of synchrotron ELETTRA etc.;
- laboratories and centres of services of leading world companies in the field of researches and development (R&D);
- separate small and average R&D highly technological companies and enterprise.

Besides, the main stimulating factor for participation in consortium of technology park AREA Science Park for all aforementioned categories of participants is increase of efficiency of activity and the relevant increase of competitiveness of researches, attained on the account of:

- approximation of interrelated fundamental developments and possibilities of their applied application;
- use by participants of R&D park of joint infrastructure, R&D and laboratory capacities, information and computer networks of R&D parks, data banks etc.;
- receipt of centralized patent support, financial and banking and consulting services etc.;
- organization of study and improvement of qualification of the staff in the form of various conferences, seminars, courses etc.;
- promotion receipt of financing of works of R&D according to the existing regional, national and all-European programs.

R&D park AREA Science Park differentiates the widest spectre of researches, used in chemical and pharmaceutical industry, car engineering, textile industry, protection of environment, space researches and many other fields of sciences, techniques and industry.
Besides, R&D park AREA Science Park forms part of all-European network of exchange of technologies Innovation Relay Centre Network – IRENE, founded by the decision of the European Commission in 1995. Network IRENE unites over 70 European R&D parks, in which work nearly 65000 enterprises, scientific centres and other organizations of R&D. Since foundation within the network IRENE were performed over 1000 transfers of technologies, 5000 transfer agreements are in process of performance.

Other example of creation and successful functioning due to purposeful state program and policy of the EC, the relevant benefits for development of depressive regions, availability of scientific and educational basis, technology park on design and production of microelectronic components, telecommunication means and software in province of Catania is developed. Main enterprises of technopark, which has unofficial name “Etna Valley”, is the modern R&D centre of the world known companies such as Nokia and cross-border group ST Microelectronics (one of the largest enterprises in the world on production of semi-conductor elements).

Experience of the Lithuania Republic

Institutional diagram of innovation activity in the Lithuania Republic

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<th>Government of the Lithuania Republic</th>
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<td>Scientific council</td>
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<th>Innovation centres</th>
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Enterprises

Activity of Lithuania centre of innovations is aimed at increase of international competitiveness of entrepreneurship of Lithuania via intensification of new technological decisions and organization initiation of their implementation on enterprises.

Centre of innovations provides services aimed at:

- international transfer of technologies (import and export of technologies, study of technological needs of enterprises and search of partners abroad, which can satisfy these needs, their identification and search of ways of acquisition of these technologies);
- informing on programs of technological development of the EU;
- support of innovations, provision of information on protection of intellectual property, licensing, financing of innovations;
- advisory assistance to enterprises during initiation and performance of innovation projects, use of assist of structural funds of the EU.

Centre created special innovative portal in the Internet: www.innovation.lt. Besides, in Kaunaskyi Polytechnic University in 2002 at the Centre of implementation of innovations and department of information was founded Department of innovations and information (www.ktu.lt).

Implementing project of Program PHARE “Innovation capabilities”, Lithuanian innovation centre established 5 representative offices in Kaunas, Alytus, Panevezhys, Shaulai and Clipede.

At present in the Lithuania Republic network of R&D parks includes 6 parks.
Entrepreneur information centres in Lithuania assists beginners entrepreneurs, who are provided with information, consultations on benefit conditions, and undertake study regarding organization of entrepreneurship, preparation of business projects, use of information technologies, management of finances and accounting etc. In Lithuania already operate 33 such centres.

Entrepreneur incubators in the Lithuania Republic can be divided into two types:

**Industrial** – take care of entrepreneurs who perform production activity, retail trade and render services. Besides, one of founders of such incubators is city or regional council;

**Technological** – incubators, one of founders of which should be scientific or educational institution. In such incubators they take care of economic subjects, which perform applied researches, create new products or use intellectual products.

In Lithuania incubator was created in year 1998. Now acts Regional Business Incubator of Kaunaskyi technological university, Tialshaisk, Alytus, Shaulai, Kazlu-Rudsk incubators and Business Incubator of region of Ignalinsk power plant.

Besides, with the aim of promotion and attraction of direct investments to the Lithuania, improvement of innovation climate of the country, increase of export possibilities, provision of assistance to the enterprises of Lithuania with the aim of promotion to international markets, as well as confirmation abroad of high business image of Lithuania, in the Lithuania Republic in year 1997 was created Lithuania Agency of Economic Development (hereinafter – Agency) via association of Lithuania investment agency and Lithuania agency of development of export.

Agency consists of Investment department, Export department and Department of information and PR.

Agency has 3 representative offices abroad. At present in Agency works 33 persons, Founder of Agency was Ministry of Industry and Trade of LP, which functions now perform Ministry of Economy of the Lithuanian Republic.

Aim of activity of the Investment Department of Agency is to increase volumes of foreign investments, provision to the investors of the necessary information and assistance, provision of consultations during overcoming of bureaucratic barriers etc.

Activity of Investment Department is concentrated on generation of investment projects, servicing of investors, search, choice and preparation of objects of Lithuania, which need investments and which may be interested in foreign investors, increased qualifications of employees in the field of investments.

Department of Export of Agency participates in state export strategy, ensuring detailed information and legal assistance to enterprises of Lithuania regarding increase of export, search of partners in various countries of the world. Agency participates in various international projects: Multi-Country Trade Development Programme, ETPO-WGIP, ICTIN. In Agency there is created computerized trade informational library, data base of producers-exporters of Lithuania. You may learn about it on site http://www.lda.lt.

Lithuanian agency of development of small and medium entrepreneurship was founded in year 1996. Founder, owner and higher body of its management is the Ministry of Economy of Lithuania. Collegial body of management is the Council on Development of Entrepreneurship.

Agency is created for:

- analysis of economic and legal conditions of development of small and medium entrepreneurship in Lithuania;
- accumulation and expansion of information materials on terms and conditions of development of entrepreneurship in Lithuania;
- accumulation and provision of information on possibilities of receipt of financial assistance;
- organization of consultations and training of entrepreneurs in districts;
- encouragement of cooperation of large, small and medium enterprises;
Mechanisms of support of innovations are also produced.

In particular, by the order of the Ministry of Economy of the Lithuanian Republic of 12.04.2005 No. 4-156 were approved “Rules of provision of financial assistance for support of projects of R&D parks, innovation and technological centres”. The document stated that initiators of implementation of projects in R&D parks, innovation and technological centres may receive state financial support for preparation of innovation projects, lease of the premises, acquisition of property of long-term use, equipment and transport, increase of qualification of employees, conduct of seminars and conferences, use of services of audit, payment of salary and obligations of social insurance, conduct of reconstruction and repair of the premises, performance of information works etc.

Size of financial support may constitute from 10 to 400 ths. of lits (USD 3.5 -145 ths.).

Financial support from the state in the mentioned amounts may receive even small and medium enterprises for implementation of innovation projects. Order of their distribution and application is determined by the “Rules of provision of financial assistance to small and medium enterprises for innovation projects” approved by the order of the Minister of Economy of the Lithuanian Republic of 10.06.2005 No. 4-237.

Main priorities of interstate R&D and innovation cooperation for the Lithuania is: use of Lithuania and international R&D and technological potential for increase of competitiveness of Lithuanian industry and field of entrepreneurship; development of energy saving technologies; alternative energy; selection of new kinds of plants for biofuel; struggle for clearly genetic food products; scientific regulation of the market of goods and services etc.

Experience of Finland

Establishment of the national innovation system (NIS)

Finland became the first country, which adopted concept of the national innovation system as the main element of policy in the field of science and technology.

It is necessary to point out at such peculiarities and strong sides of Finland innovation system: stability of educational system, management and institutes of innovation activity, cooperation of universities and private sector, availability of market of venture capital and regional programs of development. It is also necessary to remind of constant study and use of international experience as well as continuous assessment of measures aimed at support of innovation activity of the country and comparison of their efficiency with the measures in other countries.

Till year 2009 policy of Finland in the field of science, innovations and technologies formed Council on R&D policy led by Prime Minister. In June 2006 Council adopted establishment of five strategic centres (clusters) having key meaning for development of Finland society, business and industry, in particular: in the field of energy and protection of environment; metal products and car engineering; forest field; health protection; information and communication industry. These centres are obliged to ensure coordination of research resources in the country and abroad.
On 09.10.2008 State Council adopted report on issue of the national innovation policy, that was prepared by the Ministry of Labour and Economy in June 2008, in which there are determined the main provisions of project of the national innovation strategy. Main content of strategy is determination of purposes of innovation policy of government and means of its implementation. To them, first of all, are assigned support of competitiveness of Finland economy, satisfaction of the needs of consumers and protection of surrounding environment. Besides, in the project of strategy it is offered to perform reforming of state mechanisms of regulation and support of innovation activity with the aim to create complex approach to its implementation.

With this aim starting from 01.01.2009 started its work **Council on researches and innovations**, which replaced **Council on R&D policy**. Council is the main voting body of the Government on monitoring, assessment and determination of the main directions of policy in the field of technologies and innovations.

**State R&D policy**

Under volumes of investments into scientific researches, Finland is one of leading countries of the world. In budget for 2009 there was planned allocation of EUR 1.9 bln. for science and research. Nearly 82 % of these funds distribute the Ministry of Labour and Economy and Ministry of Education of Finland. In particular, financing of institution science (main part of fundamental researches of the country and part of applied) is performed through **Academy of Finland** – subordinate to the Ministry of Education central scientific administrative authority. Academy consists of **Committee on Science and six commissions**: on natural, medical, agricultural, technical, social and human sciences.

Regarding issues of financing for the Academy of Finland priority directions are researches: field of medicine, biological sciences and environment; culture and society; natural history and technique.

**Main instruments of the Academy** – financing of R&D projects, applications on which are submitted in general order; research programs; centre of programs of advancement of professional works. Other 20 % of budget funds are allocated between other departments. Except for Academy of Finland financing of science is performed by several more organizations. Let us name the largest of them.

**National fund agency on technologies and innovations Tekes is sowing investor.**

Agency is accountable to the Ministry of Labour and Economy of Finland and distributes the larger part of budget funds, allocated for applied researches. Tekes became one of the sources of financing of state researches and developments, oriented on business. Under international assessments, Tekes efficiently finances researches and development, aimed at creation of export products. This fund on certain stages finances development of practically all successful finish technological companies (including Nokia). **Efficiency of Tekes is provided for by its independent status. Independence allows the fund to act more operatively and for long perspective than political structures.** This provides possibility approximate to maximum level process of taking decision on specifics of developments. However, fund has to report to the Ministry of Trade and Industry on spending the funds, Ministry is not authorized to take decision on financing of certain projects – it is decided by the very Tekes.

**Tekes is engaged in two directions:** promotes activity and treats it at the same. Due to its technological programs it opens new topics there, where sees the necessity in researches and developments. These programs are planned together with university and companies and provide for creation of managerial groups of representatives of researches, industry and government. Tekes is also opened for proposals regarding projects, which do not fall within the existing technological programs, financing such projects on conditions that they comply with its criteria of technological and economic perspective and provide for cooperation with other companies or universities. Thus, new initiatives come from up and down.

Creation of networks is promoted by significant remunerations in compositions of special technological programs and within separate projects. The more developed network connection between large, small and medium companies and universities, the larger part of expenses will finance Tekes (its part may increase from 50 to 70 %).

Due to model of network connections Tekes accumulated considerable capital of knowledge on researches and development, which are performed in the universities and companies as well as on the fact how such problems are considered to be main challenges of the future. Due to management of its information
resources Tekes indirectly participates in implementation of this capital of knowledge (sometimes Tekes offers companies cooperation for implementation of projects if (in opinion of heads of Tekes) project will benefit from such interaction).

**Tekes strives to store its dynamics, constantly analysing its activity and projects, financed by this fund.** For example, upon termination of each technological program its managerial group assesses the results. Tekes also wants to remain small organization with horizontal structure (today personnel Tekes does not exceed 200 persons).

Under the auspices of the Parliament of the country operates **Sitra fund**, which is not engaged in financing of technological researches and developments as such, but transferred into venture capitalist, that finances new companies at the beginning stage and during expansion of their activity. Majority of the companies (95%), where Sitra finances innovations, first of all were partners of Tekes.

Between Tekes and Sitra there is close cooperation on all stages, which aim is achievement of the best results. As the market of private venture capitals in Finland has developed well at the end of 1990, Sitra displaced accent on prior financing.

Except for roles of the largest state venture capitalist of the Finland Sitra is brain centre, which generates new ideas and finances courage, not ordinary researches, not oriented directly at creation of goods as well as education in those fields, which considers important for development of Finland (Sitra may finance experiments in these fields). Strategic activity of Sitra, besides, supports education in the field of future challenges. Such education is necessary for small groups or senior heads of various organizations.

As Sitra bears responsibility only to Finnish parliament, it may be deemed agent of all national project. Besides, subordination of parliament does not mean direct control on side of the latter: similar to Tekes Sitra has actually autonomous status and is rather network organization than large institute.

**Development and commercialization of innovations**

One of key institutes of Finnish innovation system is **Centre of technical researches of Finland** (CTR), which was created back in 1943. CTR became the largest organization in the Northern Europe that engages in applied polytechnic researches. It provides assistance to the clients in increase of competitiveness via development of technological solutions and applied technologies. Besides, it promotes transfer of technologies via participation in the national and international research programs and network structures of cooperation. Multi profile research system of CTR comprises include such areas of polytechnic researches; biotechnology, energy, cellulose and paper production, digital information systems, telecommunications, industrial systems, micro technologies, and sensors, materials and construction. Having staff of nearly 2,7 ths. of employees and owning unique scientific and research capabilities, CTR provides their national and international clients and partners with wide range of applied high technologies, decisions and know-how. Participation of CTR in the international and national innovation network structures strengthens potential of its organization in the field of support of cooperation, partnership and transfer of technologies [54, c. 150].

**Finnvera** (FINNVERA PLK) – state specialized financial company as well as official agency of crediting of export of Finland, which performs functions of intermediate between programs of financing of the European Union and Finnish small and medium enterprises. Main tasks of Finnvera are promotion and development of foreign economic activity of small and medium enterprises, in particular, through provision of financial services. Besides, this organization participates in implementation of regional policy of government. Main purpose of Finnish industrial investments, that is state joint-stock investment company, is improvement of conditions of activity of small and medium enterprises via attraction of investments of funds of risky capital. Finnvera renders services on financing of business in form of credits, warranty obligations and guarantees of export credit. This company may deposit funds directly into shares of certain companies, in particular those, which engage in activity, which requires consideration of long-term risks.

**Finnish Industry Investment** (FII) – state company, engaged in investments in joint-stock capital and is subordinated to supplies. Task of FII – improvement of conditions of activity, in particular, MSP, using investment means to the funds of venture capital. FII also makes investments directly to the authorized capital of target companies, in particular to enterprises, related to long-term risk. Regional funds choose in their regions target companies, being on various stages of business development. Besides, FII makes direct investments together with other investors and financial institutes.
Centers of employment and economic development (CEED) – state organizations are run by ministries and include network of 15 regional bureaus, having commercial departments. Task of commercial departments is satisfaction of the needs of small and medium enterprises via rendering services on support of commercial activity, consultation services and financial support. Besides, centres serve as regional network within programs of other ministries and channels for rendering services in regions. Nearly half of volume of financial support centres is received from structural funds of the EU and send them to target areas of the EU.

Finpro (FINPRO) – organization, partially funded from state funds rendering expert services in the field of foreign economic activity, that is provides information on various markets, recommendations on business development, consulting and marketing services, participates in performance of programs of commercialization of innovations together with other state organizations. It is association established by Finnish industrial circles in year 1919, which was transformed into professional consulting organization. Ministry of Trade and Industry supports activity of Finpro in form of state and private partnership. Finpro was established on partnership and unites nearly 600 companies, Confederation of Finnish industrial entrepreneurs, Finnish organization of entrepreneurs and association of technological industrial fields of Finland. Mission of Finpro is to expedite internationalization of Finnish companies with simultaneous promotion management of risks related to this process. Services of organization are designated for small and medium enterprises. Finpro solves this all-national assignment in close cooperation with other service organizations, such as the National Technological Agency (Tekes), local centres of employment and economic development, Finvera, Sitra and other participants of Finnish national innovation system. Fifty trade centres of Finpro in more than 40 countries facilitate access of Finnish companies to abroad markets. These trade centres are strategically located on those markets, where in Finland there are peculiar competitive benefits and which constitute nearly 90% of Finish export.

Finpro marketing limited was recently established. It operates as private corporation and does not have state support. Companies may acquire their services for achievement of their international marketing purposes.

Another organization, which provides support and facilitates creation and use of Finnish inventions, is Fund of Finnish Inventions. Considerable role in the activity of fund plays provision of legal assistance and financial support in patenting of inventions. Fund is important source of recommendations and support of separate inventors, as well as researches and small and medium enterprises in Finland. Activity of the funds may be represented by six directions corresponding six different stages of invention creation:

- facilitation of inventory activity;
- assessment of inventions (market potential, novelty and inventory level, commercial potential etc.);
- consulting services (specific recommendations regarding inventions, intellectual property rights etc.);
- financing of inventions protection (patents and other intellectual property rights);
- funding of product development (planning and design, development of prototypes, technical and commercial recommendations);
- marketing financing (including recommendations regarding licensing).

Considerable part of activity of the fund is connected with consulting services. Actually the fund advises enterprises on wide set of issues, starting from technical related to particular inventions, to assessment of market potential of product, assistance in development of prototypes and legal assistance on patenting and licensing of inventions. For the period of its existence (fund was established in year 1971) it provided recommendations to nearly 150 thousand of clients. Funding of development and commercialization of inventions is usually performed under the following four schemes:

Keksi Fund covers initial costs for development of invention in the amount of up to 8 thousand of Euro. Besides, cost recovery is not provided for.
Additional funding: used for payment for patenting, development of products and their commercialization. This scheme includes conditional recovery of the fund depending on success of the project, as well as income received by inventor from its use. Besides, no interest is charged.

Grants provide small amounts without reimbursement commitment. Loans are provided to inventors and small and medium enterprises on initial stages of commercialization of invention.

Size of financing amounts from 1,5 thousand to 100 thousand of Euro, depending on nature of invention and its commercial potential. Larger amount of operating funds is given by the Ministry of Trade and Industry of Finland. Particular attention the fund draws to protection of inventions, intellectual property rights, in particular patents. Inventive level even more general patentability of invention is considered key criteria for choice of projects to be funded by the fund. Besides, inventors and small and medium enterprises get legal assistance in patent protection issues in Finland, information on potential export markets, as well as recommendations on development of strategy in the field of industrial property regarding inventions. At last, the fund gives recommendations on licensing and existing markets in the process of commercialization for sale of inventions for the purpose of establishing contacts between inventors and potential licensees.

During its existence the Fund of Finnish inventions received 1 thousand of applications for financing, of which financial support received 2 thousand of inventors, including financing aimed at patenting of inventions. At present with the support of the fund the very inventor/entrepreneur or under license agreement are commercially used in nearly 500 new products.

Constantly renewed market of inventions offers entrepreneurs new products and business ideas via the Internet.

Experience of Russia


Federal level assumes settlement of considerable part of problems of development of innovation infrastructure and brings it together in range with priorities of scientific and innovation policy.

Subjects of Federation are focused on this issue. All this promotes that creation of innovation infrastructure in such regions is treated as one of the most significant tasks of state importance.

For the Russian Federation formation and development of technology park of innovation infrastructure has the peculiarity that science in the country is concentrated only in several regions, it is generator of basis innovations. These very innovations are in general source of formation of innovation infrastructure.

In year 1990 Association of scientific and technology part, Business Incubators and innovation centres (“Technopark”) was established. At the Association were created technical council on informatization and development of telecommunication network “technopark”, expert council on selection of innovation programs and science absorbing products of the companies of technoparks on the account of means of federal programs. Organized Centre of accreditation of technoparks should have assessed and confirmed achieved by the technopark level of development, its ability to active innovation activity and possibility of efficient use of target loans, financial and other support forms. Association “Technopark” together with the management of technoparks in short period prepared more than 150 projects of small innovation organizations within federal program of development of small and medium entrepreneurship of Russia.

All this enabled development and implementation in Russia at the end of XX – at the beginning of XXI centuries of program “Creation and development of technology parks”.

Technology parks in the Russian Federation were established and are developed on the basis of industrial enterprises and scientific and research institutes.

In the Russian Federation during creation of technology parks enterprises are provided with the necessary complete package of infrastructure services and benefits (public utility services, additional production services), besides, at prices lower than market ones. Operation of single objects of infrastructure allows enterprises-users to considerably reduce costs and maximize payment. Dislocating in technology
parks, enterprises obtain economic gains, at least, equal to those, which they could obtain in case of beneficial crediting and other financial preferences.

Today Russia is, per se, technopark state; in country operates nearly 60 technoparks. Annually, starting from 1990 in average 8-10 technoparks are being established in Russia. It was provided that under the results of the first decade of the XXI century there will be over 100 technoparks in Russia. 8 thousand of working places are set in Russia. In each Russian technopark 22-25 innovation service companies are located. 12 - 15 of the most developed Russian technoparks transfer their products not only to the internal market but also to the west market.

Technoparks of Tomsk, St. Petersburg, Nyzhnyi Novgorod enjoy wide popularity. Analysis of composition of founders of technology parks shows that they unite in terms of transition period industrial potential of enterprise, scientific potential of higher educational establishments, scientific organizations, attract foreign partners, territorial management bodies, which allows them to actively influence shaping of regional scientific and technical and economic policy.

Within the program of creation of the Russian technoparks managers in the investment field are trained who will be able to research intellectual products market, create innovation structures in consideration of the needs of the region.

**Complexity of operation of technoparks.**

Establishment and development of technology parks in the Russian Federation is related to set of difficulties. First of them is that many participants are involved in establishment of technoparks. On the one side, it is positive feature, as there is possibility to collect many various ideas, on the other side – there is negative feature in organization of technoparks, because agreement of all parties is required. This is bureaucratic side of the process, as it involves municipality, oblast, various ministries, departments. Passing of all these circles is complex continuous process.

It also should be noted that economic efficiency of technoparks in Russia is low in comparison to the European. Low indicator of efficiency of operation of technoparks is related to the fact that during their creation market approaches were not used. Most of technoparks were organized for single purpose – obtain additional budget funds for new structure. At the same time, from the side of state no selective policy was carried out. To sum up, at present technoparks combine, as a rule, small enterprises, not obligatory science absorbing, which have already organized output of their products and that is why their primordial function – function of support of highly technological business – in rare cases is not performed.

The second type of technopark innovation structure in the Russian Federation is scientific parks.

In Russia scientific parks, created at the universities, actually perform functions of technological “Business Incubators”, as they facilitate commercial implementation of finished NDKRR. Russian scientific parks provide innovation small enterprises with the following set of services: lease of premises, telephone and telex maintenance, granting access to the results of NIOCR, assistance in preparation of technical projects, training and selection of specialists etc.

In scientific park small innovation enterprises may obtain the following services: organization (marketing and advertisement, arrangement of exhibitions and fairs); training, publishing and polygraph, financial (business planning and forecasting, facilitation in search of sources of funding etc.); consulting (technological transfer, patenting and licensing, accounting and audit, legal provision etc.); record keeping; lease of computers and office equipment, protection.

In the Russian Federation creation of techno policies has that peculiarity that core of most of techno policies is construction of scientific towns (“naukograd”).

“Naukograd” mostly closed towns, state scientific centres. Russian “naukograds” – cities of science and high technologies.

Except for large scientific centres of Russia, having large scientific potential with large amount of highly qualified specialists, techno polices may be established on the basis of former closed cities of HPT. It facilitates process of conversion and issue of employment of experts that is particularly important today, when Russia faces task of revival of HPT. It is necessary to add this process modern nature, conduct large work on its restructuring and highly technological conversion of set of fields and enterprises of HPT.
Solution of the mentioned issues is related to one specific feature of modern Russian economy. It is revival of “closed” cities, which were fully oriented at HPT of the country. Creation in them of techno policies would be optimum solution of “build in” of them into modern economy of Russia, that would give them high technological impulse development.

Construction of such cities became important peculiarity of creation of HPT in Russia. Such famous cities as Zhukovsk, Bryansk, Protvino, Dubna, Kremlin (Arzamas-16), Krasnoiarsk-26 and other, which were built around large defence enterprise or R&D institute, specialized in the leading military and technical directions (nuclear physics and atomic industry, aviation and rocket and space techniques, high temperature and microbiology). These enterprises and NDI had very high R&D levels, which today in range of cases (for example, technologies of concentration of uranium) exceed world level. These very “closed” cities of R&D profile have the largest possibilities for formation of territorial centres (“poles”) of growth, centres of structural dynamics.

Status of “closed” towns was determined in year 1992 by the Law of the RF “On Closed Administrative-Territorial Formations” (CATF). The Law granted these towns many benefits, the most important of which is possibility to remain (within approved standards) in the budget of town taxes collected on its territory. Besides, benefits do not solve problems of “closed” towns.

First of all, benefits do not extend to city building enterprises – main sources of tax proceeds.

Secondly, benefits were not aimed at promotion of development of economy of “closed” towns, but had general nature. As extraordinary proceeds of budget may be put into standards of budget of provision of the next year, and increase of planned income decreases budget grants, the main aim of benefits granted to “closed” towns became replenishment of budget of these municipal formations. This aim was achieved, but with larger losses of federal budget.

Giving all taxes into disposal of local authority, federal government was away from controlling the situation. If federal authorities carries out constant supervision and control over provision of benefits in “closed” towns, there would be possibility to avoid budget losses and work out mechanism of tax incentives and innovation activity not only within one town, but within the whole state.

Besides, in the Russian economy “growth poles” were “academic towns”. Today in Russia operate over 50 academic towns (Tomsk, St. Petersburg, Novosybirsk, Zelenogradsk, MDU etc.). There work over 900 small innovation and over 150 service enterprises. The most famous techno policy in Russia is Novosybirsk academic town. At that time in Russia there were over 70 techno policies.

For stabilization of economy development of Russian techno policies should promote activation of the national economic and innovation potential and structural transformation of the whole social and economic space of Russia.

Another type of technopark innovation infrastructure in the Russian Federation is innovation and technological and investment and innovation centres.

Establishment of such centres in the Russian Federation started in year 1992, when on the initiative of the Ministry of Science and Technology of the Russian Federation within departmental program regarding activation of innovation activity in R&D field establishment of eight innovation and technological centres was initiated (ITC): three – in Moscow, two – in St. Petersburg, Novosybirsk, Kazan and Ekaternburg. For establishment of ITC were attracted means of various structures on federal level and subjects of the Federation, including Ministry of Science and Technology of Russia, Ministry of Education of Russia, Fund of Enhancement of Development of small forms of enterprises in R&D field, regional authorities.

With development of technological centres transfer centres are established in regions of technologies on the initiative of local managerial authorities, entrepreneurs, regional departments of the Chamber of Industry and Commerce, various types of associations in form of type of business-centres, business incubators, centres of facilitation of technologies and innovations. At the same time, federal authorities, understanding importance of this problem, lack of means and experience in regions, assume considerable part of work in this oblast, creating network of such funds, which are assigned role of supporting points in creation of innovation and technological infrastructure of Russia.
In year 1998 creation of innovation centres was expanded due to new regions, having high R&D potential in Ural (Ekaterinburg), Far East (Khabarovsk), Siberia (Irkutsk, Novosybirsk, Tomsk), European part of Russia (Moscow, Moscow oblast, St. Petersburg, Samara, Nyzhniy Novgorod and in other towns). At the beginning stage (first 1-2 years) these structures were provided with financial support on parity principle from federal and local budgets, after which structures were transferred in regime of self-development.

Aimed at use of international experience in this field and attraction of means of international funds for solving this issue in year 1997 began implementation of project of the Ministry of Science and Technology of the Russian Federation – European Union (EC/TACIS) – Administration of four regions of Russia. Project is aimed at creation of investment-innovation centres in four regions of Russia: Zelenograd, Tomsk, Samara, Novosybirsk. This type of centres were established with involvement of specialists of academic, field institutes, institutions, large industrial organizations, financial and industrial corporations. Investment and innovation centres promote formation of horizontal connections between industrial, science, higher school, sector of small business and vertical connections with oblast administrations and federal level.

Creation of investment and innovation centres is realized on parity basis by the Ministry of Science and Technology of the RF, administrations of regions, with support of EU/TACIS.

Main tasks of investment and innovation centres are: organizational accompaniment of innovation process, provision of subjects of innovation activity with legal, informational, consulting services, promoting science absorbing products to internal and foreign markets; consulting services in the field of selection of ways of technologies transfer and sale of licenses; organization of corporate connections by interests; information services on search of potential strategic partners and investors, as well as conduct of advertising companies; creation of databases by scientific and innovation potential of region; preparation of managers of programs under science absorbing technologies; technological audit of organization of R&D field.

As experience shows, limit between separate types of innovation infrastructures in degraded and mixed forms are found much often than clean. Thus, in the Russian Federation together with investment and innovation centres innovation and technological centres (ITC) are successfully developed. In Russia till the end of the XX century there were over 40 innovation and technological centres, which included 80 innovation companies and over 150 service enterprises. Function association of technology parks and incubators of business, Union of innovation enterprises, Union of independent engineering organizations (companies), Association of project management, Russian innovation union, Association of support of small innovation enterprises, technology centres and techno policies, promoting development and implementation on internal and external market of competitive products and technologies on the basis of innovations. Eighteen ITC were created due to financial support of the Ministry of Science, Ministry of Education, Fund of Enhancement of Development of Small Forms of Enterprises in R&D field. In ITC are located companies engaged in development, mastering and production of science absorbing products in various fields of activity. It was decided to start creation of innovation and industrial complexes for full scale output of competitive products, which output in small volumes is produced by small enterprises. At the moment there operate three ITC: “Information technologies” (in MGU), “MIZT” i “Svitlana”.

Process of creation of technology centres is continued in the Russian Federation. In 11 regions there were created and already operate 52 innovation and technology centres, in which work over one thousand of various small R&D companies and enterprises, which use infrastructure of information and technology centre (ITC) for its development.

The most popular among them are information and technology centre of MoscowEnergy Institute, Centre of Information Technologies of Scientific park of MDU named after M. Lomonosov i and Centre of Information Technologies of St. Petersburg.

Centre of information technologies of MDU was opened in January 1999. Here can be located simultaneously up to 50 firms. General number of employees who participate in activity of the centre, has already exceeded 2500. Task of ITC is to provide wide range of commercial services of technical and consultation nature (lease of premises, provision with communication channels, assistance in drawing up business plans, promotion in attraction of financial resources, arrangement of exhibitions, establishment of contacts etc.) Centre of information technologies of MDU was awarded certificate of UNIDO. Nearly 70% of all employees of the centre are related to works in the field of software and development of Internet-technology. In particular, represented company “Stek”, known by development of the most famous in Russia
information and search systems – Rambler. Together with information technologies works are also performed in the field of laser medicine and medical diagnostics, biotechnology, ecology and other science absorbing directions. Innovation technological centre of information technologies in St. Petersburg was established on the base of Institute of Information Technologies of the Russian academy of sciences and Centre of international cooperation and field institute “Electrostandard”. Among the main functions of ITC are arrangement of exhibitions and transfer of new technologies from state sector to industrial companies. On main areas of ITC (5000 m²) simultaneously may be located up to 25 companies. Over 10 year within the territory of the Russian Federation operates international R&D centre. For this period over 1800 R&D of their projects were provided with financial support for the amount of nearly USD 500 Mio. Foreign lawyer and experts in the field of commercialization created infrastructure for commercialization in the Centre.

Venture activity: European and world practice

In Finland the most important contribution in creation of very successful model of innovation economy made efforts of two organizations – Tekes and Sitra. Tekes (National Technological Agency), established in year 1983, although accountable to the government, but decision on selection of projects for support takes independently. It finances applied researches and developments; on the determined stage of development this funding supported developments of all successful Finnish hi-tech companies (including Nokia). Sitra (National R&D Fund) was created back in 1967. After establishment of Tekes Sitra gradually transformed into “state venture capitalist”. Both organizations have rather little number of employees (in Tekes – 200 employees, Sitra – 60 in general) and perfectly fit Finnish model of information society due to its network structure.

Experience of Europe shows that participation of state guarantees, in set of cases, more favourable conditions for recipients of venture capital.

Thus, fund VaekstFonden, financed by the government of Denmark does not require indemnification of credits granted to them in case of failure of projects of small business, designated for creation of new technologies.

Scheme acting in the Netherlands Technical Development Credits provides for provision to small business of loans that may also be not returned in case of technical or commercial failure.

Swedish Investment Fund ALMI Foretagspartner AB, which main shareholder is government, releases firms, which received for 6-10 years credits for provision of starting capital, from payment of interest during the first two years and payment of the very debt within the first four years.

Other form of promotion development of venture business, that is often used, are various plans of state guarantees, investment in case of unsuccessful termination of funded projects of small business.

In German and France special financial institutes are established for this purpose, where state serves as large shareholder or secondary guarantor.

Program designated for investment of venture funds was effective in 1981 – 1995 in the Netherlands, and became ineffective when venture business became widely popular.

In the second part of the 90th programs of similar direction were initiated in Austria, Denmark and Finland.

In Israel in 1992 state company Yozma was established with capital of USD 100 mln. The main idea of establishment of the company is to attract to the partnership entrepreneurs widely known and successful in the West venture. The condition was that the western partners had to teach Israelis all aspects of technology of venture business. Attraction of participation of the western investors was ensured solely by beneficial conditions of distribution of income (and risk insurance). Thus, funds of Yozma were used for payment of services of western experts and were bought out in form of investments of USD 5 bln. spent for business, with very high ratio of 50. Besides, in Israel there was created very effective system of hi-tech incubators at many universities, which operate according to grant system.

Undoubtedly confirmation of efficiency of venture business on the developing markets is very high activity of foreign venture of capital in Russia. At present more than 40 venture funds with total assets of not less than USD 4.3 bln. declare their presence in Russia. Representative offices of nearly 30 managing companies of venture funds are located within the territory of Russia.

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Main sources of means of venture capital in Russia is the European Bank of Reconstruction and Development, International Financial Corporation and funds financed by American government – TUSRIF (The United States – Russia Investment Fund) and Defence Enterprise Fund).

Establishment of the Russian venture funds with the participation of the national capital is at the beginning, although national pension funds, insurance companies and banks are ready to participate in this work. However absence of the relevant legislative base does not allow them to use efficiently their funds in the mentioned sector of economy. Situation has changed after 2000, when structures with the capital of Russian origin were established. Non-profit organization “Venture Innovation Fund” was founded. Funds of the organization should be invested as initial investments to venture funds, which have to work on commercial basis and be formed in general on account of funds.

Particular attention is drawn to issues related to training, education, teaching of managers of managing companies. This activity is carried out in close contact with the Russian Association of Venture Investment, European Association of Venture Investment, National Association of Venture Investment of the USA. Besides, starting from 2000 Russia yearly conducts venture fairs, in 1997 there was established Russian Association of Venture Investment (RAVI). Also in 2003 there was developed project of Concept of Venture Industry in Russia (state system of promotion of venture investments).
4. Legislative regulation of development and implementation of state programs of Ukraine in the sphere of research and development and innovation development

Analysis of establishing and implementation of state target scientific and technical programs (STSTP) in Ukraine shows that the shortcomings in program process are largely institutional in nature, primarily due to the lack of appropriate legal and methodological basis for managing development and implementation of the programs.

In this regard it is required to introduce amendments and additions to the laws and legislative instruments in force concerning regulation of establishment and management of STSTP and of state target programs (STP) in general; and also to develop and approve a number of provisions and procedures concerning specific stages of program target planning and the powers of bodies managing program implementation.

For this purpose it is necessary to carefully study the experience of EU Member States and of other countries in terms of development and implementation of relevant legal acts and procedural documents.

1. Analysis of regulating relations in terms of development and implementation of state target scientific and technical programs in Ukraine.

1.1. Acts regulating the sphere of legal relations

Laws

The Decrees of the President of Ukraine

Resolutions of the Verkhovna Rada of Ukraine

Acts of the Cabinet of Ministers of Ukraine

9 While preparing recommendations there was used relevant international experience specified in reports to the projects PR3, PR4
1. The Decree of the Cabinet of Ministers of Ukraine of 31.01.2007 No 106 “On Approval of the Procedure of Development and Implementation of State Target Programs”.


1.2. Analysis of legislation

One of the first regulations on establishment and implementation of STSTP in Ukraine was the Provisions on the state scientific and technical program, approved by the Resolution of the Cabinet of Ministers of Ukraine of 10.10.1995 No 796, the effect of which extends to the procedure of establishment and implementation of scientific and technical parts of state (interdepartmental) programs funded from the state budget.

In particular the “Provisions” was the first document to define that above-mentioned programs are based on the concepts of their development approved by the Government. Paragraph 3 of the “Provisions” is particularly important for democratization of program development; according to this paragraph the development of programs may be initiated by state authorities and local self-government, by the Academy of Sciences, enterprises, institutions, organizations and natural persons.

Paragraph 5 of the “Provisions” stipulates that program supervisor and the body governing the program are appointed by the Government of Ukraine, which guarantees the high status of the mentioned programs. However, paragraph 3 of the “Provisions” states that the body governing the program may be represented by central state executive authority, by the Academy of Sciences (by agreement), by the National Scientific Centre and only in some cases – by leading state scientific or project and design organization. In our opinion, the central executive authority or the Academy of Sciences can act as state ordering party of scientific and technical program, and as international practice shows, they should delegate management functions to program supervisor and to the main (not necessarily state) scientific organization. In market environment the responsibility to manage a state program can also be assigned to an association, consortium or joint stock company that are established for program implementation.

The body governing the program is assigned to carry out expert examination of separate projects and competitive selection of program performers, and also to conclude agreements (contracts) with program performers. However, in practice, the mentioned functions were performed by central executive authority that was responsible for scientific and technical development (in recent years this body was the Ministry of Education and Science of Ukraine).

Paragraph 12 of the “Provisions” stipulates that the body governing the program establishes scientific and technical council, and its composition is approved by the above-mentioned central executive authority. The Council is authorised to carry out expert examination of target projects and competitive selection of program performers, and also to making proposals as to the volumes of program funding. However, in practice the only functions that are implemented are the functions of scientific and technical councils in terms of considering interim and final reports on execution of a program and targeted projects, and in some cases, in terms of proposals for the termination of certain activities and inclusion new projects to the program.

Paragraphs 15-18 of the “Provisions” are also very important; they pertain to ordering party’s responsibility for implementation of program results. This implementation is to be carried out though own costs, through costs of ministries and agencies concerned, enterprises and organizations, and off-budget and investment funds of various level. Thus, the responsibility for selection of completed projects and for carrying out their state expert examination should be assigned to the above-mentioned central executive authority which together with other executive authorities has to provide for the extensive use of scientific and technical products while establishing and executing state orders for production of new goods, implementing state and regional innovation programs and separate projects.

However, in practice, state ordering parties and above-mentioned central executive authority did not fulfil these functions, this is proved among other things by the lack of the projects implemented in production and the lack of STSTP carried out in 2003-2006 on priority areas of scientific and technical development.
It should be noted that paragraph 19 of the “Provisions” stipulates statistical reporting of organizations and enterprises of all forms of ownership on the use of scientific and technical products transferred to them for scientific and industrial activities.

The above-mentioned central executive authority together with the State Statistics Committee of Ukraine were assigned to annually analyse the efficiency of STSTP and efficiency of use of scientific and technical products and to submit to the Government the analytical note on these issues. However during the last 5 years, statistical reporting on the implementation of STSTP has not been carried out.

In Ukrainian legislative environment STSTP found their niche in the Article 36 of the Law of Ukraine “On Scientific and Scientific and Technical Activity” (as amended by the Law No 3421-IV of 09.02.2006), which stipulates that STSTP is an ultimate tool for implementing priority areas of scientific and technical development by means of concentrating scientific and technical potential of the state to address the most important natural, technical and humanitarian issues.

Furthermore, the Law secures that STSTP on priority areas of scientific and technical development is established by central executive authority in the sphere of scientific, technical and innovation activities, which levels down the responsibility and interest of other ministries and agencies in establishing and implementing these programs.

It should be noted that the Law of Ukraine of 11.07.2001 No 2633-III “On Priority Areas of Scientific and Technical Development” has stipulated that implementation of priority areas of scientific and technical development is carried out through STSTP system, and also through state orders for scientific and technical products.

To make the list of these programs was assigned to a specially authorized central executive body in the sphere of scientific and technical activities (Article 3). The costs for funding of the programs had to be at least 30% of total amount of budgetary funding on scientific expenditures. In fact, in 2003-2006 for all STSTP and for scientific STP from 7.9% in 2003 to 5.7% in 2006 were allocated for 21÷16 major disponents of budget costs, including for implementing STSTP in priority areas of scientific and technical development – only 0.68-0.33% respectively, i.e. in 44-90 times less than as stipulated by the above-mentioned Law.

It is worth to mention that the Law of Ukraine “On Amendments to the Law of Ukraine “On Priority Areas of Scientific and Technical Development” of 09.09.2010 No 2519-VI does not stipulate the above mentioned norm.

The mandatory availability of scientific and technical expert examination of STSTP, of innovation programs and projects of national importance and of international, industry-specific and cross-industry programs in the spheres of scientific and technical activities is stipulated by the Law of Ukraine “On Scientific and Technical Expertise”.

However, for some reason this Law does not pertain to expert examination of scientific and technical parts of state programs of alternative areas.

The Law of Ukraine “On State Target Programs” for the first time in CIS countries determined the legal grounds for the development, approval and implementation of state target programs (STP) of alternative areas, including scientific and technical ones.

The Law:
- gives the definition of state target programs (STP), provides them with clear classification and hierarchical relationship;
- defines the purpose, basic conditions of STP development and their role and place in planning and forecasting of economic and social development of Ukraine;
- identifies the circle of agents for establishing and implementing of STP, along with agents’ rights, duties and responsibilities. In particular, the central executive economic authority is responsible for providing methodical basis for the works on development and implementation of STP and on their accounting;
- discloses the contents of the main stages of program development and implementation;
- sets mandatory requirements to program contents and concepts;
- emphasizes the mandatory availability of state expert examination of STP projects and of competitive selection of agents performing program measures and objectives;
- legally secures democratic principles and transparency in establishment and implementation of STP by means of publication in official media the projects of their concepts for public discussion and final reports on the programs of program implementation.

However, the Law does not have provision for state statistical reporting on STP implementation, which prevents the central legislative and executive authorities from obtaining timely information about program implementation and the efficiency of using state funds for program implementation, and, eventually, leads to a substantial losing of control over these issues.

The law stipulates the necessity of mandatory state expert examination of STP projects, however, it has no provision as to the purpose, content and mechanism of this expert examination. Only scientific and technical programs are subject to scientific and technical expertise carried out by central executive authority for education and science, i.e. this authority carries out the expert examination of the programs which it actually establishes.

In the classification of STP in terms of focus area there are no investment and innovation programs despite the fact that implementation thereof is stipulated by the Law of Ukraine “On Innovation Activity”. This cannot be justified in the context of implementing innovation model of economy development. Furthermore, for some reason the notions of “scientific programs” are limited to basic research only.

This Law does not stipulate the mutual responsibility of state ordering parties and performers for carrying out programs and reaching their target indicators. The financial and credit mechanism of program development and implementation is not disclosed, and the economic tools for managing program implementation are not available.

Some particular legal provisions concerning STP and STSTP were stipulated in the Decrees of the President of Ukraine and the Resolutions of the Verkhovna Rada of Ukraine and the Cabinet of Ministers of Ukraine.

Thus, according to the Decree of the President of Ukraine “On the decision of the National Security and Defence Council of Ukraine of July 3, 2001 “On urgent measures for recovery of Ukrainian scientific and technological sphere from crisis and creation of realistic conditions for economy transition to innovation development model” the Cabinet of Ministers of Ukraine was assigned to prepare and to submit to the Verkhovna Rada of Ukraine the Draft state program on scientific and technological development of Ukraine. This draft program had to stipulate the measures for implementing the Concept of scientific, technical and innovation development of Ukraine, and also the provisions of the Concept (state policy foundations) of National Security of Ukraine concerning scientific and technical sphere; and measures for upgrading the material and technical base of scientific and technical institutions and for encouraging young people to participate in academic, scientific and technical activities.

However, the development of the mentioned program ended up with its good-for-nothing concepts prepared by the Ministry of Education and Science of Ukraine.

The Decree of the President of Ukraine “On the decision of the National Security and Defence Council of Ukraine of April 6, 2006 “On the state of scientific and technological sphere and on the measures to support innovation development of Ukraine” No 606/2006 of July 11, 2006 assigned the Government to process proposals on increasing the volumes of program target funding of applied research and scientific and technical (experimental) projects and to adopt a legal instrument to regulate the procedure of development and implementation of state target programs.

However, beginning from 2007 and until now the Ministry of Finance has not allocated any funds for establishment and implementation of STSTP in priority areas of scientific and technical development.

During these the years the 6-11 of STSTP have been carried out, but they were not priority ones. But, generally, only half of these programs benefit from budget support. Furthermore, certain programs receive substantially less budget costs than as the Government and the Parliament approved. Thus, the National
A comprehensive program for the development of advanced science-based technologies in 2006-2008 received only 1.3-0.3% from the amount stipulated by the law on program approval.

In total in 2009 STSTP received from the state budget only 3.6% of budgetary expenditures on science, and if taking into account scientific and technical parts of the state target programs of alternative area this value amounts to 9.6% of the mentioned expenditures.

Government’s order in the mentioned resolution on regulating the development and implementation of state target programs was performed. The corresponding Procedure was developed and approved by the Resolution of the Cabinet of Ministers of Ukraine of 31.01.2007 No 106.

According to the Resolution of the Verkhovna Rada of Ukraine of 16.06.2004, No 1786-IV “On compliance with laws on the development of scientific and technical potential and innovation activity in Ukraine” the Cabinet of Ministers of Ukraine while drafting the Law on State Budget of Ukraine for the year 2005 and for subsequent years was advised to achieve the level of STSTP funding on priority areas of scientific and technical development at 30% of expenditures on science, and by 01.10.2004 to develop recommendations on establishing nationwide, industry-specific and regional innovation programs.

In terms of the first order, even taking into account scientific and technical parts of CTP of alternative areas, budget funding of STSTP in 2005-2009 did not reach even 10% of expenditures for science.

Recommendations as to establishment of innovation programs were not developed and the mentioned programs, as noted above, are still beyond Ukrainian legislative environment.

The draft of Innovation development strategy of Ukraine for 2010-2020 in globalization challenges that was being considered at the parliamentary hearings on June 17, 2009, emphasized the necessity of systemic measures for improving program target mechanism for implementing priority tasks in the innovation sphere. In particular, this relates to carrying out a thorough review of the existing list of programs and their comprehensive expert examination in terms of compliance with the defined priorities.

At present the mentioned recommendation cannot be performed given that the final provisions of the Law of Ukraine of 09.09.2010 No 2519-VI “On Amendments to the Law of Ukraine “On Priority Areas of Scientific and Technical Development” stipulate that only during one year upon the Law becoming effective the Government has to provide for the review of state target programs and to harmonize them with priority areas of scientific and technical development as stipulated by this Law. Furthermore, not a single state target innovation program has been approved yet. The Parliament also has not considered yet the new draft law “On Priority Areas of Innovation Activity”.

The Draft Strategy determined the need to initiate the process of extensive implementation of innovation development programs in all sectors, regions, enterprises and institutions, along with the programs of advancing innovation development in priority areas of economy. For this purpose, first of all, it is necessary to legalize state target innovation programs in the Law of Ukraine "On State Target Programs", and also to develop and adopt recommendations as to establishment of innovation programs at various levels (according to the Resolution of the Verkhovna Rada of Ukraine of 16.06.2004 No 1786-IV)

The “Procedure of development and implementation of state target programs” drafted according to the Law of Ukraine “On State Target Programs” and approved by the Resolution of the Cabinet of Ministers of Ukraine of 31.01.2007 No 106 to some extent determines the mechanism of development and agreement of STP and submission them for approval and implementation.

In particular, this regulation details the contents of the sections on drafting the program concept (paragraphs 7-13), defines that the initiator has to arrange its public discussion at board meetings, conferences, meetings; and these discussions have to result in proposals to be taken into account while finalizing the project (paragraph 14).

It is also necessary to pay attention to the list of criteria to be taken into account while agreeing the draft concept with the Ministry of Finance and other concerned executive authorities (paragraphs 15-16).

However, this document duplicates the articles of the Law in a number of paragraphs, and it needs to be made more specific in the sections on governing STP and expert examination of the projects.

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In particular, according to paragraph 41, the state ordering party is allowed to establish coordinating (scientific and technical) council headed by program supervisor only if it is required. However, the functions, rights and duties of the above-mentioned board are not specified in the “Procedure”.

As regards to the state expert examination of the draft program, paragraph 32 of the "Procedure" assigns carrying out of this expert examination to the state ordering party of the program.

Moreover, this expert examination is to be carried out on various (and often multidirectional) areas: scientific, technical, environmental, investment, sanitary and epidemiological, expert examination of land planning documents, etc. For each of the above types of expert examinations legislative instruments define the criteria regulating the local expert examinations. Very often in various expert examinations they contradict each other. Thus, scientific and technical expert examination may have positive results, while investment or environmental expert examination of some or other STP may be negative.

The foregoing indicates at the necessity to carry out mandatory comprehensive state expert examination of concepts and projects of STP and STSTP, to analyse the total of existing programs and those developed to determine their compliance with the priorities of economic, social, scientific, technical, environmental and cultural development of the state and the reality of implementing the mentioned priorities within the total of target programs and the expert examination of the efficiency of using budgetary funds for the implementation of the programs.

The analysis of the total of legislative and regulatory instruments of Ukraine that regulate the processes of establishment and implementation of state target programs as a whole and their components – state target scientific and technical programs, shows, on the one hand, the inconsistency of some separate provisions concerning the same subjects, objects and processes of target program management, and on the other hand, – the systemic incompleteness of the mentioned instruments.

Thus, after adoption in 2004 of the Law of Ukraine “On State Target Programs” and approval in 2007 the “Procedure of development and implementation of state target programs”, “The provisions about the state scientific and technical program” approved in 1995 have not lost their force.

As mentioned above, according to article 6 of the Law the development of STP may only be initiated by the Cabinet of Ministers of Ukraine, central executive authorities, the National Bank, the National Academy of Sciences, the Verkhovna Rada of the Autonomous Republic of Crimea, oblast councils, Kyiv and Sevastopol city councils, the Council of Ministers of the Autonomous Republic of Crimea, oblast state administrations and Kyiv and Sevastopol city state administrations. However, in accordance with paragraph 3 of the “Provisions” the program may be initiated by enterprises, institutions, organizations and individual citizens.

Paragraph 5 of the “Provisions” stipulates that while making decision about establishing the program, the Government appoints the ordering party, the governing body and program supervisor. According to the Article 7 of the Cabinet of Ministers of Ukraine the Cabinet of Ministers appoints only state ordering parties, and program supervisor is appointed by the state ordering party (Article 8).

The Law does not touch upon the body governing STP. However, the “Provisions” stipulate that the body governing the program carries out expert examination of certain projects and competitive selection of program performers (paragraph 6), and also concludes agreements (contracts) with program performers (paragraph 8). The Law (Article 11) stipulates that the agreement (contract) is concluded by the state ordering party that according to paragraph 32 of the “Procedure” carries out state expert examination of draft program.

According to paragraph 12 of the “Provisions” the body governing the program establishes scientific and technical council, which composition is approved by central executive authority on scientific, technical and innovation activity. Paragraph 41 of the “Procedure” stipulates that the state ordering party establishes scientific and technical council of the program (only if necessary), which composition is approved by the state ordering party.

The above-mentioned documents do not specify the powers of bodies governing the program, the mechanisms of competitive selection and state expert examination, funding, economic incentives and monitoring of implementation.
1.3. Issues to be resolved

1.3.1. Issues to be resolved at the legislative level.

The issues to be resolved at the legislative level pertain to:

- the inclusion of innovation programs in the classification of state programs by direction area;
- the inclusion of industry-specific academies of science, enterprises, scientific organizations and individual citizens to the list of initiators of STP development;
- appointing the supervisor of STP and STSTP by the Cabinet of Ministers of Ukraine but not by the state ordering party (Article 7 of the Law of Ukraine “On State Target Programs”), the legislative securing of establishment and operation of organizational structure for program management;
- granting the right to state ordering parties to make partial changes to the programs in terms of clarification of certain indicators and measures, deadlines and list of performers;
- introduction of statistical reporting on performance of STP and STSTP and of innovation programs, and also legislative securing of the powers of the central executive authorities on statistics in the sphere of STP implementation
- definition of mutual responsibility of ordering parties and performers for executing and reaching the target indicators of the programs;
- stipulating in delegated legislation acts of clear mechanisms of expert examinations, competitive selection of tasks (target projects) and performers, funding STP and STSTP, carrying out and monitoring of programs, inclusion of specific performers to forms of task and program measures.

1.3.2. Issues that were addressed at the legislative level, but not implemented (partially implemented)

1. The Article 6 of the Law of Ukraine of 11.07.2001 No 2623-III “On Priority Areas of Scientific and Technical Development” determined that funding of STSTP from the State Budget from PA DST should amount to at least 30% of total budgetary expenditure on science.

However, even taking into account the scientific parts of STP, this regulation did not reach even 10%. This regulation is not stipulated by the Law of Ukraine of 09.09.2010 No 2519-VI "On Amendments to the Law of Ukraine "On Priority Areas of Scientific and Technical Development".

2. The order of the Cabinet of Ministers of Ukraine to prepare and submit to the Verkhovna Rada of Ukraine the Draft State Program of scientific and technical development of Ukraine according to the Decree of the President of Ukraine “On the decision of the National Security and Defence Council of Ukraine of July 3, 2001 “On urgent measures for recovery of Ukrainian scientific and technological sphere from crisis and creation of realistic conditions for economy transition to innovation development model” No 640/2001 of August 20, 2001

Not completed.

3. The order of the Cabinet of Ministers of Ukraine to process proposals on increasing target program funding of applied research and of scientific and technical (experimental) projects in accordance with the Decree of the President of Ukraine "On the decision of the National Security and Defence Council of Ukraine of April 6, 2006 "On the state of scientific and technological sphere and on the measures to support innovation development of Ukraine” No 606/2006 of July 11, 2006.

Not completed.

4. Recommendations of the Cabinet of Ministers of Ukraine while drafting the Law on State Budget of Ukraine for the year 2005 and subsequent years to achieve the rate of expenditures on STSTP funding from PA DST at 30% of expenditures on science in accordance with the Resolution of the Verkhovna Rada of Ukraine “On compliance with laws on the development of scientific and technical potential and innovation activity in Ukraine” No 1786-IV of 16.06.2004.

Not completed.
5. Recommendations of the Cabinet of Ministers of Ukraine to develop recommendations on establishing nationwide, industry-specific and regional innovation programs in accordance with the Resolution of the Verkhovna Rada of Ukraine “On compliance with laws on the development of scientific and technical potential and innovation activity in Ukraine” No 1786-IV of 16.06.2004.

Not completed.

6. The Resolution of the Cabinet of Ministers of Ukraine of 10.10.1995 No 796 “On Approval of the Provisions on State Scientific and Technical Program” (paragraph 12) stipulates that the body governing the program establishes the scientific and technical council, its powers and status.

Partially implemented. Most scientific and technical councils do not work regularly, do not perform their functions on distribution and redistribution of funds among target projects of the programs. Typically, they are headed by senior officials of scientific organizations who already have too much work at their main jobs.


Not completed.

8. The Resolution of the Cabinet of Ministers of Ukraine of 10.10.1995 No 796 “On Approval of the Provision on State Scientific and Technical Program” (paragraph 19) stipulates the statistical reporting of organizations and enterprises on the use of scientific and technical products transferred to them for scientific and industrial activity.

Not completed. The Law of Ukraine “On State Target Programs” does not provide for the statistical reporting on STP implementation.
5. National innovation system and the issues of legal provision of its functioning

1.1. Analysis of the legislation

The innovation processes and the transformations linked to the latter take place due to the functioning of the unity of the organizations and institutes that develop, implement or use and commercialize innovative products and provide for the successful realization of the innovative projects at every stage. This unity, considering the legislative, financing, organizational, and social aspects, is a system structure called the National Innovation System.

Economic science, which has adopted different approaches regarding the notion, develops its content. Economic science regards the innovation system as a system of economic interacting scientific and innovation elements and institutional structures of social and economic systems that provide for the economic development and increase in quality of living of the population based on the knowledge and innovations by means of generating, investing, and practical applying of the results of the innovative activity.

The National innovation system being a category of the system order is defined as being structured, integral, detached, subject to the general target of stimulation, support and distribution of innovation transformations. The system type of the national innovation system means that the technological development is not a one-way directed causative links, taking from scientific and research and research and construction works to innovations, but also as a process of reciprocal action and feedbacks determining the creation of the innovation. The national innovation system does not only cover the field that generates the new knowledge and takes it to the level of practical application or implementation, but also acts as a mechanism of marketing of the intellectual capital of the state. Moreover, it creates a structure which directly secures the flow of innovation processes. In its turn this means the level of implementation of the innovative model of development in the framework of the national economy of the country is conditioned by the efficiency of the functioning of the national innovative system. Being directly linked to the creative intellectual activity, of which freedom and suddenness (however, expectations, as well) of the results are typical, the functioning of the national innovative system is largely performed based on the principles of self-regulation, hence it is as well being regarded, along with the aspects mentioned, as a structure of managing of innovation processes.

Thus, the national innovation system, on one hand, generates new knowledge, and performs a transformation function – guarantees taking this knowledge to the level of innovation products and innovations, and on the other – it independently determines the directions of the innovative processes, activities and effectiveness of the innovative activity of the subjects of economic management.

The approach to the formation of the national innovation system is seen as deserving the attention of not only economists, but also the representatives of juridical science, legislative and executive branches of the government, and to be chosen as a reference when developing the legislative mechanism of functioning of the innovative model of economy, when compiling the innovation policy of the state. The understanding of the processes, phenomena, patterns and trends typical of the national innovation system will allow to determine the most ardent issues and obstacles of the innovation development of the economy of the state, the difficulties of the interaction of the elements of the national innovation system, as well as its external links; will contribute to the technological changes in the activities of the subjects of economic management and growth of their competitive ability.

However, it is to be admitted that in Ukraine the issue of creating of the national innovation system, despite the fact that it is clear that this issue needs to be resolved of as soon as possible, is generally at the quite initial stage, although the government, by the end of 2006, was to approve the Concept of the

10 Recommendations consider Ukrainian experience.
Development of the National Innovation System\textsuperscript{13}. In fact, an almost identical concept was approved by the Cabinet of Ministers of Ukraine June 17, 2009.\textsuperscript{14}

In accordance with the Concept of the development of the national innovation system, the national innovation system is defined as a complex of legislative, structural and functional components (institutions) that participate in the process of creating and using of scientific knowledge and technology and determine legislative, economical, organizational and social conditions to secure the innovation process.

Considering the fact that the law being one of the main and effective regulators of social relations can not only normalize, but also direct and stimulate the development of the relations valuable to the community, we consider that introducing to the legal framework of Ukraine the category of “the national innovation system”, as well as securing by the law of its main elements and adjusting of the relations existing in between the subjects involved in its functioning, should be resolved on the level of a law at least, and not on that of a normative legal by-law, for the very national innovation system is an indispensable precondition for increasing of innovative activity of the subjects of the economic management and the creation of an innovation model of the national economy. Moreover, since the approach to the systematized adjusting of relations originating in innovation activity and the realization of the innovation projects has to be adopted by the state when developing and pursuing the innovative direction of the economic policy, the securing of the national innovation system by means of law and the legal adjustment of the relations occurring when the system is functioning may serve a methodological ground for the creation of a legal innovation policy of the state.

The Concept of the development of the national innovation system determines the following main components- the subsystems of the national innovation system:

(a) the state controlling, which consists of legislative, structural and functional institutions that set the norms, rules, and requirements in the innovation field and ensure the interaction of all the subsystems of the national innovation system, and make sure that they are followed;

(b) the education, which consists of the institutes of higher education, research and methodological and methodological institutes, scientific production enterprises, state and local boards of education, as well as educational organizations that provide training, retraining and advanced training;

(c) generation of knowledge consisting of scientific institutions and organization independent of their property category, which conduct scientific research and development and produce new scientific knowledge and technologies; state scientific centres, academic and branch institutes, scientific departments of higher education institutes, scientific and design departments of enterprises;

(d) innovation infrastructure, which consists of production and technology, financial, information-analytical and expert-consulting components, as well as technopolises, technological and scientific parks, innovations centres and technology transfer centres, business incubators and innovation structures of other types; information networks of scientific and technical information, expert-consulting and engineering companies, state and private investment bankers;

(e) production, which consists of organizations and enterprises which produce innovation produce and provide services and (or) consume technological innovations.

It is to be mentioned that the notion of “national innovation system” is not determined by any other legislative and normative and legal acts of Ukraine.

The mechanism of interaction between its different subsystems is not established by any law; nor are developed the special legislative means of the state control of the activity of the subjects of economic management within each subsystem.

\textsuperscript{13} Regarding the resolution of the Ukrainian National Security and Defence Council, Apr.6, 2006 „On the state of the science and technology and measures of ensuring the innovation development of Ukraine”: Presidential Decree June 6, 2006/ Uryadovy Courier. – 2006. – July 15. – № 130. – С. 9.
\textsuperscript{14} Regarding the Approval of the Concept of the development of the national innovation system: decree of the Cabinet of Minister of Ukraine, June 17, 2009 p. № 680-p // Offiцiйnyi Visnyk Ukrainy. – 2009. – № 47. – Art. 1593

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Thereby, it is to admit that when developing and implementing the innovation policy, the state does not target to ensure the functioning of the national innovation system. In this regard it is worth noting that in its draft law of Ukraine “On amending certain legislative acts of Ukraine regarding the stimulation of the innovation activity”, the Ministry of Education and Science of Ukraine has not made any provisions for the principle of legislative backing of the functioning and sustainable development of the national innovation system: neither the very system nor its structure is defined; the legislative principles of the activities of the economic management subjects that form the subsystems are not being made any provisions for. This part offers merely the improvement of the definition of the innovation infrastructure as a complex of the subjects of the economic management of any type of organizational and legal types that provide innovation activity services (organizational, intermediary, financial, consulting, marketing, informative-communicative, legal, educational etc.). The elements of the innovation infrastructure include, in particular, the technology transfer centres, innovation business incubators, and innovation structures.

1.2. Issues to be resolved:

The definition of the notion of the national innovation system has to be formalized, first of all, at the Code of Commercial Procedure of Ukraine (hereinafter referred to as CCPU), Chapter 34 and the Law of Ukraine (hereinafter referred to as the LU) «On Innovation Activity», for the very activity has to be regarded as the subject of the innovation policy of the state. We think that from the legal standpoint the national innovation system may be defined as a complex of economically, structurally and legally interacting subjects of scientific, scientific and technical and innovation activity, other enterprises, institutes, organizations, that perform, ensure and/or contribute to carrying out of scientific researches, development, commercialization and practical application (within the real sector of economy) of the results of the intellectual activity and of innovation objects within the national boundaries.

We think that if adopted by the law the given definition of the national innovation system will not only let define the subjects, which activities ensure the functioning of the system, but also reflect the subject of their activity taking into consideration the directions and forms of their interaction.

In addition to the definition of the national innovation system, the legislation has to determine its structure and the principles of activity necessary to develop and implement the effective means of its state regulation. In this regard the understanding and defining by the law of the fact that the national innovation system consists of regional innovation systems, the result of functioning of which influences in direct ration the overall state of the national innovation system, gain special importance.

We suggest to settle the following provision into the CCPU and the LU «On Innovation Activity»: «The national innovation system incorporates the regional innovation systems already existing or being created within the boundaries of one or several administrative-territorial units and the functioning of which aims at stimulating scientific researches, using scientific potential and knowledge (in the real sector of economy), stirring up the innovation activity of the subjects of economic management in the respective territory and guaranteeing the economic development of the respective administrative-territorial unit(s) based on the application (implementation) of the results of intellectual activity and innovation objects».

There is no doubt that the structure of the national innovation system needs to be written out into a norm, and it needs to be done on the level of a law. To determine the directions of the innovation policy of the state that has to be implemented in every subsystem of the national innovation system, we think that it is reasonable that the structure of the national innovation system be defined with the CCPU and LU «On Innovation Activity».

It is perceived that the main elements of the structure of the national innovation policy are defined in the Concept of the development of the national innovation system: education, generation of knowledge, innovation infrastructure and production. However we think that the state regulation consisting of legislative, structural and functional institutions that set and ensure the observance of the norms, rules, requirements in the innovation field and the interaction of all the subsystems of the national innovation system, cannot be

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included into the national innovation system for the latter is characterized as being autonomous in its functioning with regards to the state, hence the stated phenomenon of autonomy is the essence of the functional relations of the national innovation system with its external surroundings, namely the state.

Plus, generally speaking, the normative regulation being one of the aspects of the state regulation is the base for the functioning of the national innovation system, and not an element of its structure.

The lawmakers have opted for the approach regarding the defining of the national innovation system that neither considers nor includes a very important element of the latter - the market of the objects of intellectual property and innovation objects, technologies included.

The integrating quality and the defined properties of the national innovation system allow determining more or less clearly the right minimal size of the structure, so to say “the crystal grid” which, under the interaction of its constituent elements, guarantees that the system fulfils its functions. This minimal construction consists of several structural constituent parts, which jointly guarantee the realization of the innovation process and the creation of the very innovations as an integrative quality of the national innovation system.

In other words, the minimal size of the structure of the national innovation system has to be large enough and to have everything needed to produce the innovations, its main integrative quality. We think that this basic structure of the national innovation system, worth to be determined with the CCPU and the LU «On Innovation Activity» consists of:

1) a subsystem of science, within the boundaries of which new ideas are generated and innovations are developed; in which the subject of scientific activity (namely, scientists, research workers, research and educational personnel, as well as scientific institutions, scientific organizations, III-IV accreditation level institutes of higher education, scientific and scientific and technical public organizations), as well as individuals performing intellectual activity, participate;

2) the subsystem of technical support (makers) of innovation products, the activity of which is to take the designs to the level of implementation and commercialization, that is to transform them into innovation products;

3) the subsystem of consumption of innovation products made up of consumers or recipients of innovation products and objects of intellectual property - the subjects of economic management that use (implement) innovation products;

4) the subsystem of infrastructure of the national innovation system (innovation infrastructure), which serves the function of resource support or assistance in implementation of innovation projects, support of effective realization of innovation activity and implementation of innovations.

It is reasonable to mention that the infrastructure of the national innovation system is made up of the subjects of economic management, the activity of which is aimed at ensuring, supporting, and facilitating of the innovation activity by its subjects; at providing assistance and resource support to other subjects of economic management when they implement an innovation project with the aim to successfully take the results of intellectual activity to the level of innovation products and to further use (implement) them as innovations.

The aim of the functioning of the infrastructure of the national innovation system is the creation of conditions for an effective interaction between the science and production, the integration of the real demand for new, substantially improved produce and processes (technologies), new/substantially improved works (services), new/substantially improved production, the relevant offers submitted.

One of the constituent parts of the innovation infrastructure is a subsystem of innovation brokerage, which is aimed at connecting the demand for and the offer of the innovations, innovation products and promoting of the innovations starting at the level of the developer all the way to that of the recipients of these innovation products.

National innovation system, being a system-structured organization, is characterized not only through its structure, but also by functional links that ensure the concerted work of all its constituent building blocks. From the economical point of view, the functional links is a certain movement of different type of objects. In particular, within the limits of the national innovation system the functional links (relations) may be made up
relative to the money funds, information, works (scientific and research, research and design, engineering, etc.) or services (in particular, educational services, professional training services, consulting, assessment of intangible assets, etc.), as well as in regards to the very results of intellectual activity, including the innovating products acting as independent products. From the legal standpoint, the functional links are relations between the subjects of economic management relative to different objects arising from the creation, implementation and circulation of innovative products, and/or with the aim of ensuring their commercializing as innovations.

The links relative to transfer, exchange of the objects of intellectual property and innovation products established between the subsystem of science, the subsystem of technical support (makers) of innovation products, the subsystem of the recipients of innovation products and the subsystem of innovation brokers, create, in the economical aspect, an innovation market, and are recognized by the law as contractual relations. Because of its peculiarities, the innovation market, so to say, covers a certain area within the national innovation system; it also can be presented as a separate entity of a system nature.

We think that the main precondition for the formation of the innovation market as a special field of exchange of the objects of intellectual property and innovation products and as a complex of relations arising from it, should be considered the need in innovations not only as a factor of production, but also as an independent product of the end use, so to say. The very last aspect of the innovation plays a significant role – because of the intangible character of the objects of intellectual property, which constitute the central section of any innovation, and due to the need to connect within the innovation activity different types of work (intellectual, financial and production), there is a gap between the designing (developing) of the innovation product and its manufacturing application. At that, if acting through the specialization of work, and hence the domination of different factors of production, to connect the latter ones at the volume necessary for the full-scale innovation activity is, as a rule, a really difficult task to accomplish. This explains the demand from the owners of financial and production capital for the results of the intellectual property-resources thanks to which it is possible to obtain additional income at the activity conditions equal to those of the competing subjects (not changing the specialization of the enterprise, as well). These requirements are largely met by the very innovation products which due to the improvement of the quality (improvement) of the goods or technologies can improve the indices of the production process and/or the competitiveness of the produce. On the other hands, the proprietors of the new knowledge and information quite often lack production and financial resources, which means that they offer their designs to other subjects. Thus the asymmetry of the ownership of the factors of production largely and that of intellectual resources in particular stimulates the emergence of a particular field of demand and offer (exchange) – the market in which the very innovation object is a goods.

The demand for innovation products containing objects of intellectual property is increasing because these products contribute greatly to the increase of the technical production level, to the production of the produce able to meet the constantly growing needs of the population, to the improvement of the system of economic management on the whole. The innovations like the new implemented products, means, technologies, invented or created during of the scientific researches, and which if compared with the similar are better, first and foremost, in terms of their intellectual level, are considered to be the most effective means of technology development of the economic management subjects and ensure their competitive strong points.

Since the demand for innovation has been increasing, new directions of activities of the subjects of economic management have appeared and are steady and constantly growing in volume. In particular, the following was not known about in Ukraine in the past: technoparks, innovation and investment centres, venture companies; the following types of activities as assessment of a business, internet intellectual property exchange, information and analytic, consulting, management and marketing support of innovation activity, outsourcing etc. New subject of economic management are appearing which perform analysis, management, and optimization of the process of obtaining of the innovation profit at different levels of the creation of the added value all through the entire innovation cycle. The new forms and mechanisms of use of credit and financial instruments are developed - financing of long-term innovation projects by the banks, investment funds, insuring of innovation risks, innovation financing on security of the intellectual property legal objects, special venture funds, etc.

The national innovation system despite of its self-adjusting nature is not a completely autonomous and
isolate system. It closely interacts and even pierces through the other systems of the state (economic, educational, and social ones, in particular) or their structural elements (industry, investment market, market of financial services, etc.), which in regards to the latter act as its closest external surroundings and with which the external functional links are established. Plus, among the external links of the national innovation system, it is worth to distinguish its relations with the very state the latter being a political organization of the society. These relations are being subject-object relations of management, which adds sings of certain level of regulation to the functioning of the national innovation system. Thus, the national innovation system should as well be regarded as an element of the system of the highest order, hence, between the system and the state there appear certain hierarchic relations, the mechanism of control being a typical feature of the latter. Therefore, the use of the means of the state control regarding the national innovation system does not mean the removal of the self-adjusting principles pertinent to the system. It is when combined that the mechanisms of self-adjusting and control ensure the stable position and sustainable growth of the national innovation system.

The relations between the state and its system and the national innovation system have to be defined and determined by the law, for it is the normative regulator that guarantees the best relations between the state and the national innovation system, as well as controls and cuts any deviations in the balance of the mechanism the state and the system use. Therefore, a set of issues needs to be resolved and backed by the law which will help to determine the limit line for the state to use the mechanism of control regarding the national innovation system and will serve as a certain guarantee that protects the self-adjusting nature of the functioning of the system. They are, first of all, the principles, mechanisms, means of state regulation and control of the activities of the national innovation system, the systems of the bodies of the state regulation in the field of innovations, and the distribution of the jurisdiction among them. That is it is reasonable to add to the field of legal regulation of the innovation activity certain issues regarding the harmonization of the relations which determine the external relations of the national innovation system, and first and foremost its relations with the state.

Thus, we think that, within the national innovation system, it is reasonable to distinguish the two sets of the structural entities:

First of all these are the structural and basic units which make up the frame of the system and cause it to perform its main properties,

Second, functional links: internal, which provide for the interaction of all the elements of the system and connect them into an integral entity based on the certain functional purpose; and external, which provide for the interaction between the system and its external surroundings and connect the system to other entities to constitute the system of the higher order (the state, first and foremost).

The study of the structure and the patterns of the functioning of the national innovation system is of methodological significance for the development of the legal mechanism of the regulation of the relations that appear due to the creation, implementation and commercialization of the objects of intellectual property and innovation products. We think that the use of the knowledge of the peculiarities of the functioning of the national innovation system will help to implement, when developing a legal mechanism of regulation of the innovation field, a system approach that will allow to cover with the positive influence of the law all the structural elements, and to put in order the functional links of the national innovation system. In other words, only under the conditions of the correlation between the legal mechanism and the structure of the national innovation system the aims that the state sets in the field of innovations considering the social and economic state of the development of Ukraine can be reached.

Conclusions

Based on the offered structure of the innovation system, which unites isolated elements into an unified system with an integrated property, which is of interest for the state and for the society in general, we think that it is possible to distinguish the following sets of issues of functioning of the national innovation system which are to be treated within the framework of the state innovation policy as its main directions, and which are to be regulated by a law within the scope of a unified legal mechanism:

1) the formalizing of the whole of the structure of the national innovation system and of its individual elements;
2) the defining of the principles and general provisions of the legal regulation of the activity of the national innovation system;

3) the defining of the system of the bodies of the state regulation of the national innovation system and their responsibility;

4) the formalizing of the mechanisms and means of state regulation and control of the activity of the national innovation system;

5) the defining of the participants of the national innovation system as subjects of legal relations, the definition of their legal status and procedural and institutional requirements regarding their activity;

6) the setting of the legal structure and conditions of activity of the participants of the national innovation system;

7) the formalizing by the law of the relations of exchange of the objects of the intellectual property and innovation products that form the innovation market, by means of formalization of their contractual forms and requirements regarding them;

8) the formalizing of legal mechanisms and forms of cooperation of the participants of the national innovation system beyond the limits of the innovation market;

9) the defining of the international legal aspects of the functioning of the national innovation system and of the very innovation activity.

In accordance with the directions of improving of the laws on the functioning of the national innovation system, we suggest to add to the CCPU and the LU «On Innovation Activity» an Article «National Innovation System» (given at the table with the proposals regarding the legislation).

We also offer to complete the list of the principles of the state innovation policy at paragraph 2 of the Article 3 of the LU «On Innovation Activity» with the principle that reflect objective patterns of the functioning of the national innovation system (given at the table with the proposals regarding the legislation).

Thus, structuring of the national innovation system is of high methodological significance for the science of law and performs an instrumental function – once the main participants of the innovation processes, the relations established among them, as well as those between them and other subjects of law, their peculiarities, and the objectives and tasks of the state in the innovation field are defined, structuring of the national innovation system allows to develop an effective legal mechanism of regulation of the relations established due to the creation, implementation, and commercialization of the objects of intellectual property and intellectual products, as well as to determine the main directions of the state innovation policy.
6. Legal analysis of the legal status of public institutions working in research and development spheres

1.1. Regulations

1. Codes:

1.1. Civil Code of Ukraine of 16.01.2003 No 435-IV, entered into force as of 1 January 2004 (as amended) [1].

1.2. Economic Code of Ukraine of 16.01.2003 No 436-IV, entered into force as of 1 January 2004 (as amended) [2].

2. Laws of Ukraine:


2.2. Law of Ukraine “On Specifics of the Legal Regime for Activities of the National Academy of Sciences of Ukraine, Sectoral Academies of Sciences and the Status of Their Property Complex” of 07.02.2002, No 3065-III (as amended) [4].

2.3. Law of Ukraine “On Education” of 23.05.1991, No 1060-XII (as amended) [5].

2.4. Law of Ukraine “On Education” of January 17, 2002 No 2984-III (as amended) [6].

2.5. Law of Ukraine “On Scientific Parks” of 25.06.2009, No 1563-VI (as amended by the Law No 2850-VI of 22.12.2010) [7].


2.7. Law of Ukraine “On Innovation Activity” of 04.07.2002, No 40-IV (as amended) [9].


2.11. Law of Ukraine “On Scientific Technical Information” of 25.06.1993, No 3322-XII (as amended) [13].


2.13. Law of Ukraine “On Public Procurement” from 01.06.2010 No 2289-VI (as amended) [15].


2.15. Law of Ukraine “On Transferring the Objects that are in State and Municipal Ownership” of 03.03.1998, No 147/98-VR (as amended) [17].

2.16. Law of Ukraine “On Scientific and Scientific and Technical Expertise” of 10.02.1995, No 51/95-VR (as amended) [17].


17 Figures in parentheses serve as references to the regulations mentioned in the text.

3. **Decrees of the President of Ukraine:**

3.1. Decree of the President of Ukraine “On the Activity and Development of the Academy of Sciences of Ukraine” of 20.01.1992, No 43 [21].

3.2. Decree of the President of Ukraine “On State Support of Scientific Activities of the Academy of Sciences of Ukraine” of 22.03.1994 No 100/94 (as amended) [22].

3.3. Decree of the President of Ukraine “On Rendering the Academy of Sciences of Ukraine the Status of National” of 23.02.2010, the No 233/2010 [23].

3.4. Decree of President of Ukraine “On the Academy of Sciences of Ukraine” of 23.07.1993, the No 275/93 (as amended) [24].

3.5. Decree of the President of Ukraine “On Establishment of the Academy of Pedagogical Sciences of Ukraine” of 04.03.1992, No 124 (as amended) [25].

3.6. Decree of the President of Ukraine “On Rendering the Academy of Pedagogical Sciences of Ukraine the Status of National” of 24.02.2010, the No 259/2010 [26].

3.7. Decree of President of Ukraine “On the Academy of Medical Sciences of Ukraine” of 24.02.1993, the No 59/93 (as amended) [27].

3.8. Decree of the President of Ukraine “On rendering the Academy of Medical Sciences of Ukraine the Status of National” of 24.02.2010, the No 255/2010 [28].

3.9. Decree of the President of Ukraine “On Rendering the Ukrainian Academy of Agrarian Sciences of National Status” of 06.01.2010, No 8 / 2010 [29].


3.11. Decree of the President of Ukraine “On Regulation on the National Institution (establishment) of Ukraine” of 16.06.1995, the No 451/95 (as amended) [31].

4. **Decrees of the Cabinet of Ministers of Ukraine:**

4.1. Decree of the Cabinet of Ministers of Ukraine “On Approval of the State Target Economic Program on Creation of Innovation Infrastructure in Ukraine for the years of 2009-2013” of 14.05.2008, No 447 [32].


4.3. Decree of the Cabinet of Ministers of Ukraine “On Approval the Procedure for Considering the Decision to Create a Science Park” of 03.02.2010, No 93 [34].

4.4. Decree of the Cabinet of Ministers of Ukraine “Issues of the Academy of Legal Sciences” of 18.05.1994, No 321 (as amended) [35].

4.5. Decree of the Cabinet of Ministers of Ukraine “On Approval of the Statute of the Academy of Sciences of Ukraine” of 02.02.2000, No 210 (as amended) [36].

4.6. Decree of the Cabinet of Ministers of Ukraine “Issues of the Academy of Pedagogical Sciences of Ukraine” of 16.06.1992, No. 335 (as amended) [37].


4.8. Decree of the Cabinet of Ministers of Ukraine “Issues of the Academy of Medical Sciences of Ukraine” of 22.03.1993, No 211 (as amended) [39].

4.9. Decree of the Cabinet of Ministers of Ukraine “On Approval of the Statute of the Academy of Medical Sciences of Ukraine” of 18.10.1999, No 1913 [40].
4.10. Decree of the Cabinet of Ministers of Ukraine “On Approval of the Statute of the Ukrainian Academy of Agrarian Sciences” of 13.08.1999, No. 1488 (as amended) [41].


4.15. Decree of the Cabinet of Ministers of Ukraine “On Approval of Regulations of the State Institution of Higher Education” of 05.09.1996, N 1074 (as amended) [46].

4.16. Decree of the Cabinet of Ministers of Ukraine “On Approval of the Procedure of Formation and Execution of Orders for Research and Development, Design and Development Activities by the State Budget” of 25.08.2004, N 1084 (as amended) [47].


4.18. Decree of the Cabinet of Ministers of Ukraine “On Approval of Regulations on the procedure of establishment and operation of technology parks and innovation structures of other types” of 22.05.1996, No 549 (as amended) [49].

4.19. Decree of the Cabinet of Ministers of Ukraine “On approving the list of paid services that can be provided at schools, other agencies and education institutions belonging to the state and municipal property” of 27.08.2010 No 796 (as amended) [50].

4.20. Decree of the Cabinet of Ministers of Ukraine “On Approval of Regulations of the National Science Centre” of 19.03.1994 No 174 (as amended) [51].

5. Specific financial legislation:

5.1. Budget Code of Ukraine, the Law No 2456-VI of 08.07.2010, the (last amended on 23.12.2010) [52].

5.2. Tax Code of Ukraine, the Law No 2755-VI of 02.12.2010, the (last amended on 23.12.2010) [53].

1.2. Analysis of legislation

State research institutions and universities of III–IV level of accreditation play an important role in the process of scientific, research and development and innovation activity in Ukraine.

Analysing the provisions of current legislation of Ukraine concerning the legal status of the abovementioned subjects, we can admit the following positive aspects:

- the right to create legal entities and their associations (for institutions that are administered by the National Academy of Legal Sciences of Ukraine and sectoral academies of science, the ability to create enterprises – par. 3 Article 3, par. 3 Article 4 of the Law of Ukraine “On Specifics of the Legal Regime for Activities of the National Academy of Sciences of Ukraine, Sectoral Academies of Sciences and the Status of their Property Complex”[4] for higher education institutions – the ability to create legal entities that operate in accordance with the directions of scientific-research and production activities of higher education institutions – par. 2 Article 23 of the Law of Ukraine “On education” [6] and accredited universities in the ability to create training and educational and scientific-production complexes, which are voluntary associations - Part 3 of Art. 23 of the Law of Ukraine “On Higher Education” [6] for the national higher education institutions the possibility of creating institutions, enterprises and organizations – par. 4 Art. 26 of the Law of Ukraine “On Higher Education” [6] and in general for the subjects of scientific activity the opportunity to create technological parks and other innovation structures of other types – point 3 of the Law of Ukraine “On Special Regime of Innovation Technology Parks Activity” [12], par. 2 point 2 of the CMU
Decree “On Approval of Regulations on the procedure of establishment and operation of technology parks and innovation structures of other types” [49], for higher educational institutions of IV level of accreditation and academic institutions – the opportunity to create scientific parks – par. 3 Art. 1 of the Law of Ukraine “On Scientific Parks” [7] for NTU “KPI” opportunity to create a research park “Kyivska Polytechnika” - par. 4 Art. 1 of the Law of Ukraine “On Scientific Park Kyivska Polytechnika” [8]).

- scientific institutions, universities of IV level of accreditation (association of scientific institutions or universities of IV level of accreditation), conducting comprehensive researches of national importance and having the worldwide recognition of their work, can receive the status of Research Centre - Art. 13 of the Law of Ukraine “On Scientific and Scientific and Technical Activity” [3]. The aim of providing the research (scientific) institutions of IV level of accreditation (combining research, research and development institutions or universities of IV level of accreditation) status of a national research centre is: implementation of government support for institutions, the scientific researches of which have international recognition or in conduct of which the state has special needs, promotion of the development of research and development capacity of national importance and ensuring its effective use; scientific support for solving the most important tasks of economic development and social services (paragraph 2 of the CMU “On Approval of the Statute of the National Research Centre” [51]). According to Section 7 of the Decree of the CMU “On Approval of the Statute of the National Research Centre” [51] in due procedure the Centre may be provided with benefits to specific scientific and technological research and development activities;

- ability to be the landlord of premises and equipment (e.g., higher educational institution and/or research institution -- the founder of the Scientific Park may be the landlord of premises and equipment for partners for the term of Scientific Park project implementation – Art. 20 of the Law of Ukraine “On Scientific Parks” [7];

- institution of higher education of state and municipal form of ownership independently manages the revenues and other benefits derived from providing paid services permitted by law (par. 3 Art. 63 of the Law of Ukraine “On Higher Education” [61]). Similar provisions are contained in paragraph 84 of the Decree of the CMU “On Approval of the Statute of the State Higher Education Institutions” [46] – the higher education institution solely uses budgetary and extrabudgetary funds in accordance with the overall budget approved by the governing body, which administers it. According to points 1), 4), 9), 11), 12), 14) § 2 of the Decree of the CMU “On approving the list of paid services that can be provided by educational institutions, other institutions and educational institutions owned by the state and municipal forms of ownership” [50] paid services that could be provided by educational institutions, other agencies and educational institutions owned by the state and municipal forms of ownership, include: conducting research, research and development, design, technological, search and design and exploration works of scientific, technical and other types of examinations in accordance with legislation, implementation of the research results, creation, production and implementation of research, industrial, scientific, technical, innovation products, machinery, equipment, devices and equipment that are manufactured by own technologies, performing operations related to transfer (transmission) of technologies developed at the expense of state budget, support for technological and scientific parks.

- Article 12 of the Law of Ukraine “On Scientific and Scientific and Technical Activity” [3] provides the opportunity to be included to the State Register of scientific institutions, that are supported by the government. Thus according to the specified Article Scientific institutions, included to the State Register of scientific institutions: experience tax benefits under the legislation of Ukraine;

- introduction of rules that define the legal regime of property rights for technologies and intellectual property rights’ objects, created during scientific parks activity - Art. 17 of the Law of Ukraine “On Scientific Parks” [7], Art. 6 of the Law of Ukraine “On Scientific Park Kyivska Polytechnika” [8], etc.

However, the existence of the problems mentioned below leads to the levelling of the positive effect of the abovementioned norms.

1. When creating legal entities, state agencies and universities are faced with problems of the establishing of the charter capital of the respective legal entity.

So the public institutions that are administered by the National Academy of Sciences of Ukraine and sectoral academies, have the right to contribute to the charter capital of the enterprises only property rights - par. 3 Article 3, par. 3 Article 4 of the Law of Ukraine “On Specifics of the Legal Regime for Activities of the
Higher educational institute and/or scientific institution are involved in the establishing of the charter capital of scientific park by making intangible assets (property rights for intellectual property objects) in accordance with the laws of Ukraine – par. 3 art. 13 Law of Ukraine “On Scientific Parks” [7].

Considering that the legislation does not contain specific requirements for the formation of the share capital of other legal entities that can be created by state scientific institutions and universities, we can conclude that the share capital in these cases is established according to the general requirements contained in CCU [1], ECU [2], the Law of Ukraine “On Business Associations” of 19.09.1991, No 1576-XII etc.

That is, regarding public research institutions, which are administered by the National Academy of Sciences of Ukraine and other state-supported institutions, the legislation sets clear limits that they have the right to form the charter capital of enterprises only with the help of property rights.

Similar limit referred to higher education institutions and/or research institutions during the formation of the charter capital of scientific parks.

It should be noted that when the intellectual property rights are introduced into the charter capital, a number of problems raises:

- valuation issues of IP,
- adding IP to records of state scientific institution or higher educational institute,
- questions on which agreement (license or the transfer (assignment) of intellectual property rights) the given rights should be made to the charter capital of a legal entity being created;
- the question at what stage can intellectual property rights be introduced to the charter capital of a legal entity. In this regard, it should be noted, that in legal literature, some scholars have suggested that because of the fact that subjects of intellectual property rights are physical and/or legal entities, the transfer of intellectual property rights, including as a contribution to the share capital, is possible only after establishing a legal entity successor.

As is well known, the entity is estimated as created from the date of its state registration. Thus, it could be concluded that, as when creating certain kinds of legal entities, its founders are obligated to establish the half of the charter capital prior to the state registration, it raises the question of whether the consolidation of legislative imperatives on the state level are essential possibility of forming government research institutions and higher education institutions of charter capital solely at the expense of the intellectual property rights for IP.

The usefulness of the setting of such imperative raises in case if along with state research institutes or higher education institutions in the formation of the authorized capital of a legal person only budgetary organizations agreed to participate, which by virtue of current legislation also are not free at the disposal of their property and funds, the question arises, how will this structure operate without “live” money that would be needed for example for lease of premises, office equipment, supplies etc.

It should be noted that in cases when current legislation of Ukraine does not contain imperatives for the formation of charter capital only at the expense of property rights, including intellectual property rights, state research institutions and universities have poor choice, in fact, they have again intellectual property rights.

This is conditional upon, first, the property given to state research institutions and higher education institutions are owned by them according to the right of operative management, which imposes significant restrictions for the procedure of its disposition (disposal, lease, free transfer of the balance of shall be performed only upon the permission of the relevant structures, etc.) [2].

In addition, public agencies can spend the budget funds that are provided for their activities, only for a clearly defined purpose, which currently has no line on the allocation of funds for the establishment of legal entities [52].
Even off-budget funds received by state research institutions and universities as a result of the economic activity, allowed to them, could be spent only in accordance with the latest approved budget [52].

For example, § 84 of the Decree of the Cabinet of Ministers of Ukraine “On Approval of the Statute of the State Higher Educational Institution” [46] notes that higher education institution itself uses budgetary and extrabudgetary funds in accordance with the overall budget approved by the governing body, which is subordinate to educational institution.

A number of features associated with the use of the withdrawals from the treasury accounts of state research institutions and universities.

All this brings the rights of the abovementioned institutions for creation legal entities almost to nothing.

2. With the question of making intellectual property rights as a contribution to share capital during the creation of public research institutions and higher education entities is closely linked with the lack of clear resolve of the distribution of intellectual property rights of IP, innovation product (innovation products), created at the expense of the budget.

Thus, in the implementation of agreements (contracts) on which research and research and development works are based, being funded by the state budget of Ukraine, the provisions of the Art. 42 of the Law of Ukraine “On Scientific and Scientific and Technical Activity” [3] on the necessity of defining intellectual property rights, obligations of the parties to ensure the protection of intellectual property created, identifying the party to pay compensation to the subjects of the intellectual property rights under the laws of Ukraine or ignored leaving the question "suspended in the air" or prescribed in the relevant contract the provision stating that all intellectual property rights remain with the customer will be added, not with the performer - the state research institution or higher education institution.

Thus the performer could have the right to use the results of research, research and development and technological works “for themselves”. Such legal categories are rather abstract.

Also while performing the research, experimental design and technological works the relationships between the employer - employee and contractor regarding the rights to create intellectual property and innovation (innovation products) remain not regulated.

There are many difficulties with respect to the payment of compensation to subjects of intellectual property rights under special legislation of Ukraine, which regulates intellectual property issues, as it is characterized with conflicts and gaps in this part.

Unresolved issues are the correlation between “IP”, “innovation”, “innovation product” etc.

There are many inconsistencies in resolving the aforementioned issues between the CCU [1], ECU [2], BCU [52], TCU [53] and the special laws of intellectual property and innovation.

All this does not allow to the state scientific institutions and universities to fully implement effective management of intellectual property rights, to sell and protect own rights.

3. The big obstacle to the activities of public research institutions and universities is the availability of tender procedures for procurement of goods, works and services for public funds. Quite often the cost of these procedures consumes the lion’s share of the budget funds of the public institution received to conduct a particular research. Moreover, the matching of budgetary and tendering costs is problematic, as the budget law does not adequately cover the procedure for planning funds for tenders, the result of which is unknown up to the end. Accordingly, there is a problem in the possibility of future charges on misuse of budget resources in the amount stipulated by the Budget Code of Ukraine [52].

The availability of procedures for procurement of goods and services from one participant do not help the situation. The complexity of the procedure for the proper justification often forces the customer to abandon this procedure.

Tendering procedures also affect the quality of purchased goods, works or services. There are many cases when one or another tender won not for higher quality of offered services (works, supplies), but for submitting proposals to the lowest price.
Thus, in order to be free to choose the contractors (to choose exactly the person who will truly render high-quality services and actually do certain works, render high-quality equipment), public research institutions or universities are forced to “cheat”, involving participation in tendering procedures of so-called “own people” as a competitors to ensure winning of the required person.

*It doesn’t serve for efficient use of public resources or rendering a high-quality services (perform works).*

4. Making a general analysis of the scientific, technical and innovation areas, the following should be noted.

Legal and normative framework of innovation processes in Ukraine doesn’t have complex character. In legal literature it is emphasized that the present system of legal regulations in the sphere of innovations is characterized by disintegration, lack of logical, coherent structure, partiality and fragmentation. It is noted that at the legal level only a limited number of legal acts related to innovation processes operate, which are separated from each other. Thus the dominant role in the settlement of innovation processes play the subordinate regulations that cannot alarm if the recognition of strategic national interest in forming an innovation model of economy of Ukraine as to achieve practical results in strategic areas of socio-economic development is ensured only in case of necessary measures and mechanisms taken, establishing rules of business conduct at the highest national level. In addition, legal regulation with the absence of an integrated regulatory framework at the legal level threatens with the dispersal of a single line of strategic socio-economic development of the state, vault only to specific issues and, the possibility of shifting the emphasises and substitution of tasks emerges.

5. Existing concepts and state programs in scientific, technical and innovation spheres are mismatched.

Existing concepts and programs should be mutually agreed because of their hierarchy, complement each other and not be in the mode of “parallel co-existence”.

6. The problem of declarative rules of the size of the financial support of public research institutions and universities from the state, suspense or absence of a mechanism of providing various benefits and other forms of support from the state, is actual.

As seen from the abovementioned analysis the existence of numerous inconsistencies in current legislation provisions, the lack of implementation mechanisms or failure to perform (ignoring) leads to the fact that public institutions that perform their activity in research and innovation, cannot fully exercise rights granted to them and perform their tasks.

1.3. Issues to be resolved:

As noted above, public research institutions and universities of III–IV level of accreditation play an important role in the process of scientific, technical and innovation activity in Ukraine.

However, in order to become the participants in the relationships in research and innovation sectors, the restraints of the functionality of these structures should be overcome.

The following issues should be resolved:

1. Solve problems related to the formation of national scientific institutions and universities of the authorized capital of science parks, technology parks and other legal entities and their associations.

Firstly, we should think about the expediency of the Law of Ukraine “On Scientific Parks”, the Law of Ukraine “On Scientific Park Kyivska Polytechnika”, Law of Ukraine “On Specifics of the Legal Regime for Activities of the National Academy of Sciences of Ukraine, Sectoral Academies of Sciences and the Status of their Property Complex” that research institutions and universities could form the authorized capital of enterprises / research parks by making property rights or intangible assets (property rights to intellectual property), respectively.

Secondly, in any case in order to be able to fulfil the abovementioned provisions of the law a number of important issues should be solved:

- how concepts of “IP”, “innovation product”, “innovation products” are corresponded;
- how intellectual property rights of IP/innovation (innovation products) that are created for public funds are distributed;
- how intellectual property rights between the employer – higher education institution or state research institutions and employees to set up last IP/innovation (innovation products) should be distributed;
- how to perform compensation to subjects of intellectual property under special legislation in this area;
- according to which method IP should be assessed, setting them to the records of public research institutions and universities;
- based on which agreement (licensed or transfer (assignment) of intellectual property rights) the abovementioned rights to the share capital of a created legal entity should be introduced;
- at what stage intellectual property rights to the share capital of a legal entity (before or after the state registration) could be introduced.

So, the numerous gaps and inconsistencies in the settlement of the above-mentioned issues between the CCU, ECU, BKU, TKU and special laws of intellectual property and innovation should be overcome.

Thirdly, in cases where are no such restrictions, a real opportunity to state research institutes and universities to form a legal entity registered capital not only by economic rights / intangible assets (property rights to intellectual property), but also with the other property should be provided.

2. We should think about the need to have procedures for public procurement (tender procedures). Since their existence, especially in its present form, is not in favour of efficient use of resources or a high-quality services (works).

3. The concepts and state programs in scientific, technical and innovation sphere should be agreed.

4. It is necessary to enforce rules on the size of the financial support of public research institutions and universities from the state, providing a variety of benefits, other forms of support from the state.

2. Comparative analysis of regulation experience

In Europe there are countries in which a variety of organizational forms within which an interaction between public research institutions, universities, their staff and business exist.

Among them there are the following: start-up and spin-off companies, quasi-enterprises, business incubators, science parks, technology parks, consortia etc.

In some European countries and scientific organizations, researchers have the right to make capital investments in start-up companies and become shareholders (such a scheme exists, for example, in Ireland, Germany, and the Netherlands). It should be noted that sometimes this is combined with certain restrictions set by law and rules do not allow bias during the negotiations between the institutions and created enterprises. For example, a researcher in France is public employee and may hold only 15% of the share capital of the enterprise; scientific institutes in Germany are entitled to 25% of the shares during the 8 year period.

Swedish experience is interesting because this country illustrates the excellent potential of this instrument of technology commercialization on the background of not the very best legislation. Swedish universities are government institutions and the law of the country have no right to be engaged in commercial activity. The paradox is that institutions are involved in commercial activity through their holding companies. For this purpose the Ministry of Education, Science and Culture of Sweden establishes a special legal framework. Holding companies are created to enhance commercialization of research and business ideas, they also have companies that provide services in the area of commercialization. And the university and industry have representation in the directorate holding company. Activities of holding companies and all around the university innovation system depends on various factors – type of university, the level of his research, motivation etc. Patent and buyout firms – a common subsidiary holding companies. At one time the Swedish government has stimulated the creation of holding companies in 14 universities in Sweden by providing 79 million Swedish kronor to the creation of capital holdings.
An example is the so-called “Karolinska Innovation System” or “Karolinska enterprise”. This model, which is established in the Karolinska Institute, located near Stockholm, is the one of the largest medical universities in Europe. The structure of this innovation system consists of several small companies that are holding the university. These small companies operate in various strategic areas of commercialization. Employees of these companies work together and with other external organizations on project basis. In the middle of this “innovation system”, each company operates in an open competitive environment. This means that researchers and scientists of the Karolinska Institute are free to choose external channels for commercialization, i.e., they are not required to use services of enterprises of the Karolinska Institute. At the same time, companies that make up the Karolinska innovation system, are free to choose the ideas, research results and investment conditions. In this regard, we should highlight the company “Karolinska innovation”, which manages the process of commercializing the system. The said company, with a staff of 8 employees with experience in the pharmaceutical industry and medical research, focuses its activities on patenting, licensing, and supporting the creation and development of start-up companies. The company also acts as a third (interface) part in research contracts concluded between industry and academies.

The next stage is the assessment of the potential invention, the company checks for three fundamental elements: patentability (estimated jointly by patent agencies and scientific experts), market potential (the analysis of market size and competition), the need for investment (analyses the need for capital). The evaluation of these three components of the approach is made on a contractual basis, ending the calculations of possible future income in the event of commercialization of ideas. The purpose of the approach lies not in how to commercialize research results but on how to make profit on the idea within 3–7 years. Since 1999 the company “Karolinska innovation” has invested EUR 6 Mio in the process of commercialization, market analysis, assessment of patentability of research results and business planning. It was considered 400 potential projects.

We can provide with the following results of the support of the start-up companies (as of 2003):
- 24 companies established;
- Their total turnover reached about EUR 11 Mio;
- jobs created for 216 employees;
- from the external sources about EUR 45 Mio are attained.

In addition to the company “Karolinska innovation” to the system Karolinska Institute include:
- “Karolinska Development” (business development);
- Karolinska investment fund;
- “Karolinska start-up”;
- Karolinska Science Park;
- Centre for Medical Innovations.

Thus, “Karolinska enterprise” or “Karolinska innovation system” is the provider of the entire complex of innovation services, including financing of spin-off companies and providing business incubator. The key characteristics of “Karolinska Innovation System” or “Karolinska enterprise” is “advanced” and the management of public interest research organization, business formation within the system in conditions of open competition, the ability to set priorities within the system, relevant legislation, which allows to create holding companies, universities.

France Experience in creation of start-up companies

According to the law of France “On Innovation and Research” (1999) researchers of higher education institutions and research organizations have the right to act as co-sponsors or managers, to participate in the share of the enterprise or to make its scientific contribution, and participate in administrative or supervisory board of the enterprise.

As a result of the law 451 scientific staff from the public sector has received the endorsement of a special commission on ethics pursuant to which they could participate in the enterprise. Thus, 124 employees were allowed to participate as personal companion or leader in the creation of the enterprise; 301 employees...
were able during 5 years (with the right to continue cooperation) to participate in the enterprise by making its scientific “baggage” / or equity of the enterprise within 15%, 26 people participated in the administrative board or supervisory board of joint stock companies.

**The experience of Denmark in creation of scientific parks, consortia and other structures**

Important role in the innovation system of Denmark is the country's higher education institutions, particularly universities. University sector consists of 8 universities. Under the reforms universities are affiliated to the Ministry of Science, Technology and Innovation. As a result, reforms have changed the system and management structure of universities and a clear separation of the educational process and scientific research on solving the administrative, financial, economic and technical aspects of university activity. Under the new scheme rectors are not elected but appointed on a competitive basis by the Supervisory Board of the University as managers responsible for ensuring the normal functioning of institutions, including all administrative and financial matters.

Public research institutions are also participating, along with private companies and institutes in rendering technology services (private independent consulting company that develops and sells technology services to private enterprises and state institutions, a non-profit organizations certified by the Ministry of Science, Technology and Innovation for three years) in the joint projects.

Institutions can receive state funding for projects of priority and secondary measures. Government agencies can provide co-financing for a variety of joint projects implemented by a consortium, which may consist of the Institute, public research institutions and private companies.

According to the Law “On Transfer of Technology in Public Research Institutions” (2004) research institutions are allowed to create and hold a public joint stock company with limited liability and be part owner of one or more of such companies by other public research institutions.

An important component of innovation system of Denmark is the science parks. The country has seven science parks, which are private organizations and have a close relationship with universities. In some cases, universities act as shareholders or owners of full scientific parks.

The abovementioned structures often have different preferential preferences, financial incentives, natural preferences (the principle of “providing services instead of money”) and others.

**The experience of European countries in distributing intellectual property rights of IPR created by public funds or with the assistance of such funds.**

Many European countries in the past while addressing the abovementioned question provide researchers with so-called "professorial privilege," the essence of which lies in the fact that the researcher became the sole owner or non-security able intellectual property. However, this state of affairs led to the fact that in comparison with countries which did not apply to given privilege, the country that it had lagged behind in technology transfer. That is, in practice, the said order of distribution rights to ITN was ineffective. So nowadays most European countries leave intellectual property rights in IP created by public funds or with the assistance of these funds, the organization-developer (with the distribution of payments).

The following table illustrates some examples of distribution rights and royalties between the employee and public research organization in Europe:

<table>
<thead>
<tr>
<th>No</th>
<th>State</th>
<th>Owner of the rights</th>
<th>Distribution of royalties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>New inventions have to be discussed be the management of the state scientific organization. Within 3 months the management has to determine the value of the invention for further development. If within 3 months the decision has not been taken, the intellectual property rights for the invention are automatically transferred to its creator</td>
<td>The distribution of royalties between the organization and the employee in accordance with the policy that is conducted in the field of intellectual property of the respective organization</td>
<td></td>
</tr>
</tbody>
</table>
Denmark

State Scientific Organization.

distributed between the organization and the employee.

France

State Scientific Organization.

1. In institutes – the researcher receives 50% of the total sum of royalties received by the Institute from industrial partners, 50% of the remaining receives institution.

2. As state scientific institutions such as universities the rules of distribution of royalties vary.

Sweden

Owned by the creator.

(this provision is in the process of negotiations).

Under negotiations.

Germany

State Scientific Organization.

Distribution rules are the subject of individual agreements and institutes’ policy in the field of IP rights.

It is advisable also to consider the issue of obligation to provide activities for the commercialization and the concept of incentives, which is closely related to the abovementioned issue on the distribution of IP rights.

The obligation to carry out activities to commercialize almost without exception rests with the holder of IP rights. Most European countries and the EU itself (such as the European Framework Programme) provide budget funds for research projects only in conjunction with a commitment to disseminating the results. Distribution is not necessarily carried out through commercialization (not any project financing needs the performing of business). Also not necessarily a commitment to ensure IP protection (although the implementation of appreciated and encouraged) exist.

Effective use of methods of commercialization with respect to non-project research results (i.e. derived from the basic state budget financing) encouraged more common, clearly defined rules and more incentives. They can be defined between different levels of participants. Public research organizations are mainly governed by the legislative (statutory) regulations. In Germany, the University framework law defines technology transfer as a priority, the key task of universities and researchers. France and the Netherlands have similar regulatory provisions. In implementing these laws federal financial authorities recently introduced a new category of additional budget funds, focused on results for scientific research organizations and university creative teams.

In Europe the main driver of activity in the commercialization incentives are provided by different types of participants, rather than prohibiting moments. Most countries by law provided sharing of profits between individual researchers, institution and intermediary, which promotes commercialization. At this stage, intermediaries (commercialization offices) are "outside" institutions (previously they were divisions within the Institute). Depending on the source of financing intermediaries can be public, private and public, private. Intermediaries operating in the legal framework protecting the country from the privatization of values acquired by the state budget, but they may act as market participants from making decisions based on market needs. Widespread participation in the profits of the researcher, institution and intermediary provides incentives in monetary terms in case of successful commercialization. In some countries (e.g. Ireland), a gain on the transfer of technology enjoys significant tax benefits, which is an additional incentive.
7. Legal analysis in the sphere of state order for research engineering and competitive financing R&D

1.1. Acts regulating the sphere of legal relations:


5. The Law of Ukraine «On State Order for Priority Government Needs» of 22.12.1995. No 493/95-BP (as amended and amendments, the last changes were introduced by Law No 2289-VI of 01.06.2010) [5].

6. The Decree of the Cabinet of Ministers of Ukraine «On Approval of Procedures for Forming and Fulfillment of the Order for Carrying out R&D, design and project work at the Expense of State Budget Funds» of 25 August 2004 No 1084 (as amended) [6].

7. The Decree of the Cabinet of Ministers «On Procedures of Forming and Placement of Government Products Delivery Orders for Government Needs and Control over their Fulfilment» of 29.02.1996 No 266 (as amended) [7].

8. The Decree of the Cabinet of Ministers of Ukraine «On Approval of the Procedures for Agreement of Application of the Procedure for Procurement from one Participant» of 28.07.2010 No 668 (as amended) [8].


12. The Order of the Ministry of Economy of Ukraine of 27.07.2010 No 925 «On Approval of Model Agreement on Products (Works or Services) Procurement at the Expense of State Funds and Instructions regarding Filling the Model Agreement on Products (Works or Services) Procurement at the Expense of State Funds» [12].


I hereby approve:

- Standard Documentation of competitive tendering for the procurement procedure – public tenders;
- Standard Documentation of competitive tendering for the procurement procedure – two-stage tenders.


By the given Order approved the following:

- The form of the announcement about public tenders and Instructions regarding its filling;
- The form of the announcement about the procedure of two-stage tenders and Instructions for its filling;

18 Numbers in the brackets serve as references to the normative acts in the text.
The form of inquiry for price proposals and the Instructions for its filling;
- The form of announcement about preliminary qualification and the Instructions for its filling;
- The form of information about the application of the procurement procedure from one participant and the Instructions for its filling;
- The form of justification of the application of the procurement procedure from one participant and the Instructions for its filling;
- The form of announcement about the accept of the proposal of the competitive tendering or the price proposal and the Instructions for its filling;
- The form of announcement to the participants about the results of the procurement procedure and the Instructions for its filling;
- The form of announcement about the results of the conducted tenders and the Instructions for its filling;
- The form of announcement about the results of the conducted preliminary qualification and the Instructions for its filling;
- The form of information about the results of the inquiry procedure for price proposals and the Instructions for its filling;
- The form of information about the results of the conducted procedure of procurement from one participant and the Instructions for its filling;
- The form of announcement about cancelation of tenders or acknowledging them as such that did not take place and the Instructions for its filling;
- The form of announcement about cancelation of the procurement procedure from one participant and the Instructions for its filling;
- The form of report about the results of the conducted public tenders and two stage tenders procedures and the Instructions for its filling;
- The form of the report about the results of the conducted procedure for inquiring price proposals and the Instructions for its filling;
- The form of the report about the results of the conducted procedure of procurement from one participant and the Instructions for its filling;
- The form of the minutes of the disclosure of the competitive tendering proposals (qualification proposals, price proposals);
- The form of the minutes of the proposal evaluation of the competitive tendering (price proposals);
- The form of the registry of the received proposals of the competitive tendering, qualification proposals, price proposals;
- The form of the annual procurement plan and the Instructions for its filling.


1.2. Analysis of legislation

1.2.1. Competitive financing of R&D

The Law of Ukraine “On State Target Programs” and the approved by the Decree of the Cabinet of Ministers of Ukraine “Procedures for Working out and Running a State target program” had a detrimental influence on the practice of application in Ukraine of the program and target approach in the scientific and technological
sphere as well as on the organization of competitions for the purpose of fulfilment of scientific projects because it stipulates the following regulation: “Selection of the executors of the program activities shall be carried out according to the law of Ukraine “On Procurement Products, Works and Services at the Expense of State Funds” (point 38 of the mentioned “Procedures”).

It should be underlined, that the state scientific and technical programs were formed on competitive basis from the very beginning. Thousands of applicants participated in the competitions for the execution of the project which comprised the programs and only a third-fourth part of them was selected. It is precisely for the purpose of providing high quality and impartial expertise of competitive projects, that under the Ministry of Science, the State Centre of Scientific, Technical and Innovation Expertise was established (it is a part of Ministry of Education and Science now). The main criteria for successful selection were the scientific level of works, qualification of executors, their available achievements and scientific novelty of the project concept. The estimated value of the work, as a rule, did not play an important role, because both the executors and the clients knew that in the long run only a small portion of the needed funds, proportional to the portion allocated for the program by the Ministry of Finances, would be allocated.

The cited regulation from “Procedures for Working Out and Running … “meant in practice that the value of the project became the main criterion of project selection, apart from selection, for example, of 20 projects among the represented 60-70 applications, every project must have now at least one concrete rival, who could be “overcome”, if such project for the same work needs more funds. So under the evolution of regulative legal base, the formal bureaucratic approach became the winner, although such an approach ignores totally the special character of the scientific and research process, in which every research work is, in fact, the unique work, when competitions must be organised first of all for finding the most original and compelling works – the ones that do not have any rivals.

The problem was solved comparatively easily at the formal and bureaucratic level: a large number of firms compelling works – the ones that do not have any rivals. Following some sort of bargaining as regards the payment for their “services”, such small firms agreed to participate in a tender, and the author of the project interested in his victory at the competition would deposit a considerable sum of mortgage many (tender provision) for himself and for his “rivals”, and then the tender took place according to all rules. Many researchers, who involuntary had to participate in this strange game, became confident, that these procedures were invented in the interests of those “provisional losers”, who rob impudently the competitors.

The scale of corruption and abuse in connection with functioning of the tender chamber in the long run became so crying, that it was impossible to hide, which caused it liquidation and even abolition of the Law “On Procurement of Goods and Services at the Expense of State Funds”. The researchers sighed with relief but, as it turned out, too early. “Regulations on Procurement Goods, Works and Services at the Expense of State Funds”, approved by the government decree, came in the stead of the notorious Law, and nowadays, as one of the experts, well informed about the affair of the officials, put it, “the tender chamber does not exist but its cause is alive”. The Regulations (like the abolished Law) qualified the R & D, the value of which exceeds UAH 100 000, as the services, which are paid for by institutions, established (at least partially) on the basis of state property, only as a result of passing through tender procedures (according to the Law, the Treasury does not permit to transfer funds unless it receives the report on the conducted tender). The tender of R & D is conducted on two stage basis, and there should be not less than two participants. The regulations admit the application of different evaluation criteria, but the price characteristics are deciding (their specific gravity should not be less than 70 %). The necessity of such procedures is also provided for by “Procedures for Forming and Executing Orders for R & D, Project and Design Works at the Expense of State Budget Funds”, approved by the Cabinet of Ministers Of Ukraine in 2004, that is, practically, for all, without exception, R & D, carried out to the order of the ministries, institutions and organizations, owned at least partially by state institutions.

The new Law of Ukraine “On Public Procurement” [4] preserved in general the mentioned approach to R & D financing and is applied according to the procurement procedure pertaining public tenders and with a participation of two contenders.

Thus, in case of conducting competitions of scientific projects on state programs, the competition commission selects the best projects among the presented ones. If the sum of money needed for the
execution of the project surpasses UAH 100,000.00 the tender should organised in the subject area of the project that won the competition. And according to the legislation, it may happen that the competition winner project could not win the tender. The matter is that the main criteria during the competitions under the state scientific and technical programs are the quality of the project, composition of executors, and their availability to execute the project at a high level. As far as the tender selection is concerned, the prise proposal is the main criterion. Such state of affairs leads to the fact that unknown companies which propose lower price won tenders. There were cases when such companies addressed the winners of project competitions with a proposal to execute the tender project because they did not have the appropriate specialists.

As it has already been mentioned, from 2006 to 20010, there formed no state scientific and technical programs on the priority directions of R & D under the pretext that such directions had not been approved, and the “old ones” were invalid. That is why it is not easy to imagine how the procedure stipulated the by Law of Ukraine “On Public Procurement” could be applied to the dozen of thousands of applications for participation in several dozens of programs, in what way to form “competitive pairs” and simultaneously agree them with the tasks of the program. Few programs were formed, for example, the State Program of Forecasting and R & D. In practice the procedure boiled down to the announcement of the competition for forming so called “lots”, that is something resembling the project competition, which could be conducted “in the accepted manner”, analysing the essence of the proposal professionally, taking into consideration their accordance with the concept of the program and the usefulness for attaining the set aim. This procedure can be conducted without looking back at the formalities of “Regulations”, without formal imitation of paired competition, on the grounds that no agreements on performance of works are concluded: as a result of the real competition of proposals, the issue, of what concrete tasks should be fulfilled in the framework of the program, will be solved. Now every such task is called a lot, and the tender of fulfilment of such lots is announced. All formal bureaucratic procedures stipulated by “Regulations” are applied. And if it turns out that, apart from the authors of the application, which is the basis of the “lot”, there are no more pretenders to fulfil the appropriate task it will be the authors’ problem. It’s up to them to find their competitors. In other case the tender will be considered as such that did not take place. The practice shows that fulfilment of all these procedures could take more than a year.

Nobody doubts the artificial character of such competition game. In order to avoid such absurd bureaucratic procedures and to conduct a rational competition of projects, the State Fund of Fundamental Research conscientiously stopped awarding grants with an amount of money more than UAH 100,000.00 (the level stipulated by the Law), above which a tender must be organized. But it is impossible on such sum of money to organize a serious experimental research.

The problem of objective competition selection of the project for their further financing exists in all the countries of Europe. In a number of cases, in order to exclude subjective evaluations, the experts from their countries are invited, though it does not exclude the subjective evaluations, a the scientific community long ago became international, and the researchers, working in similar directions in different countries, quite often know each other. That is why, apart from thorough selection of experts, permanent analysis of their objectivity, it is of paramount importance, even under secret reviewing, to provide for the transparency of the competition procedures, reasonableness of selection of competition winners, and a minimal participation of the officials from administrative personnel. In our opinion, the experience of FRG deserves consideration. In this country, the Ministry of Economy orders a non-government organization of researches (like the Union of Scientific and Engineering Associations of Ukraine) to organize the competitions of R & D financing.

1.2.2. State order for R&D

The Law of Ukraine “On Public Procurement” [4] fixes legal and economic principles of procurement goods, works and services at the expense of state funds, including R&D services. The Law is applied to all clients and the procurement goods, works and services, which fully or just partially conducted at the expense of state funds, under conditions that the value of the procurement goods, services is equal or surpasses the sum of UAH 100,000.00 and the value of works – UAH 300,000.00. The notion of service includes also scientific research (point 23, paragraph 1, Article 1)

According to the Law, the orders for the R&D services are performed under the procedure for procurement at public tenders (the requirement for it is two participants, and in exceptional cases – one participant). It
negatively affects the qualitative and quantitative rates of such research, as the procedure of procurement may last up to some moths.

In order to achieve the goals of the priority research, its efficiency and expediency, formalism and delaying are inadmissible during its conduction. In its turn, the continuity of stages during order performance ensures the applied usage of the received results.

According to the acting legislation On Public Procurement, the general client is obliged to organize and conduct the procurement procedure, what causes the increase in documents circulation and creates additional burden on the full-time workers of the appropriate body of state authority, communal institution or organization.

The specific character of the scientific research is that, in the framework of a certain scientific and technical program or a scientific part of the state target program, there exist many directions, which are the immediate subject of research. Thus, the workers of the appropriate body will need high qualification in order to conduct qualitatively the organization of scientific purchases, and may become a cause for additional expenses from the State Budget to pay for the work performed by them.

Any physical or legal person, but not a state scientific institution, as it was a case earlier, may become a participant of the procurement procedure. It may affect negatively the functioning of such institutions as well as the expediency of their upkeep at the expense of the State Budget of Ukraine. As a result, decline of state research institutions and loss of job by their workers may take place.

Thus, it is expedient to stipulate that the law should apply, in particular, to scientific research, but with exception to the procurement, conducted by the manager of state funds in the institutions of direct subordination.

The state order for scientific and technical products legally stipulated in Article 37 of the Law of Ukraine “On Scientific and Scientific and Technical Activity” [3], whose disposition provides for that such state orders are annually formed by the central body of the executive authority in the sphere of scientific, technical and innovation activities, and the central body of executive authority dealing with the issues of economic policy on the basis of the list of most important developments, directed at creation of new technologies and products, and approved by the Cabinet of Ministers of Ukraine in accordance with the legislation of Ukraine.

At the same time, it is very difficult to study the efficiency of this legislative regulation, as, in the Law on State Budget, the expenses for such kind of state order, as a rule, are united, in one article of budget expenses, with other kinds of expenses (for example, applied scientific and technical developments, performance of work under the state target programs, financial support of education of scientific manpower).

The state order for scientific and research works may be considered from the point of view of the Law of Ukraine «On State Order for Priority Government Needs» [5], that stipulates general legal and economic principles for forming, placing and executing, on a contractual basis, the state orders for delivery (procurement) goods, performance of works, providing services (hereinafter – products) for priority government needs.

The government clients of the abovementioned products could be the Verkhovna Rada of Ukraine and other central bodies of state authority of Ukraine, the Soviet of Ministers of the Autonomous Republic of Crimea, regional, Kyiv and Sevastopol city state administrations, government organizations and other institutions – the main managers of state budget funs. The government stands surety for the obligations of government clients.

The priority government needs are acknowledged to be the needs of Ukraine in the products, works and services, which are necessary for solving the most important social and economic problems, such as maintaining the defence capacity of the country and its security, creating and maintaining at the appropriate level the government material reserves, realising government and inter-state target programs, providing the functioning of the bodies of state authority, which are kept at the expense of the State Budget of Ukraine.

To comply with requirements of the Law, the Cabinet of Ministers of Ukraine by its Decree of 29.02.1996 No 266 [7] approved the Procedure of forming and placing state orders for delivery of products for government needs, and exercising control over their fulfilment (hereinafter – Procedure), according to which the state order is formed by the Ministry of Economy and European Integration (today the Ministry of
Economic Development and Trade of Ukraine) together with other bodies of state authority, institutions and organizations. Creation of new technologies in the sphere of science and technologies and provision of development of material and technical base of Ukraine are acknowledged to be the priority directions.

Selection of executors of the state order for delivery of products for priority government needs is conducted in the order, stipulated by the Law of Ukraine “On Public Procurement” [4].

Thus, the state order for scientific and research works according to the Law, being considered, needs to undergo all procedures, stipulated by the Law On Public Procurement.

1.3. Issues to be resolved

1) To develop and legally regulate the organization of competitions and conduction of R&D, especially at the formation of the state target scientific and technical innovation programs.

Conduction of the competitions according to the Regulations on Procurement Goods, Works and Services at the Expense of State Funds (Decree of the Cabinet of Ministers of Ukraine N 921 of 17.10.2008), Procedures for Forming and Fulfillment of the Order for Carrying out R & D, design and project work at the Expense of State Budget Funds (Decree of the Cabinet of Ministers of Ukraine of 25 August 2004 No 1084) and the current Law of Ukraine “On Public Procurement, does not take into consideration the special character of R&D, and contradicts the legislation as regards the public procurement in the Member States of EU (see paragraph 2), where decisions on financing research projects are taken on the basis of the competitions of projects under appropriate directions while a decisive role is played by the following criteria: quality of the scientific and research plan and the competence of the research team – executor of the works.

2) It is necessary to improve the procedure of procurement scientific and research works by way of elimination of the available drawbacks and inaccuracies.

3) To limit the sphere of application of the Law of Ukraine “On Public Procurement” in the part of procurement scientific research, conducted by the manager of state funds in the institutions of immediate subordination;

4) To improve the system of the public procurement of scientific research in the part of selecting the winner not on the criterion of price proposal, but on the qualitative rates of the participant. Today, while selecting the winner for the public procurement of scientific research, the specific gravity of the price criterion could not be lower than 50 % (that is 50 % and more). Thus, the winners are, as a rule, the participants, who by the professional level of their workers, their own scientific achievements are substantially inferior to other participants, but they offer lower prices.

2. Comparative analysis of the experience in the sphere of regulating state order for scientific and research works

In the countries of European Union, contracts and projects are the main instrument of placing state order for scientific and research and research and design developments. In many countries, fundamental research is financed by means of specialized funds on the grant basis.

The system of public contracts (public procurement) is regulated by a number of documents. The peculiarity of the contract system lies in the fact that it is not only a form of financing but a system of granting different privileges and preferences to the executors of works (access to the property of state laboratories, equipment, staff and utilization of intellectual property in the form of patents, licenses and databases). While realising target program financing, a complex of tasks are solved: support of the selected directions of scientific research, personnel training on such directions, stimulating industry participation in commercialization of the results of R&D.

In the USA, the state scientific and technical programs are one of the methods to plan scientific and technical development in industry. They are documents, that determine the resources, executors and the terms for taking a complex of measures, directed at solving scientific and technical problems. Under market economy conditions, they have an indicative character, as they contain plan targets for state institutions, state orders for private scientific, research and design organizations, as well as prognoses of development of R&D in the private sector of economy.
Utilization of the state order is acknowledged to be an important instrument to stimulate the technological development of industry in Great Britain. Direct and indirect results of scientific, research and design works, performed to the order of state organizations, as a rule, are used by private firms to master the manufacturing of new goods and provide new services. Additional support to the innovation processes is provided by way of decrease of the number of regulating functions of the government, simplification of the procedures of administrative supervision and control, granting tax privileges for scientific and research activities and putting the new developments into practice.

In Great Britain, the first steps are made to attract business and improve the structure of the state financing of the applied research at the expense of widening functions of the Council on Technological Strategies. This consultative body comprises the heads of the largest industrial companies of the country, research councils, universities and regional centres for technological development. For the purpose of accelerating the process of development of new science-consuming products and placing them on the world market, the Council on Technological Strategies is authorized to make independent decisions on financing, from the state budget, small R&D projects within the framework of a special quota in the amount of 5 million pounds without agreeing with state institutions.

In Denmark, the main elements of the innovation system are the government, ministries, the Council on Technologies and Innovations (a part of the Ministry of Science, Technologies and Innovations) and the Research Councils, which form the concept principles for the development of innovations in Denmark, as well as are responsible for their realization. Research and innovation activities are carried out in universities, sector research institutions, other research institutions (hospitals, museums, archives etc), certificated Institutes of Technological Services, scientific parks and innovation incubators.

The government of the country and ministries support the innovation activities according to the internal ministerial programs, under which the Strategy of National Development in conditions of globalization has been fulfilled since 2006. In its turn, the central role regarding the issues of development and implementation of the innovation programs is played by the Ministry of Science, Technologies and Innovations and the Danish Agency of Science, Technologies and Innovations, fulfilling the functions of the secretariat for the Research Councils of Denmark.

The Research Councils of Denmark take an active part in the determination of new research tenders, provide professional research functions in the sphere of research, and function as funds. Precisely the Research Councils are responsible for distribution of external government funds for the purpose of reaching research goals; projects are evaluated by leading researchers and experts and are approved on the basis of open competitions. In Denmark, there function four Research Councils:

- the Danish Council for Research Policy, which provide consultative services for the Minister of Science, Technologies and Innovation, as well as for the Parliament of Denmark and the government of the country;
- the Danish Council for Independent Studies finances research activities and provide scientific support for projects;
- the Danish Council for Strategic Studies fulfils consultative and financing functions;
- the Danish Council for Coordinative Studies provides the coordination of government financing of studies and innovation projects.

The abovementioned Councils comprise the consultative, advising and financing system of research and innovation, which are called to:

- insure the high quality research process by way of the open competition, according to which the government financing is conducted, apart from the basic financing of universities;
- provide subsidies for basic research, strategic studies, commercial studies, as well as other studies to which the applications are handed in;
- provide and improve the sustainable education of researchers.

In Kazakhstan, the basic research is financed by the Ministry of Education and Science and the profile branch ministries on the basis of target program method, when the scientific organizations secure orders
from the government for conducting R&D. To date, the innovation infrastructure is represented predominantly by government institutions.

In Kazakhstan in 2005, the Program of Formation and Development of National Innovation System of Kazakhstan up to the year 2015 was adopted. Doubling of the funds spent for R&D was declared. Commercialisation of knowledge and introduction of scientific developments in the market are considered to be first-priority. It is planned to transfer the scientific developments on the grant basis.

The system of grant financing presupposes securing some kinds of grants:

- preparation of the innovation project – USD 5,000;
- patenting of the development abroad – up to USD 55,000.

The grant system provides for the R&D priority directions (including IT, biotechnologies, new materials).

**Finland** is one of the leading countries as regards the amount of investments into scientific research. The ministry of Labour and Economy and the Ministry of Education of Finland distribute about 82% of all funds spent for science. Financing of university science (the main part of basic research of the country and a part of the applied research) is carried out by the Academy of Finland - the central scientific administrative body, which is under control of the Ministry of Education. The Academy comprises also the Committee on Science and six Commissions for: Natural, Medical, Agricultural, Technical, Social and Humanitarian sciences.

The main instruments of the Academy are the *financing of scientific and research projects*, to which the applications are handed in under general procedures; *research programs*; the centre of programs for professional developments. The other 20% of budget funds are distributed among other institutions.

The Academy of Finland awards grants to the best research groups, as well as to the most promising young researchers. The *expert evaluation of the projects* is the reason for awarding grants. Experts consider the scientific quality and innovation character of the proposals. In most cases, the final stage of evaluation is taken place at the expert group meetings. After receiving the results of the evaluation, the members of the Council of Scientific Research of the Academy give points to the proposals and make decisions about financing of the projects. The decisions are based as a rule on expert evaluations, but the scientific factors, connected with the formation of some policies, may also influence the decision making (helping the career of young researchers, provision of equal possibilities for both genders – males and females, economic, ecological, social and anthropogenic impact on environment).

The *Expert group work*. The group of experts consists of highly-esteemed researchers in the appropriate branch. The members of the group have access to all projects which are considered by the Council, except for in the case of conflict of interests. Every project proposal is considered at least by two members of the expert group, who conduct an expertise (prepare a preliminary evaluation). The group considers all the proposals that were submitted for its expertise and prepare a single statement (expert conclusion) regarding evaluation of every proposal, which is based on discussions and preliminary evaluation. The proposals in some cases may be directed for expertise to a professional who is not a member of the expert group, but has necessary deep knowledge in the concrete branch of scientific research.

While evaluating the projects, the expert group is governed by two main elements of the evaluation:

1) Plan of scientific research;

2) Competence of the applicant and the quality of the scientific space of the planned research.

While evaluating the plan of scientific research, the key question is the question of the scientific quality and innovation character of the research plan, as well as the potential of the research to make a breakthrough in science.

The main elements of the evaluation are divided into the following sub-items:

1. **Scientific and research plan**
   
   1.1 Scientific quality and innovation character of the research plan (rating from 1 to 6)
   
   1.2 Feasibility of implementation of the research plan (rating from 1 to 6)
1.3 Ethical issues (filled if needed, there is no number rating)

2. Competence of the applicant and the quality of the scientific research regarding the environment (rating from 1 to 6)

1.4 Competence and experience of the applicator / the research group (rating from 1 to 6)

1.5 Description and importance of cooperation in the field of research (rating from 1 to 6)

1.6 The environment of the planned research (rating from 1 to 6)

1.7 In case of existence of the research consortium, the importance of the consortium for attaining the research goals is determined.

Evaluation is conducted in the points of sub-items and point 1 (Research Plan) and point 2 (Competence of the applicant and the quality of the scientific research regarding the environment):

6 — prominent proposal, extremely new, is distinguished by its innovation character and will assist the deep science renewal.

5 — excellent proposal, which is at the high international level and does not need any essential improvements;

4 — very good proposal containing some elements that could be improved;

3 — good proposal containing some elements that could be improved;

2 — satisfactory proposal and needs substantial changes and improvements;

1 — weak proposal, has serious drawbacks which are characteristic of the proposed projects or program.

Thus, according to the results of the research evaluation (giving points to the appropriate proposal (project)), The Council of Scientific Research of the Academy makes a decision about financing of projects. The mentioned decision is final and is a reason for financing of the scientific project.

Apart from the Academy of Science of Finland, another several organizations finance the science.

Thus, the National Fund Agency on Technologies and Innovations Tekes is subordinate to the Ministry of Labour and Economy of Finland, and distributes a larger part of the budget money allocated for applied research. Takes became the main source of the financing oriented at the business. According to international evaluations, Takes is efficient in financing the research and developments oriented at creation of export products. This Fund at certain stages is engaged in financing the developments, practically, of all successful technological companies of Finland (including Nokia). The efficiency of Tekes is determined by its independent status. The independence allows the Fund to act more operatively, for a longer prospect than the political structures do. It presents an opportunity to bring the process of decision making as close as possible to the specific character of development. Though the Fund is accountable to the Ministry of Trade and Industry for the costs spent, the Ministry is not authorised to make decisions about financing of the concrete projects. Takes makes decisions independently.

Takes has two directions of activities: it stimulates the activity and simultaneously react to it. By means of its technological programs it opens new themes in the areas in which it finds the necessity in R&D. The programs are planned together with universities and companies and presuppose the creation of leading groups consisting of the representatives of researchers, industry and government. Takes is also open for the proposals regarding the projects which are not within the framework of the existing technological programs, and finances such programs under conditions that they correspond to its criteria of technological and economic prospects and presuppose the cooperation with other companies or universities. It means that new initiatives come from the bottom to the top.

Thanks to the model of the network communication Tekes gathered a considerable capital of knowledge about R&D which are conducted in the universities and companies, as well as about the problems which are considered to be the main future challenges. Tekes, through the management of its informational resources, participates indirectly in the realization of this capital of knowledge (sometimes, Tekes proposes cooperation among companies for the purpose of project execution if (in the opinion of Tekes) the project will gain form such cooperation).
Tekes is eager to preserve its dynamic character analysing permanently its activities and the projects financed by this fund. For example, following the termination of every technological program its leading team evaluates the results. Tekes wills to be a small organization with a horizontal structure (to date the personnel of Tekes numbers not more than 200 persons).

**Projects financing within the framework of the Special Program of the European Commission FP7**

Initially, all proposals submitted for financing within the framework PI17 are checked for their correspondence to the formal criteria.

1) The project proposal should correspond to the following criteria:
2) It should be submitted before the deadline to the relevant group of the European Research Council (ERC) which conducts the initial checking according to formal criteria.
3) The project should be submitted to the relevant expert council of ERC (that is to the expert council which deals with the main research scientific directions of the relevant proposal).
4) The proposal should contain the full set of the necessary documents (that is all necessary forms, parts or chapters of the proposals packet, accompanying forms).
5) The contents of the project should correspond to the chosen ERC grant scheme which is chosen depending on the announced proposals competition.
6) The project should correspond to the requirements of legality fixed for the ERC grants, as well as other criteria stipulated by the rules of appropriate competitions.
7) The project should take into account the limitations stipulated by the rules of the competition.

**Expert evaluation of the proposal**

Following the submission of the proposal to ERC for improvement grant securing it undergoes two stage checking. The application for grant securing are evaluated by the expert councils of ERC, though the external experts may invited for additional evaluation. These councils have access to all proposals, conduct evaluation and distribute proposals in the field. Evaluations and raging of the proposals are conducted on the basis of *individual evaluations of the experts and the following discussion at the meetings of the expert councils*. Depending on the competition budget, the proposals are distributed in the field in the list of projects, and only a high rating permits to secure a grant from ERC.

The competition selection has an important reservation stipulating that any direct or indirect contact between the experts of the council and the author of the project proposal may lead to the exclusion of the proposal from further participation in the competition.

Evaluation of the projects, submitted to the ERC competition to secure a grant of improvement, is conducted by 25 branch expert councils, covering all the branches of science and technologies.

**Stage 1**

Proposals, corresponding to the criteria of legality, are evaluated by the councils of ERC (consideration, evaluation and comments to the proposal (Part B1 of the relevant form)). Distribution of the proposals for every expert group is conducted by the head of the council with the help of key words, indicted by the author of the proposal.

Every proposal is evaluated at least by three reviewers. Initially, the proposals are evaluated by the group members. The member of the Council work individually at this stage, they do not discuss any proposals with one another, nor with any other person. The members of the council draw the reports reflecting the evaluations and comments, taking into consideration the evaluation criteria. Following the completion of the individual studying process, the members of the council hold a common meeting for the purpose of discussion and evaluation of the proposals, taking into consideration the evaluation criteria, to clarify the contradicting opinions regarding some concrete evaluations, and to agree the final points. After that they draw up a list of the projects, which secured the passing score as far as the project quality is concerned.

The proposals, that secured more rating points than the passing score and are within the budget limits, are transferred to the second stage of the expert evaluation.

The proposals that did not cross the threshold of quality according to every quality criterion or are placed lower than the limits of the budget exhaustion, do not participate in the second stage of evaluation, and the applicants are informed about that in a proper manner.

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Stage 2

Independent judges and the members of the expert council provide for individual evaluation of the proposal (Part B1 and B2 of the relevant form), work independently and in a remote place. Then the discussion and giving marks are taken place at the meetings of expert council. The final decision of the expert council is based on the expert opinion, which is founded on individual consideration and the following discussion at the council meeting.

Following the discussion, when the controversial issues are settled and the decision was made, the final points regarding all the proposals are given, and the rating of the projects is fixed.

Following the expert evaluation and before making any decision on financing, all proposals, which are supposed to secure financing, undergo the procedure of ethical aspects checking.

Evaluation criteria. The only criterion of evaluation is a high quality of the project. This criterion is applied both for the evaluation of the Project Director and the very Research Project.

The intellectual potential and creative abilities are the elements of evaluation of the Project Director. His or her record of service, cooperation directions, project concept, work with students and the level of publications (innovation, independent creative thinking and correspondence to contemporary level of science) are scrutinised. Apart from that, the readiness of the Project Director to devote a considerable part of his or her time to this research (at least 30 % of working time and 50 % of the total working time to spend in an EU member state or an associated state) is studied.

While evaluating a Research Project, the main evaluation elements are the project innovation and the potential project impact. That is how much the proposed research will solve the present day problems in corresponding branches of science, how much the project corresponds to the stated ambitious goals.

The research project should answer the following questions:

- To what extent does there exist a possibility of achieving a breakthrough in science, a great impact of the project results outside the limits of concrete branches of science / or are the results of the project a novel in the field of science and /or does the utilisation of alternative methods take place (is there a balance between “high achievements and considerable risk”);
- How much is the scientific approach justified (it is evaluated at the first stage);
- To what extent the proposed methods of research (including time frameworks and resources) are necessary to achieve the project goals;
- To what extent are necessary and justified the existing resources (it is evaluated at the second stage), if, in the project, the participation of the workers of other institutions as the team members is planned, and clarification of the necessity of such participation, as well as its justification, taking into consideration the additional scientific value, which they add to the project (it is evaluated at the second stage), is conducted.

Members of the expert council and additional experts (judges) evaluate and give points to the proposals with two criteria: 1) Project Director (Chief Researcher) and 2) Research Project. Every proposal secures a certain number of points from 1 to 4 for every of the two evaluation criteria: 4 – Outstanding project, 3 – Excellent, 2 – Very good, 1 – Incompatible project.

At the end of every evaluation stage, at the council meeting, all the proposals receive their ratings on the basis of the points which they secured as well as on the basis of general evaluation of their strong and weak sides.

According to the results of the evaluation, a decision is made regarding financing of the project within the framework of FP7. The expert council is authorized to revise the amount of funds spent for the project proposal, and, if necessary, may propose that some changes should be introduced to the project budget.
8. Analysis of the legislation of Ukraine on financial and credit support of innovation activity

1.1. Acts that regulate legal relations in the field

Main normative acts dealing with financial and credit support of innovation activity:

**Laws of Ukraine**


**Decrees of the President of Ukraine**


**Resolutions of the Verkhovna Rada of Ukraine**


**Decrees of the Cabinet of Ministers of Ukraine**

17. Procedure of the State Registration of Innovation Projects and Maintenance of the State Register of Innovation Projects, No 1474 of 17.09.2003

**Resolutions of the Cabinet of Ministers of Ukraine**


1.2. Analysis of legislation

Over last couple of years Ukraine saw a decline in volumes of potential innovation facilities as well as the deterioration of database filling dynamics. Some macroeconomic statistic data show that\(^\text{19}\): with a 19 fold increase of the state funding of technological innovations over 2000 – 2007 (from UAH 7.7 to 144.8 Mio), 3.4 fold increase in scientific and technological R&D (from UAH 1978.4 to 6700.7 Mio), the ratio of sold

innovation products in the total industrial output decreased from 6.8 to 6.7 per cent, ratio of innovation companies decreased by 1.27 times (from 18 down to 14.2 %), the number of innovation types of products manufactured by those companies went down by 6 times (from 15323 to 2526).

Introduction of functional foundations into state regulation in the field of scientific, R&D and innovation activity requires, first of all, taking into account all stages of competitive (innovation) product lifecycle, and, secondly, a separate status for the state innovation policies, under which state regulation has to relate to set priorities of scientific, technological and innovation development, has to be coordinated according to the amount of resources available with traditional sectors (education, science, industry, business, finance etc) and has to be relevant in terms of global demand. The latter can be achieved in case state industrial, financial, fiscal policies will correlate with state policies in the field of education, science, R&D and innovation.

1.2.1. Legal basis of credit support.

Economic entities working, among other things, in the field of innovation are entitled according to legislation of Ukraine and the Civil Code in particular to receive such types of support: loans, leasing, credits, other financial support according to the law.

Loan

According to Article 1046 of the Civil Code of Ukraine20 “according to the loan agreement one party (Loan holder) hands over to the other party (Loan receiver) money or other items of a certain type, while the Loan receiver undertakes to return the same amount of money (the Loan) or the same number of items of the same type and quality”.

Since the loan isn’t associated with any kind of interest rate etc., this type of support mechanism could be employed by non-profit financial institutions, such as state innovation funds. According to the Article of the Civil code listed above, loan in the field of innovation activity means funding of the innovation project (loan receiver) by the financial institution (loan holder) according to the principles of: (i) timing; (ii) no interest rate; (iii) targeted utilization of funds solely for the needs of the project; (iv) financial guarantees by the loan holder.

Legally, the relations are formalized through an innovation loan agreement. From the legal standpoint, such an agreement is a real contract, meaning that it enters into force once loan receiver receives funds.

Leasing

Legal foundations of leasing are found in the CC of Ukraine (Art. 806) and in the special laws. Leasing in the field of innovation is an economic operation, according to which an innovation project operator receives a leasing object (equipment, instruments, machinery) for exclusive utilization on the paid-for basis with a set period of leasing time.

When it comes to funding of innovation projects, financial leasing is a most common type of support. Subjects of leasing in the field of innovation are: a lessor – a financial institution or a special leasing company and a lessee – an operator of the innovation project. Leasing in the field of innovation is quite common because of the lack of requirements when it comes to financial guarantees on the lessee side, and obvious target-oriented nature of the funding.

Crediting

Crediting foundations are fixed in the CC of Ukraine (Articles 1054, 1055 and 1056).

1.2.2. Crediting conditions

Innovation projects

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According to the Law of Ukraine “On Innovation Activity” all companies bearing an innovation company status as well as economic entities of all forms of ownership carrying out innovation projects in Ukraine are entitled to receive state support.

In order to carry out innovation projects, innovation economic entities may be given financial support through:

- Full zero interest crediting of priority innovation projects or partial (up to 50%) zero interest crediting of innovation projects funded with the money coming from the state budget on various levels;
- Full or partial reimbursement of the interest, paid by the innovation entities to commercial banks and other financial and crediting institutions for credits provided to fund innovation projects;
- Provision of state guarantees to commercial banks that provide credits to fund priority innovation projects;
- Insurance of innovation projects with insurance companies according to the Law of Ukraine “On Insurance”.

Financial support of innovation activity of economic entities is carried out through specialized state non-banking innovation financial and crediting institutions formed by the Cabinet of Ministers of Ukraine according to the request of special executive innovation authority and are subordinated to the latter, or possibly through specialized community non-banking innovation financial and crediting institutions formed by the local municipalities and work under the latter.

Funds of state owned non-banking innovation financial and crediting institutions are taken from the State Budget of Ukraine according to the Law of Ukraine “On the State Budget of Ukraine” for the appropriate year. Funds of the local community non-banking innovation financial and crediting institutions are taken from respective local municipal budgets. Other than that, the funds of both state and local non-banking innovation financial and crediting institutions are taken from legally attracted domestic and foreign investments provided by legal entities and individuals, voluntary donations by legal entities and individuals, from revenues coming from own and joint economic activities and other sources permitted by the legislation of Ukraine.

Financial support to properly registered innovation projects is provided on the basis of competitive selection carried out by innovation financial and crediting institutions according to principles of transparency, openness and publicity.

A subject of innovation activity, innovation project of which has passed the competitive selection may receive, based on the ratings established by the selection procedure, one or several types of financial support as per Article 17 of the Law of Ukraine “On Innovation Activity”. In case of crediting or leasing of property, the financial support is provided on the basis of availability of repayment guarantees such as pledge of property, insurance contract, banking guarantee, suretyship contract etc.

**Technology parks projects**

State support of technology parks operation is exercised through state financial support and target-oriented subsidizing of technology parks projects.

In order to financially support technology parks projects, the State Budget of Ukraine has to contain an appropriate budget support program with funds to be used for full or partial (up to 50%) zero interest crediting of technology parks projects; full or partial reimbursement of the interest rate, paid by technology...

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23 See, for example, decrees of the Cabinet of Ministers of Ukraine, dated 01.03.2007 № 329 “On Approval of the Rules of Utilization of State Budget Funds Allocated to Support Innovation and Investment Projects in 2007” and dated 14.03.2007 № 455 «On Approval of the Rules of Utilization of State Budget Funds Allocated to Provision of Credits and Fulfillment of Innovation and Investment Projects Across Sectors of Economy». 

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parks to commercial banks and other financial and crediting institutions for credits given to support technology parks projects.

In order to carry out technology parks projects, State innovation funding and crediting authority and its regional branches may issue credits.

1.2.3. Some results of credit support of innovation activity of economic entities in Ukraine in 2000 – 2010

Sources of funding of innovation activity

According to the data of the State Statistics Service of Ukraine in 2000 – 2009 economic entities carried out innovation activity mostly at their own expense. Also, the ratio of own funds of economic entities directed towards support of innovation activity was largest in absolute terms in 2007, and in relative terms – in 2005.

According to the State Statistics Service of Ukraine in 2007 over 90% of companies carried out innovation activity at their own expense, which amounted to almost three fourths of total costs (UAH 8 billion). 145 companies received credits (UAH 2.0 billion), 23 companies received foreign investments in amount of UAH 0.3 billion (3.0%). 44 companies enjoyed state budget support; local budgets provided funding to 13 companies. Collectively the state support amounted to UAH 152.1 billion or 1.4%.

Table 1.2. Funding of innovation activity by source in 2000 – 2009 (according to SSS of Ukraine).

<table>
<thead>
<tr>
<th>Year</th>
<th>Total funds</th>
<th>Including</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UAH, bln.</td>
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<tr>
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<tr>
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</tr>
<tr>
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</tr>
<tr>
<td>2008</td>
<td>11994,2</td>
<td>7264,0</td>
</tr>
<tr>
<td>2009</td>
<td>7949,9</td>
<td>5169,4</td>
</tr>
</tbody>
</table>

Credit support of innovation activity in 2007

In 2007, the state budget had three budget programs to financially support innovation and investment projects of economic entities in Ukraine:

- “Financial Support of Innovation and Investment Projects, Primarily in the Field of High Technologies in the Industry, Including Technology Parks, through Cheapening of Credits” (hereinafter – the cheapening program of the budget) in amount of UAH 144.5 Mio;

- “Provision of Credits Towards Implementation of Innovation and Investment Projects Across Different Sectors of Economy, Primarily in the Field of Energy Efficiency and Alternative Energy

Technology” (hereinafter – subsidized credit program of the budget) in amount of UAH 767.4 Mio;

- “Upkeep of Regional Innovation Development Centres and Implementation of Sectoral and Regional Innovation Program” (hereinafter – budget program on implementation of innovation programs in amount of UAH 50.0 Mio, of which around 36.0 Mio were made available to sectoral and regional innovation programs through non-reimbursable funding of certain tasks and activities.

State agency of Ukraine on Investment and Innovation (SAUII) was a primary operator of budget funds under programs listed above

In order to carry out mentioned programs, following legislation has been adopted:

- Decree of the Cabinet of Ministers of Ukraine of 01.03.2007 No 329 “On Adoption of the Rules of Utilization of Funds Allocated to Financially Support Innovation and Investment Projects in 2007”;
- Decree of the Cabinet of Ministers of Ukraine of 14.03.2007 No 455 “On Adoption of the Rules of Utilization of Funds Allocated to Crediting of Innovation and Investment Projects in 2007”
- Decree of the Cabinet of Ministers of Ukraine of 07.03.2007 No 424 “On Establishment of Interagency Board on Investment and Innovational Development”;
- Order of the SAUII of 26.04.2007 No 29 “On Adoption of the Template of the Reimbursement Contract for Interest Rates Paid under Credits Issued to Fund Innovation and Investment Projects in 2007”;
- Order of the SAUII of 17.10.2007 No 105 “On Adoption of the Rules of Competitive Selection for Regional and Sectoral Innovation Programs to be Funded by the State Budget”

In order to ensure transparent and effective target oriented financial support of programs and projects the SAUII had established three selection commissions made up from members of Ministry of Finance of Ukraine, Ministry of Economy of Ukraine, Ministry of education and Science of Ukraine, Ministry of Industrial Policy of Ukraine, Ministry of Regional Development and Construction of Ukraine, State innovation funding and crediting authority, National Agency on efficient use of energy resources, National Academy of Science of Ukraine, Scientific park “Kyivska Polytechnika”, Ukrainian Union of Manufacturers and Entrepreneurs.

The selection of projects and programs was carried out in three stages: at the first stage, commissions decided whether a program or a project is entitled to receive financial support and volumes of such support. At the second stage, conclusions of selection commissions were agreed with Interagency board on investment and innovation development. At the third stage, commissions made a final decision taking into account possible recommendations of the Interagency board.

Results of above mentioned budget programs are25:

- The credit cheapening program attracted 53 project applications with a total reimbursement sum in amount of UAH 250.0 Mio. Appropriate commission considered 45 projects out of which 19 received a positive decision. Out of winning projects 3 projects had a certificate of innovation project, with two projects being projects of a technology park. It is worth mentioning that 8 projects weren’t considered because the appropriate budget funding had been exhausted at the time of application. As of 01.01.2008 under the

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cheapening program some UAH 143,627,073.86 or 94% of the total funds were transferred to projects involved;

- The subsidized crediting program attracted 52 project applications with a total credit sum in amount of UAH 2.4 billion. Appropriate commission considered 28 projects out of which 17 received a positive decision. Out of winning projects 4 projects had a certificate of innovation project. 24 projects weren’t considered because the appropriate budget funding had been exhausted at the time of application. As of 01.01.2008 under subsidized crediting program 17 crediting contracts were signed with a total worth of UAH 760,123,288.00 and UAH 655,123,288.00 were given in credits, covering 99.1% and 85.4% of the program funds respectively;

- The program of implementation of innovation programs attracted 8 innovation programs, with three being sectoral and five – regional programs. Those programs envisaged financial support for 35 projects collectively worth more than UAH 75.4 Mio. Selection commission made a positive decision for one regional and two sectoral programs. Total amount of funding was some UAH 12.58 Mio which amounts to 35% of the total program funds. As of 01.01.2008 the recipients received some UAH 4.5 Mio or 12.5% of the program cost.

Credit support of innovation in 2008

According to the State Agency of Ukraine on Investment and Innovation in 200826 some UAH 168 Mio were allocated under the budget program “Crediting Across Different Sectors of Economy, Primarily in the Field of Energy Efficiency and Alternative Energy Technology”. SAUII was selected as a primary operator of respective budget costs.

The draft law presented by the SAUII that would have ensured completion of the above mentioned budget program found no support with central executive authorities however, and consequently, the allocated budget funds weren’t used.

As an alternative to the budget program, the SAUII has ensured competitive selection of innovation projects for funding at the expense of State innovation funding and crediting authority. Appropriate normative acts have been adopted, namely: order of SAUII of 17.10.2008 No 84 on introduction of changes to the procedure of competitive selection of projects for subsequent funding and the order of 27.11.2008 No 106 on establishment of Selection committee for subsequent funding from State innovation funding and crediting authority.

The normative acts established rules and conditions of the competitive selection as well as the list of documents required for application. Documents and projects submitted were analysed and qualified by an appropriate expert commission established by the order of the State innovation funding and crediting authority according to the order No 50 of 25.11.2008.

Consideration of applications started in December 2008. From 3rd through 26th December 2008, the State innovation funding and crediting authority registered 2 applications.

No decision had been made on whether to provide financial support or not.

Credit support of innovation in 2010

According to the data provided by the State Agency of Ukraine on Investment and Innovation in 201027 in order to ensure fulfilment of the paragraph 5 section 1 Article 74 of the Law of Ukraine “On the State Budget of Ukraine in 2010” and in order to ensure effective and efficient mechanism of provision of financial support to investment and innovation projects the decree of the Cabinet of Ministers of Ukraine of 16.10.2010 No 476 “Some Aspects of Provision of State Support to Innovation and Investment Projects in

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the Real Sector of Economy” established Rules and procedures of utilization of Stabilization fund for the purposes of state support of innovation and investment projects in the real sector of economy, including cheapening of credits (hereinafter – Rules of utilization of funds) while the Decree of the Cabinet of Ministers of Ukraine of 13.09.2010 No 860 “Issues Related to Preparation and Selection of Investment Projects Entitled to Receive State Support in the Real Sector of Economy” established rules of selection of projects to innovation and investment projects in the real sector of economy.

Rules of utilization of funds envisaged allocation of funds to ensure cheapening of credits both in domestic and foreign currency, including credits provided by foreign financial institutions for investment and innovation programs in the real sector of economy, as well as fulfilment of investment projects on the basis of co-funding.

In order to ensure fulfilment of the budget program other normative documents have been adopted as well:

- “Rules of Competitive Selection of Innovation and Investment Projects in the Real Sector of Economy for the State Support in 2010 with Funds from the Stabilization Fund” approved by the order of SAUII of 10.08.2010 No 39;
- “Methodical Guidelines on Drafting of Business-Plans of Investment Projects” approved by the order of SAUII of 31.08.2010 No 73;
- “Template Contract on Reimbursement of the Interest Rate of the Credit(s) used to Fund Investment (Innovation) Project”, approved by the order of SAUII of 25.10.2010 No 106. It is worth mentioning that the template contract was designed to ensure proper formalization of legal contractual relations between SAUII and potential winner of the selection process.

Other than that in order to fulfil the Decree of the Cabinet of Ministers of Ukraine of 30.06.2010 No 567 “On Adoption of the Rules and Conditions of Provision of State Repayment Guarantees for Funds Attracted by State Owned Economic Entities to Support Investment, Innovation, Infrastructure and Other Project of Strategic Nature, Fulfilment of Which Facilitates Development of Economy of Ukraine, Including Import Substitution and Export Oriented Sectors” several other normative documents had been adopted:

- “Rules of Competitive Selection of Investment, Innovation, Infrastructure and Other Development Projects in Order to Provide in 2010 State Guarantees to Receive Funding”, adopted by the order of the SAUII of 10.08.2010 No 40;
- “Composition of the Selection Commission on Selection of Innovation and Investment Projects in the Real Sector of Economy for the State Support in 2010 with Funds from Stabilization Fund”, adopted by the order of SAUII of 10.08.2010 No 94;
- “Composition of the Selection Commission on Selection of Innovation, Investment, Infrastructure and Other Development Projects for the Provision of State Repayment Guarantees for Subsequent Funding”, approved by the order of the SAUII of 05.10.2010 No 95;
- “Composition of the Commission on Coordination of Activities Related to Investment Projects”, approved by the Decree of the Cabinet of Ministers of Ukraine of 17.05.2010 No 415. Main task of the Commission was to draft proposals on whether or no investment projects are entitled to receive state financial support including the mechanism of state guarantees.

In 2010 abovementioned commissions received 90 investment projects for consideration from economic entities of different forms of ownership with the total requested funds amounting to UAH 12,775,850.0 ths. State owned economic entities submitted 17 projects, collective ownership entities submitted 27 projects, privately owned entities submitted 27 projects, privately owned entities submitted 46 projects.

In terms of directions of state support, submitted projects could be broken down in a following way: Stabilization fund support – 71 projects (including reimbursement of credit interest rate – 51 projects; co-funding – 20 projects); state guarantee support – 19 projects.

In order to ensure fulfilment of the Law of Ukraine “On the State Budget of Ukraine for 2010” as well as decisions of the Selection commission on innovation and investment projects in the real sector of
economy for the state support in 2010 with funds from Stabilization fund, several other normative documents of the Cabinet of Ministers of Ukraine had been adopted:

- Decree of 11.10.2010 No 949 “Some Aspects of Funding of Investment Projects in the Real Sector of Economy in 2010”;
- Decree of 29.11.2010 No 1127 “Some Aspects of Funding of Investment Projects in the Real Sector of Economy and Provision of Credits to Form State Intervention Fund in 2010;
- Resolution of 01.12.2010 No 2173-p “Utilization of Stabilization Fund in 2010 for the State Support to Innovation and Investment Projects in the Real Sector of Economy, including Cheapening of Credits”;

Mentioned government acts were needed to ensure allocation of funds to SAUII to provide state support to investment (innovation) projects in the real sector of economy, including the mechanism of cheapening of credits.

According to the rules of utilization of Stabilization fund in 2010 to ensure state support to innovation and investment projects in the real sector of economy, including the mechanism of cheapening of credits, as approved by the Decree of the Cabinet of Ministers of Ukraine of 16.06.2010 No 476, in 2010 state support was provided to 6 projects in total amount of UAH 471,434.3 ths, while as of 01.01.2011 projects were funded to a total amount of UAH 222,522.5 ths, while some UAH 248,911.7 ths. were registered at the State Treasury as a credit debt.

No decisions to provide state repayment guarantees for state owned entities attracting funds to support investment, innovation, infrastructure and other development projects of strategic nature, fulfilment of which facilitates development of the economy of Ukraine were made by the Cabinet of Ukraine in 2010.

1.2.4. Problem issues of finance and credit regulation of innovation activity

Efficiency assessment of certain provisions of legal documents that define and regulate the area of innovation activity in Ukraine, including those concerning issues of innovation activity credit support, is shown in the Annex.

Generally the Ukrainian legal norms that regulate the area of innovation activity, including those concerning its credit support, are used inefficiently, at least because of the following:

1. The nonconformity of definitions that determine the area of innovation activity and are used in different legal documents, particularly concerning the terms “innovation”, “innovation activity”, “innovation infrastructure” etc. 28.

2. According to the current Law the area of innovation activity concerns, first of all, the area of science and S&T, and the area of technologies transfer. The state regulation in those areas is performed by different central executive authorities, competency boundaries of which aren’t clearly defined, which becomes the source of ulterior legal collisions and creates the ground for political manipulations 29.


3. The legal base for innovation activity in Ukraine doesn’t provide the implementation of state regulation by innovation area grounded on the functional basis, i.e. when the state performs the support of innovation process both in general and at each separate stage of it: ranging from the stage of future (innovation and competitive) product idea development to the stage of such product sales on the market and the stage of the product withdrawal from the market.

4. The norms of state support of innovation activity in Ukraine per se correspond to the world accepted practice. However, the complexity of their practical implementation de facto reduces them to mere declarations.

5. An excessively regulated procedure of development and adoption of multiple legal documents that are necessary to provide the implementation of a corresponding budget program, for example, of financial support for innovation projects implementation, leads to the situation when the decision making on the fact and the volume of financial (credit) support of innovation projects falls to the last months of a budget year.\(^{30}\)

6. The absence of private investors’ trust toward the actions of the state, connected with the involvement of investments, particularly based on the public private partnership.

### 1.3. Issues to be solved

**a) Creation of general favourable conditions for innovation activity**

In Ukraine the companies’ own funds are the main source of financing for innovation activity. In order to increase companies’ financing for innovation activity it’s necessary to introduce at least such system changes into the state innovation policy implementation.

1. Coordinate the state industrial, financial and tax policies with the state policy in the areas of education, science, S&T and innovation activity.
2. Create conditions for stimulating the development of state and private funds for direct and venture investment of innovation activity in Ukraine.
3. Involve mechanisms and instruments of public private partnership into the innovation area.
4. Create a clear system of rules and guarantees for private capital in the innovation area and increase its innovation favourability.
5. Deregulate and debureaucratize the procedures of allocation of financial (credit) support for implementation of innovation projects to companies.
6. Introduce the state order for innovation products.
7. Increase the share of expenses on science and S&T activity and innovations in the GDP structure both at the cost of the state budget and the private capital by introducing both direct and indirect stimuli for companies’ directing a part of income from commercial activity to science and S&T activity and technological development.
8. Introduce tax and customs privileges and preferences for certain categories of projects (e.g. for the projects of science parks and innovation projects, the implementation of which will be of a great importance for the state economy).
9. Enhance the investment climate and add innovation direction to investments, first of all through the mechanism of public private partnership.
10. Provide companies with higher accessibility to privileged crediting compared to other forms of non-repayable financing of innovation activity.
11. Provide the formation of integral system of innovation activity financial infrastructure by:
   - facilitating the access to financial resources and providing the continuity of such resources for all the stages of innovation process;

\(^{30}\) A possible way to solve this problem is to introduce protected articles on volumes of credit (financial) support of innovation projects implementation into the state budget for each year.

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- creating and supporting of venture funds’ activity and choosing the model of the state’s participation in venture financing;
- supporting of activity of other, than venture, funds, i.e.: funds for initial capital, funds for small innovation companies, funds for innovation development etc.;
- shifting the accents of financial support from subsidization to privileged crediting with the use of the forms of long-term crediting with privileged conditions and the state guarantees;
- providing the state support for innovation activity grounded exceptionally on competition basis;
- involving leasing schemes of production modernization financing through subsidized decrease of per cent rates.

b) Legal provision of innovation activity support funds’ activity

On the legal level it is advisable to consider the possibility of solution of the following issues:

(i) creation of innovation development funds in order to support, first of all, initial stages of innovation process and activity of small innovation companies, including local innovation funds;
(ii) creation of national venture company, whose task shall be the creation of innovation activity venture financing domain in Ukraine;
(iii) adoption of middle-term priorities for innovation activity and
(iv) introduction of tax privileges for companies that implement innovation projects.

Innovation development funds

Innovation development fund is a financial body, whose goal will be the involvement of legal persons’ and individuals’ funds for investment into innovation projects and/or creation of new or existing (innovation) companies. The funds’ activity shall be regulated by the Law of Ukraine “On financial services and state regulation of financial services markets” taking into account the following particularities:

- legal persons and individuals of Ukraine, foreign citizens, persons without citizenship, foreign legal persons and international organizations can become founders and participators of the funds;
- provisions of the Law of Ukraine “On Collective Investment Institutions (unit and corporate investment funds)” don’t spread on creation and activity of the funds;
- corporate rights, debt liabilities, real estate, monetary funds, property and intellectual rights.
- the funds perform investments into the objects of innovation activity, in particular into innovation programs and projects, new knowledge and intellectual products, production equipment and processes, innovation infrastructure, and corporate rights and/or debt liabilities of innovation companies, joint companies created to fulfil innovation projects and programs, science park projects, innovation structures and companies of innovation infrastructure.

The funds can be provided with state support through: direct payable and non-payable financing of research, research and development and technological activities connected with the activity of such funds; compensation of a part of their expenses on implementation of innovation programs and projects; tax privileges and preferences according to the tax legislation; tax crediting; direct participation in nominal capital. Particularities of the funds’ activity of innovation development have to be stated in the Law of Ukraine “On Innovation Activity”.

Local innovation funds

It’s recommended to create local innovation funds as financial body to involve funds of legal persons and individuals in order to invest into S&T and innovation projects, and whose activity has to be regulated by the Law of Ukraine “On Financial Services and State Regulation of Financial Services Markets”.

Main tasks of local innovation funds, in particular, can be as follows:

- organization, on competitive basis, of innovation projects and programs selection for their financial support according to priorities of innovation activity at the cost of local budgets;
involvement of investments for implementation of innovation projects aimed at introduction of innovation technologies; production technological renovation;
- providing of companies with financial support through financial credits, loans and financial leasing;
- development and execution of pre-investment measures.

National venture company

A national venture company is created in order to perform innovation activity connected with investment support of different stages of new hi-tech companies development, their introduction to the global market through venture investments, and management and consulting support, founding of new international technological companies based on Ukrainian innovations, capitalization of state assets, state support of innovation projects and programs of state, inter-region, region and field levels.

The national venture company can become\(^{31}\) (i) a “fund of funds”, i.e. the investor of a number of venture funds that make investments into companies whose activity corresponds to priorities of S&T and innovation activity; and (ii) perform direct investment into development of innovation companies in exchange for share fraction, obligations or corporate right; into implementation of innovation projects, patenting of research works’ results and their further commercialization.

It’s advisable to legally secure the use of the following instruments for the national venture company: (i) venture funds of early development for the support of hi-tech companies that are at the start-up stage, in particular innovation development funds (see above); (ii) venture development funds whose main task is the long-term capital increase; and (iii) venture sinking funds that specialize in financing of purchase or strategic acquisition operations, usually through purchase of majority interest.

The activity of the national venture company and corresponding venture funds has to be regulated by the provisions of the Law of Ukraine “On Collective Investment Institutions (Unit and Corporate Investment Funds)”. Possible sources of the national venture company’s capital:
- single-purpose budget financing;
- private capital and income;
- loans at interior and exterior markets;
- special funds’ assets (e.g. Stabilization Fund’s assets);
- single-purpose contributions originating from certain fields’ companies;
- share of profits originating from the use of state property objects;
- share of assets originating from sales of state securities and privatization of state property.

Creation of the national venture company as of fund of funds is possible in different legal forms, e.g. in the form of state company or public joint-stock company. In both cases the provision on formation of nominal capital (share of nominal capital) of the national venture company at the cost of the state budget can’t be implemented without amendment of corresponding budget laws and of the Economic Code of Ukraine.

Tax stimulation of innovation projects implementation

It’s advisable to introduce into the Law (Tax Code of Ukraine) and corresponding legal base of Ukraine the provisions on tax remission of companies’ income received by them through implementation of innovation projects in priority fields of S&T development and innovation activity, while the size of such

emission has to depend on the level of an innovation project of corresponding priority field (corresponding priority fields).\(^{32}\)

The importation into Ukraine, in order to implement a (priority) innovation project registered according to the Law of Ukraine “On Innovation Activity”, of raw materials, equipment, parts and other products (except for those under excise law) that aren’t produced in Ukraine or produced, but do not correspond to the project requirements, during the period of validity of the certificate of state registration of the (priority) innovation project, should be freed of the added value tax.

Nomenclature and volumes of importation of the raw materials, equipment, parts and other products have to be defined in the innovation project during the state registration.

c) The Development of Credit Institutions Activity

The reformation in 2010 of the system of government management in the field of investments by establishment of the State Agency of Ukraine for Investment and Development, State Investment Company public enterprise, State Agency for Investments and Management of National Projects, created the instruments of public support, first of all, of investment processes.

The development of institutional basis and instruments of backing the primary stages of innovation processes related to the birth and implementation of basic and improving innovations, support of inventors and scientists activity, small innovation businesses, inception of start-up and spinoff companies were neglected. That problem may be solved by establishment of a range of state and municipal innovations finance and credit institutions and local innovation funds as the innovation infrastructure entities.

As of 31 December 2010 only two innovations finance and credit institutions were operating in Ukraine – one public institution and one municipal institution. The first submits to the State Agency of Ukraine for Investment and Development by the Resolution of the Cabinet of Ministers of Ukraine.

The establishment and development of one more state innovations finance and credit institution is desirable. Such institution may be established pursuant to the Law of Ukraine “On Innovations” by the Act of the Cabinet of Ministers of Ukraine and will submit to the State Agency for Science, Innovations and Information, and purposed for support, first of all, of primary stages of innovation process of establishment, implementation and commercialization of scientific, R&D, invention and innovation results in real sector of economy, engagement of investments for it, promotion of small innovation business.

It is worthwhile to say that as of the March 2011 State Agency for Science, Innovations and Information of Ukraine developed and remitted for agreement to the engaged bodies the Draft Resolution of the Cabinet of Ministers of Ukraine “On Establishment of the State Non-banking Innovations Finance and Credit Institution «The State Innovations Company»”.

The key tasks of the institution may include, but not limited to:

- selection of innovations projects and innovations programs on contest basis for financial support thereof pursuant to the priority field of innovation for the budget costs;
- engagement of investments for implementation of innovations projects aimed at implementation of up to date technologies, technological upgrade of production;
- financial support to economic entities by financial loans, credit, financial leasing, and implementation of joint activity or acquisition of corporate rights in statutory capital of those entities;
- development and implementation of measures of pre-investment nature.

Establishment of state innovations finance and credit institution and innovations funds will assist to the creation in Ukraine of the conditions for the support of primary stages of innovation processes related, first of all, to the establishment and activity of small innovation companies, that is envisaged specifically by the

State special program of “Establishment of Innovation Infrastructure in Ukraine” for 2009-2013, as well as to stimulation of innovation in Ukraine, speeding up the processes related to the transition of Ukrainian economy to innovation model of development, expansion of innovation of manufacturing enterprises and volumes of finance for R&D and innovation.

2. The Experience of Legal Regulation of Innovation Support in Foreign Countries and in Ukraine.

Regarding the instruments of direct and indirect support

Currently, within the framework of three key models of innovation development – American, European and Japanese – rather full and complex systems were formed for different stages of innovations process stimulation. They operate multiple direct and indirect instruments of stimulation: starting with the research stage and ending with the stage of promotion of new technologies, goods and services in the market. The experience of European community in coordination of innovations policies of certain member states as to the establishment of All-European joint scientific and innovation area is deemed to be the most successful and educative for Ukraine.

The main forms of support and stimulation of innovation used in developed countries are:

- direct finance of R&D, development and construction activities on establishment and utilization of innovations as grants for the development and promotion of new technologies, goods and services constituting 50% of the aggregate costs of the enterprises for such purposes (inherent to USA, France). Very frequently the recipients of such grants are SME’s. The most widespread form of grants within the latest years are the grants provided by the state, different international and social organizations and other special funds on contest basis by project finance.

- concessional lending to innovation envisaging full or partial reimbursement of interest paid on bank loans for the cost of special funds or state budget. For instance, in Germany, for SME’s investing in production upgrade, mastering of new types of products, or energy efficiency, the concessional loans are granted in amount of 50% of the costs spent by the enterprise for those purposes. Besides, the bank loans for purchase of new equipment should be insured for the cost of state budget. In Italy, the concessional loans for technological upgrades are provided in amount of 80% of the cost of innovation project for the 15 years tenor.

Special innovation projects lending programs are envisaged pursuant to the Federal Act of Austria of 13 June 1962 on management of ERP costs (ERP Fund Act) and Directive of Federal Ministry of Economic Affairs and Technology (Germany) for the ERP Fund of 1 February 2005. Interest free lending for implementation of innovation in France is carried out by OSEO (former ANVAR) pursuant to the Decree No. 2010-1672 of 28 December 2010. In Luxemburg Société Nationale de Crédit et d’Investissement (Law of Luxemburg of 2 August 1977) provides medium and long term credit support for innovation and investment projects, purchase of equipment, etc. with concessional repayment of interest.

- the granting of tax exemptions and holidays as the indirect stimulation and motivation to innovation method, since the enterprise income is the basis of innovation funding, and its increase leads to the growth of innovation capabilities of the company.

- customs privileges or full exemption from customs taxes on import of scientific or hi-tech equipment.

In certain countries the state became an active participant of venture finance, in particular on the primary stages of development of that financial institution. Various typical scenarios of such institution operation are possible: (i) implementation of activities via state venture capital fund investing directly in innovation enterprises (for example, as in Great Britain, India), (ii) establishment of “Fund of the funds” placing assets in private venture capital funds (for example, as in Israel, Finland, Singapore), or (iii) unification of the first and the second scenarios (for example, as in Canada, Japan).

33 “Guidelines on intensification of the role of small and medium innovative enterprises in general prosperity of CIS countries” WIPO, 17 December 2009.
The other form of state participation in venture finance is the provision of state guarantees for reimbursement to the economic entities of probable losses from finance of innovation (for example, as in EU countries, Singapore, USA, Japan) and providing by the state of substantial tax and other benefits.

In Ukraine the activity of venture capital funds is governed by the Law of Ukraine “On Institutions of Joint Finance (Share and Corporate Investment Funds)” and is relatively weakly related to investment in innovation companies. Concessional lending of innovation by State Agency of Ukraine for Investment and Development under budget programs within 2007-2008, 2010 had certain positive influence, still, in connection with the limited costs (in 2010 the state support was granted only to 6 projects) for that time the mentioned instrument was extremely limited in implementation.

**Final Provisions**

The experience of finance and credit support of innovation in EU and other countries allows differentiating the following stages of financial support of enterprises innovation.

On the early stages of innovation enterprises funding the key role belongs to business angels and venture capital investment companies. They provide capital, expertise and legitimacy to entrepreneur start-ups.

The process of funding on early stages may be dealt with as the cycle consisting of four main stages: (i) funds raising; (ii) investment; (iii) management / creation of added value; (iv) completion of funding. That cycle provides the participants (business angels and venture capital funds) with return capable of covering at least their risks.

The funds raising stage requires availability of funds to be allocated to innovation enterprises by the specialized finance intermediaries, specifically, business angels require attractiveness of such investments, and venture capital investment companies require access to institutional investors with the long term potential of utilization thereof as the funding and funds structuring source.

The investment stage requires investment opportunities flow for business angels and venture capital investment funds, and necessary skills for assessment of financial capabilities and selection of projects to be financed. The flow of investment opportunities is the result of entrepreneurship culture in the country, and the skills for assessment and selection of projects is the result of knowledge and accumulated experience.

The added value creation stage requires availability for innovation enterprises of necessary and sufficient skills and motivation to supervision, management and development of innovation enterprises and access to outer resources for current activity.

The completion of funding stage requires providing the investors with possibility to transform the created added value into funds available to be used in the following finance cycle. The success of this stage implementation depends on the level of development of capital markets and transparency of companies acquisition procedure.  

Under current conditions the creation of “supply and demand” of finance and credit support expansion for innovation enterprises in the world market of goods and services should take place with active involvement, first of all, of the state, via:

1. Determination of priority (or “breakthrough”) areas of R&D and innovation, where home-grown technologies along with scientific and technical researches may show competitive, and funding of those areas through the system of state special programs, concessional loans, state procurements, state guarantees against investments for acquisition of hi end home manufactured equipment.
2. Priority of funding of scientific research in determined “breakthrough” areas.
3. Providing of supplementary sources of funding for determined areas, for instance, by re-allocation of lease proceeds from utilization of natural resources, engagement of regional opportunities, mechanisms and instruments of PPP.

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4. Development of innovation infrastructure and innovation enterprises.

Improvement of legal basis for financial and credit support of innovation should contemplate implementation in Ukraine of the majority of currently known leverage, including financial and fiscal levers, of state policy in the field of innovation and implementation of a range of management measures.

Regarding the political and general economic leverage
Among political and general economic leverage the following should be considered:
- implementation of functional basis in the state regulation of innovation field;
- coordination of state industry, financial and fiscal policy and state policy in the area of education, R&D and innovation;
- development of objective standards for determination of economic activity as innovation;
- intensification of private capital motivation to participation in venture investments in innovation;

Regarding the financial leverage
Among the financial levers the following should be considered:
- improvement of mechanisms of budgetary and non-budgetary financing of innovations;
- interest free or concessional lending, grants and allowances at cost of state budget;
- development of government order for innovation products;
- arrangement of conditions for development of institutions and stock markets for long term financing of innovation enterprises and implementation of innovation projects; stimulation of participation of businesses in selection and commercialization of research results;
- improvement of the system of risks insurance for innovations implementation;
- establishment of the state venture capital company.

Regarding fiscal leverage
Among the fiscal levers the following should be considered:
- reduction of the enterprises income tax rate;
- tax credit to innovation enterprises;
- reduction of the amount to be taxed by exclusion of costs for research and (or) implementation of new technology from it;
- exemption from taxation of income received by the owners of title to innovations and venture capital companies;
- implementation of tax amortization.

Regarding management measures
Efficient innovation policy should provide for potent mechanism of investment in structural adjustment of local economy in favour of enterprises of the 5th and 6th technological mode and include implementation of the following management measures 36:
- direct state funding of programs of structural adjustment of economy;
- direct state investments in development of innovations infrastructure;
- implementation of benefits system for income tax in event of its utilization for the needs of innovation development;
- stimulation of cooperation between science and production in innovation process;
- creation of favourable competitive conditions for local manufacturer of innovation products;
- improvement of investment policy for international transfer of technologies.

36 Based on materials of analytical summary «The Modern Condition of R&D and Innovation in Ukraine, and the Propositions on the Ways of Improvement of State Management in R&D and Innovation», prepared by the Council for the Study of Productive Forces of Ukraine, National Academy of Sciences of Ukraine. Kyiv – 2005
9. Tax incentives for innovation activity

1.1. Introduction

OECD data demonstrate that more and more countries apply tax incentives for innovation activity. Namely, in 2006 20 OECD member countries were granted tax allowances for R&D, compared to only 12 in 1995 (and 18 in 2004). According to OECD expert estimations, in the future the number of countries receiving tax incentives for innovation activity will significantly increase, and the amount of incentives will increase correspondingly. Variety of approaches in OECD countries is demonstrated in Table 1.

Table 1: Tax allowances in OECD countries applying tax incentives for innovation activity

<table>
<thead>
<tr>
<th>Main types of allowances with the biggest share in tax incentives</th>
<th>Countries applying allowances</th>
<th>volume*</th>
<th>incremental**</th>
<th>combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Writing-off for tax purposes resulting in reducing the tax base for corporate income tax</td>
<td>Czech Republic</td>
<td>Canada</td>
<td>UK</td>
<td>Finland</td>
</tr>
</tbody>
</table>

* - Volume allowances are set on the basis of total amount of R&D expenses during the current fiscal period.

** - Incremental allowances are set on the basis of increment of such expenses comparing with their average amount in the specified period.

We may note that granting of volume allowances is typical of the countries with state innovation policy directed mainly to increasing the number of innovation-active companies, in particular, through SME involvement. Japan and USA are the leaders in granting incremental allowances.

Speaking about Ukraine, special tax incentives for innovation activity similar to those demonstrated by European practice are not applied. Lack of tax incentives for innovation activity resulted in the fact that over 83% of investments were received by the companies of third technological mode, 10 % - of fourth one and only 7.0 % - of fifth one.

It is important to develop effective and efficient mechanism to incite investors to invest their financial resources in R&D and application of new technologies. Main features of arranging the financing of innovation activity in Ukraine are limited choice of financing sources due to the lack of development of institutional component of national innovation system in general and lack of demand for national developments on the part of the non-financial sector in particular. Currently, reinforcement of investment processes in the Ukrainian economy is possible namely subject to ensuring effective demand for R&D results from the non-financial sector. Attaining this objective requires from the State pursuing economic and technological policy directed not only to selection of priorities and tools for direct state financing of R&D, but also to design pattern of stimulating business entities to invest funds and generate profits from application of scientific developments.

1.2. Analysis of legislation


40 As per 2005.

1.2.1. Tax regulations before 2010

A) General issues

Ukrainian tax system valid until 2011 had a number of deficiencies, amongst which the most noticeable are the following:

- high level of general tax burden to economy in whole (average figure for 2005-2009 including contributions to the Pension Fund and other social security funds – 37.9% of GDP, in particular in 2008 – 39.1%, in 2009 – 37.3% comparing with average figure in EU-12 – 34.4%, including in Poland – 34.8%, in Czech Republic – 36.9%, in Estonia – 33.1%, in Latvia – 30.5%, in Bulgaria – 43.2%) and to business in particular (corporate income tax (CIT) rate in Ukraine is 25% comparing with average rate in EU-12 – 18.9%, including in Poland – 19%, in Czech Republic – 20%, in Estonia – 21%, in Latvia – 15%, in Bulgaria – 10%);
- absence of economically justified balance between fiscal and regulative functions of taxes, ineffective system of state tax regulation, lack of its coordination with objectives of state economic policy;
- number of ineffective taxes and reduced duration of fiscal periods comparing with European tax systems (declaration and payment of CIT should be done quarterly, but in European countries – annually), that worsens Ukraine’s indicator ‘number of annual payments’ in international rating on the ease of doing business and increases time necessary for business entity to pay taxes;
- instability of tax legislation limiting businesses’ possibilities to draft middle- and long-term financial and economic policy;
- non-homogeneity and complexity of tax regulations, lack of coordination and discrepancy between certain provisions, absence of unified terminology, presence of references to other legal acts in tax laws causes application of secondary legislation, tax clarifications, and increasing burden on judiciary system due to increasing number of litigations regarding violations of tax legislation;
- inconsistence of tax legislation with other legal acts;
- availability of economically unjustified discrepancies in approaches to determination and estimation of profits and expenses in the Law of Ukraine “On Corporate Profit Tax” and in legal basis of accounting regarding calculation of fiscal effect (profit or loss) causing discrepancies between the amount of tax revenues of companies and actual results of their business activity;
- delays in VAT reimbursement to business entities;
- lack of actual progress in attaining the objectives of reformation of personal income tax – widening of its base though de-shadowing of incomes, as demonstrated by the results of tax audits of business entities in 2008, according to which illicit wages were paid by 42% of audited employers, 74% of which were private persons;
- violation of fundamental principle of fair taxation, failure of tax system to fulfil the function of incomes redistribution from rich to poor.

We should notice that main internal challenges for reformation of Ukrainian tax system were the following: economy shadowing, corruption, non-transparent patterns of taxes and charges administration, lack of strategic confidence of society to tax service and others. Such state of the tax system respectively impaired the introduction of tax incentives for R&D in Ukraine.

B) Regulation of innovation activity through amortization

Depreciation is of utmost importance for the economy. For example, in Ukraine it reaches approximately 3% of operating expenses – tens of billions of hryvnias annually. Namely, in 2009 the amount of accrued amortization in this sector reached UAH 29 bln comparing with total investments in fixed assets – UAH 58 bln.

Economic legislation amortization is considered in terms of business accounting and tax accounting (accounting and tax-deductible amortization respectively).

Accounting amortization means systematic allocation of value of assets (fixed assets) during their useful life period according to procedure set by accounting standards. Accounting amortization for accounting reporting period shall be deducted from the amount of profit or loss for the respective period.

Tax-deductible amortization means systematic allocation of expenses for purchasing and/or manufacture of fixed assets within certain term according to the procedure set by tax legislation. Tax-deductible amortization shall be deducted from taxable profit.

We should underline that accounting amortization operates the terms ‘asset’ (future economic benefit or potential of receiving money) and ‘useful life period’ (period during which this asset is intended to be used).

Issue of upgrade and modernization of fixed assets is one of the most crucial for modern Ukrainian economy. The point is that the companies do not try to seek the reserves for technological modernization of production and in majority of cases increase production profitability through increasing prices for products. One of the ways to solve this problem is improvement of amortization policy. Depreciation issue is complicated by the transformation status of Ukrainian economy and availability amongst national economists of various conceptions regarding essence of amortization, philosophy of its accounting and accrual.

Introduction of Regulations (Standards) of accounting in conformity with IAS in fact means shifting from one amortization concept – reproduction concept – to another – expenses concept.

Decree of the President of Ukraine “On Depreciation Policy Concept” reflects both ‘reproduction’ and ‘expenses’ approaches to amortization: ‘Economic role of amortization is to actually reimburse functional fixed assets; respective amortization allowances (economic amortization) reflect actual devaluation of fixed assets in the course of production and rendering services and shall be classified as expenditures of business entities’. Further Decree proposes to ‘empower business entities to use resources of own amortization fund and prohibit any centralized withdrawals from this fund; grant tax allowances only to business entities having documentary proof of investing of resources of amortization fund’.

Accrual of amortization does not itself lead to creating funds reserves, since amount of accrued amortization depicts cash flow for the previous period, share of which is attributed to current period expenditures according to accrual principle. Depreciation is the process in the course of which liabilities are accrued, but it is unable to transform them into assets, since it provides the recognition of expenses for purchasing of fixed assets, but does not cover them. Similar problem arises in relation to amortization amount accrued according to tax reporting as the source of fixed assets reproduction. Tax-deductible amortization is tax exempted and becomes source of funds. That is, amortization allowances and amortization cannot serve as investment resources. Even if we assume that total amount of tax savings would be deposited on special account (without depositing of funds reproduction of fixed assets is impossible), we cannot define this fund as amortization fund: firstly, the amount of money in this fund is not equal to the amount of accrued amortization, and secondly, existence of this fund is artificially linked with the amortization process, since tax-deductible amortization is legally mandatory calculation value. Granting ‘privilege’ to businesses in the form of exemption from taxation of amortization amounts is not an effective tool for stimulation of investments in reproduction of fixed assets, since tax-deductible amortization does not take into account companies’ possibilities and needs in individual cases. Tax exemption of the reinvested share of profit is a more appropriate tool of stimulation of the economic activity. This means that tax exemptions should be granted not for virtual amount of accrued amortization, only minor share of which would possibly become capital investments, but for the amount of actual capital investments.

Tax-deductible amortization has long-term and positive impact when applied in combination with various tax allowances. Mostly recommended tax allowances to be applied in combination with amortization are investment tax credit (decreasing of companies’ CIT liability for the amount equal to share of investment expenses of the current fiscal period) and investment tax discount (direct reduction of taxable companies’ profit for the full or partial amount of the mentioned expenses). Regarding tax incentives measures, they should include such proposals as tax holidays for new businesses, right to classify major share of fixed assets.


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value immediately after their purchase as expenditures (domestically produced fixed assets should enjoy higher amortization share), discounts for reinvested profit.

Quite widespread mistake is that accelerated amortization is interpreted as any method of amortization calculation according to which it progressively decreases in every next period. Method of rated decrease of ‘tax-depreciated’ value forces to extend amortization for tens of years. That is why we can say that this method is rather accelerated – decelerated amortization, which does not assist companies to modernize equipment, but forces them to provide its long-term renovation. We can consider as accelerated only the method of accelerated-regressive rates presuming strict regulation of both amortization rates and amortization period (7 years). Depreciation policy increasingly transforms to mechanism for generating and maintaining of demand for fixed assets. Tools for demand regulation are amortization rates. Setting highest amortization rates for certain types of fixed assets, government expresses a message that expenses for purchase of fixed assets with highest amortization rates shall enable more significant reduction of tax base than purchase of fixed assets with lower amortization rates.

Criticism of rated decrease of ‘tax-depreciated’ value method discussed above as accelerated – decelerated one is justified, but this does not mean that accelerated depreciation itself is not effective. Almost all leading countries apply accelerated depreciation as a stimulating factor, and Ukraine can apply this as well. Prior to this, however, it is necessary to define the objectives to be attained and in what terms amortization should be accelerated (in terms of tax saving in first years, in terms of amortization period duration, etc.) and to what extend accelerated amortization mechanism would facilitate attaining of the set goals.

The fact that accelerated amortization occupies the first place amongst other target-oriented tax allowances is caused by its huge impact on investment activity and acceleration of production modernization. Numbers of leading industrial countries demonstrate that within total investment amount the share of accelerated amortization reaches 60-65%. Their effectiveness is demonstrated through the following: 1. Business entities receive additional funds, which, unlike gross profit, are not taxable; 2. Depreciation allowances, unlike profit and loans, appear to be most stable source of financing, since they are much less exposed to production drops, raising loan rates, price changes, etc.; 3. Depreciation allowances are company’s own funds, and in the case of refusal from loans they enable to save money on interest payments, which generally increases effectiveness of production; 4. Availability of amortization fund and necessity to apply it according to set targets themselves discipline businessmen, incite them to spend these resources for production development and modernization; state control over target application of amortization fund makes it impossible to spend these funds for other purposes; 5. Under noticeable accelerated pace of technical progress in the world, time factor plays an important role: money received today are much more valuable than those received in 2-3 years. Accelerated amortization enables businesses to receive additional funds during the first years of using fixed assets, thus generating preferences comparing with competitors.

Introduction of Accounting Standard 7 “Fixed Assets” in 2000 rendered background for transition of national accounting system of amortization accounting to amortization concept of expenses – corresponding to business realities and used almost in all leading countries.

Since 2009, amendments introduced to Accounting Standard 23” Expenses and Loans” entered into force, changing the concept of recognition of financial expenses in international standards. Currently, necessary amendments are being introduced to Accounting Standard 31 “Financial Expenses”. Earlier, a company independently decided on capitalization of respective financial expenses or classification thereof as expenses of the related fiscal period subject to indication of that fact in the accounting policy; now capitalization of financial expenses connected with the creation of qualified asset is mandatory for all companies except for small businesses.

Subsequently, now companies should mandatory capitalize financial expenses in case of creation of qualified asset – an asset creation of which requires long period of time. This period is considered significant if it exceeds three months.

Qualified assets include:

- reserves requiring long time for their manufacturing, expenses for manufacturing of which are accounted on account 23 “Production” (including in construction companies);

52 M. Sokolov. Phantom in taxation theory (regarding Arthur Laffer’s curve) // Ukrainian Economy, issue No 7, 2010, p. 32.
- constructions, buildings, facilities, other fixed assets, intangible assets, expenses for manufacturing (construction) of which are accounted as the capital investments on account 15 having the same name;
- investment realty.

Financial expense for manufacturing qualified assets estimated using fair value, in particular biological assets, shall not be capitalized, but shall be classified as expenditures for the reporting period. This means that in the case company makes capital investments in creation of new fixed assets or intangible assets and attracts loans for this, it should capitalize interest expenses on such loans (by inclusion of such expenses to the value of the produced asset). Capitalized financial expenses will be classified as current expenditures after commissioning of produced assets through accrual of amortization. All other financial expenses shall be included into expenditures in the period during which they were incurred\(^{53}\). It should be noted that the Tax Code of Ukraine (TCU) confirms these provisions in subparagraph 138.10.5 of Article 138 of Title III Corporate Profit Tax – expenses include all financial expenses 'except for financial expenses included into cost of production of qualified assets according to accounting standards’.

As it was mentioned earlier, determination of capitalized financial expenses is a rather complicated procedure. Where a company has financial expenses connected and directly not linked with the creation of qualified asset, all these expenses shall be capitalized, but different calculation procedure shall be applied to different expenses: value of qualified asset shall not include total amount of a company’s financial expenses, but the amount calculated considering cost of production of qualified asset and interests on the loans.

TCU operates the term ‘fixed assets’ instead of ‘fixed funds’ as it was earlier in the Law of Ukraine “On Corporate Profit Tax”. Subsequently, after TCU adoption both TCU and accounting should use the same term – ‘fixed assets’, which increases mutual understanding between taxpayers and control authorities.

Subparagraph 14.1.3 of Article 13 of TCU Title I states that amortization means systemic distribution of fixed and intangible assets value, which is depreciated during their useful life period. Paragraph 4 of Accounting Standard 7 “Fixed Assets” contains the same definition of the term ‘amortization’ as in the TCU, which brings tax laws in line with the accounting regulations. Paragraph 22 of Accounting Standard 7 states that amortization object is value of fixed assets (except for value of land and uncompleted capital investments). This means that according to tax legislation and accounting the value of fixed assets, intangible assets and other non-current tangible assets shall be subject to amortization.

At the same time paragraph 4 of Accounting Standard 7 underlines that initial or revalued amount of non-current asset with the deduction of their disposal value is subject to amortization. It also gives the definition of disposal value – amount of money or value of other assets the company intends to receive from selling (liquidation) of non-current assets after their useful life period is over. Therefore, there is a discrepancy (amount of disposal value) between TCU provision and Accounting Standard 7.

Considering that it is next to impossible to determine the disposal value at the time of commissioning the non-current asset, it is necessary to cancel this provision and clearly indicate that initial value is subject to amortization. In this case there will be no discrepancy between accounting and tax approaches to determination of a amortization object.

TCU provides details on expenses subject to amortization and expenses that are not subject to amortization and should be fully included into taxpayer’s expenses for the reporting period (paragraph 144.2 of Article 144). Paragraph 145.1 of Article 145 of TCU Title III presents classification of groups of fixed assets and other non-current assets, methods of amortization accrual. For taxation purposes fixed assets and other non-current assets are divided into 16 groups. Comparing with the Law of Ukraine “On Corporate Profit Tax”, the number of groups is significantly increased. It should be noted that amortization taxation policy is what TCU indicates as minimum acceptable fixed assets’ useful life period without considering their actual amortization (It should be noted that subparagraph 145.1.4 presumes that fixed asset’s useful life period shall be reconsidered when the economic benefits from its use are changed, but it cannot be less than those indicated in paragraph 145.1). At the same time paragraph 146.1 of Article 146 presumes that accounting of value to be depreciated is provided in terms of every individual item included into the respective group of fixed assets, including value of renovation and modernization of such fixed assets received free of charge or leased out - as separate amortization object. Paragraph 146.2 states that fixed assets amortization shall be accrued during the period of object useful life set by taxpayer, which shall not be

less than minimum acceptable period, … on a monthly basis… and shall be suspended for the period of its reconstruction, modernization, extension, further equipping, conservation and other types of modernization and conservation. Namely, here the actual state of fixed assets and other non-current assets amortization is to be taken into account testifying on termination of amortization accrual for out-dated and depreciated assets which shall often undergo renovation leading to increasing of tax revenues considering that the value of qualified asset does not include the total amount of the company’s financial expenses. Undoubtedly, mentioned periods can be used in accounting system subject to setting the useful life period of non-current assets. Subsequently, such periods should be equal and should be used both in corporate income taxation and in accounting system 54.

Regarding amortization of intangible assets, limited validity terms of right of use for amortization accrual set in TCU subparagraph 145.1.1 shall be not less than 5 years for industrial property rights and not less than 2 years for copyrights and related rights, do not take into account company’s innovation development factor under prompt change and short useful life period of intangible assets, regarding which the company has more information. The term ‘according to the entitling document’ prevents companies from independent definition of useful life of asset. At the same time, entitling documents (patents, certificates) as a rule provide for longer periods than asset useful life period. Certain objects even do not require the issue of protection documents (for example, commercial name, commercial secret, including know-how, etc.).

Scientists warn that tax-deductible amortization has no relation to assets or to their useful life. In case of tax-deductible amortization taxable profit shall be reduced only for expenses for a certain arbitrary period with any duration which shall be defined only by taxation considerations. In order to establish what tax-deductible amortization methods and provisions are stimulating or discouraging, we should find a reference point – neutral regulations having no impact on businesses’ investment decisions. Economic essence of these regulations is that they are components of neutral taxation not leading to excess deadweight loss and to decrease in economic effectiveness. Neutral tax-deductible amortization system implies the development of a new fixed assets classification, which would unite fixed assets types with approximately equal rate of economic amortization in separate groups.

Considering mentioned above, we propose the following general principles for development of a neutral system of tax-deductible amortization:
1. In the course of development of tax-deductible amortization system it is necessary to follow the principle of tax neutrality as the initial criteria for distinguishing between stimulation and discouraging of companies’ investments;
2. Development of fixed assets’ classification should take into account patterns of changes in their actual value due to senility (actual economic amortization);
3. In the course of selection of tax-deductible amortization options inflation and effective economic growth rates should be considered 55.

We should underline that indexation method proposed by TCU (using consumer price index and 10 % indexation margin) prevents from attaining neutrality point (in terms of individual groups of goods) due to CIT actual discouraging from investments into fixed assets.

Prior to introduction of neutral amortization system it would be expedient to introduce differentiated amortization allowances depending on the fixed and intangible assets taking into consideration amortization periods accepted in leading countries with the purpose of accumulation of funds on special accounts and creating effective reproduction reserves, which will serve as capital investment fund to be used for reproduction of fixed and intangible assets.

Mentioned above emphasizes the strengthening of amortization policy not in favour of innovation activity development leading to the situation where companies would have insufficient amortization fund as effective source of investments.

C) Tax incentives for companies providing R&D

Key R&D role in economic growth is generally accepted by economists and politicians. OECD defined R&D as ‘creative work provided on continuous basis with the purpose of increasing the knowledge volume … and use of such knowledge for development of new application possibilities’. R&D may take form of general research, applied research or experimental development. R&D includes but not limited to

54 V. Babych, A. Podderogyin. Improvement of profit taxation on the basis of determination the taxation object // Finances of Ukraine, issue No 9, 2010, p. 75.
main innovation aspects. Other less systemic aspects are attributed to cognitive process through creation, use and interaction, which are not regularly taken into account in standard statistics analysis of scientific research and developments. For example, necessity to include software development into definition of scientific research and developments seems doubtful.\textsuperscript{56} Intensity of scientific R&D along with economic growth often depends on volume of financing R&D in private sector\textsuperscript{57}.

Speaking about Ukraine, there are certain fundamental differences comparing with OECD\textsuperscript{58}:

1. In leading industrial countries a company is eligible to benefit from tax allowances after having borne R&D expenditures. Ukrainian Law “On Innovation Activity” No 40-IV of July 4, 2002 envisaged granting allowances to companies having certificate on state registration of innovation project – 50 \% of VAT and 50 \% of corporate income tax amounts. This means granting of tax allowances depending on final results of innovation activity. Nevertheless it is extremely difficult to estimate in accounting and tax reports the amount of VAT and profit, namely from the implementation of innovation project. Additionally, certain share of VAT amount and profit are not mandatory generated by innovation project implementation. They can be influenced by market fluctuations, sales opportunities, resource prices etc. thus, criteria of qualified expenses for R&D was not involved. It is necessary to mention that in Ukraine list of expenses deemed qualified for R&D was not available. That is why for the purpose of granting tax incentives for innovation activity it is appropriate to draft and approve by the Ministry of Finance special accounting standard Expenses for R&D and presently foresee its application in TCU for determination of the expenses amount.

At the same time it is necessary to consider differences in R&D expenses accounted after R&D completion in scientific establishment and expenses for innovation project implementation in production requiring expenses for creation of technical conditions for project implementation (development of test benches, equipment, and respective stocks of material resources) and expenses for direct implementation of innovation project (drafting design documentation, pilot installation, adaptation to company’s technological cycle etc.).

2. As it was earlier mentioned, foreign countries more and more widely use incremental allowances encouraging companies to develop innovation activity. Such method as incremental allowances is not applied in Ukraine, in particular by TCU.

3. Amount of tax allowances granted in leading industrial countries is material for entities developing innovations thus making innovation activity development economically beneficial subject to proper control by tax authorities.

4. Foreign countries use system of control over targeted use of funds of investment tax credit. In Ukraine investment tax credit is not applied and it is not foreseen in TCU. Its introduction is prevented by unclear rules of classification of expenses – in accounting and tax reports expenses are classified using different methods. In Ukraine anti-cost mechanism of formation of expenses in the course of corporate income calculation is not encouraged, thus preventing introduction of tax innovation regulators. Large-scale of profits minimization are demonstrated by State Tax Administration data. Following 2006 in Ukraine approximately 4.5 thousand of companies which had adjusted gross profit over UAH 50 Mio paid CIT in the amount not exceeding 1 \% of adjusted gross profit\textsuperscript{59}.

Another important factor facilitating R&D activity and influencing its private financing is the system of redistribution of financial risks arose from investments in scientific developments. Investor seeks to receive in the future profit generated by R&D implementation through reselling or market commercialization of R&D results. Evidently there is a risk that results will not correspond to initial requirements or market commercialization fail due to poor investor’s calculations of changes in market conditions. Solving of this problem can be assisted by application of public-private partnership (PPP) as a form of cooperation between business and authorities being widely applied in the EU. Another form could be the introduction of technological innovations, etc. under state guarantee with granting tax incentives subject to future repayment of amount of granted allowances and mandatory insurance of business innovation projects under conditions set in the Law of Ukraine “On Insurance”.


\textsuperscript{57} Tanayama, T and Yli-Anttila, P. 2009. Verokannusti met innovaatiopolitiikan välineenä. ETLA Discussion papers no. 1189.


This publication has been produced with the assistance of the European Union. The contents of this publication are the sole responsibility of the Innopolicy Project and can in no way be taken to reflect the views of the European Union.
D) Tax Incentives for investments in new technologies, purchasing of equipment and expenses for innovation projects implementation

Article 21 of the Law of Ukraine “On Innovation Activity” envisaged indirect stimulation of innovation projects implementation. Tax payers kept at their disposal deposited on special account and used exclusively for financing innovation, R&D and development of own R&D facilities 50% of VAT on selling of goods (execution of works, rendering services) connected with innovation projects implementation, and 50% of CIT received in the result of implementation of such projects.

Innovation companies should pay land tax with the rate of 59% of current tax rate.

Importation of raw materials, equipment, supplies and other goods (except for excisable goods) not produced in Ukraine or produced in Ukraine but not complying requirements of priority innovation projects was exempted from import customs duty and VAT (Article 22).


Regarding operation of technological parks, the Law of Ukraine “On Special Regime of Investment and Innovation Activity of Technological Parks” No 991-XIV of July 16, 1999 envisaged:
- CIT and VAT shall not be transferred to the budget, but on special accounts of entity implementing the project (50%) and technological park (50%) and shall be used exclusively for own innovation development;
- importation of goods intended for projects implementation shall be exempted from VAT and customs duty;
- revenue in foreign currency shall not be subject to mandatory selling;
- maximum period for settlement in foreign trade operations extended from 90 to 150 days.

Positive impact of these tax incentives revealed in 2000-2003. Output volume of innovative science-intensive products reached UAH 2.07 bln, at the same time tax revenues of the State Budget and state funds reached UAH 65.37 Mio.

Analysis of four-year duration (the very peak of their creation) of technological parks activities demonstrated high effectiveness of innovation projects implementation by technological parks. Particularly, volume of sales of innovation products manufactures by 70 companies – members of technological parks in 2003 reached UAH 1.28 bln equal to 10.3% of all manufactured innovation products in Ukraine. In 2002 technological parks sold on external markets products for the amount of UAH 82.6 Mio, and in 2003 - for the amount of UAH 143.2 Mio61.

In 2004-2006 general volume of investments in extraction, consumer goods, chemical and petrochemical industries dropped (including investments made out of State Budget). Due to this production growth indexes went down (particularly, chemical and petrochemical industry – 103.2 in 2006 comparing with 109.8% in 2005 and 114.4% in 200462). At the same time investment in processing industry, metallurgy and metal processing increased. State investments in machine-building, renovation and installation of machinery and equipment went up. However, despite increased state investments in machine-building, production growth rates in this industry decreased: from 128.0% in 2004 to 107.1% in 2005 and 111.8% in 2006. This influenced the adoption of the Law of Ukraine “On Introduction of Amendments to the Law of Ukraine on the State Budget of Ukraine for 2005 and Certain Other Legal Acts of Ukraine” No 2505-IV of March 25, 2005 which cancelled 87 codes of allowances, terminated validity of the Laws of Ukraine granting tax allowances for stimulating investment and innovation activity of technological parks, their members, subsidiaries and joint enterprises, allowances for the entities in special economic zones63. Subsequently, effect of technological parks lost its perspective due to taxation. Adopted TCU does not envisage such incentives, and there are no intentions to renew mentioned incentives for technological parks.

62 http://www.ukrstat.gov.ua
Experience of technological parks’ operations demonstrates the necessity to renew the tax incentives considering EU and Russian practice of their activity.

At the same time TCU proposes allowances connected with energy saving and taking measures for saving energy for five years from the day of first receiving of profit generated by increased energy efficiency of production.

Particularly, according to paragraph 158.1 of TCU Article 158 exemption from taxation is granted for 80% of corporate income received from selling within Ukrainian customs territory of goods of own production according to the list to be approved by the Cabinet of Ministers of Ukraine:

- equipment functioning in renewable energy sources;
- materials, raw materials, equipment and supplies to be used in production of energy from renewable energy sources;
- energy effective equipment and materials, products, the use of which provides with the economy and expedient use of fuel and energy resources;
- equipment for measurements, control and operation of fuel and energy resources consumption;
- equipment for production of alternative types of fuel.

Additionally, paragraph 158.2 of TCU Article 158 grants tax exemption for 50% of the profit received from implementation of energy efficiency measures and energy efficiency projects by companies included to the State Register of Companies, Establishments and Organizations Developing, Implementing and Applying Energy Efficiency Measures and Projects.

Considering the mentioned above, implementation and application of energy efficiency measures and projects could be extended by analogy to priority science-intensive productions (innovation projects) and R&D considering EU experience and practice, which would facilitate innovation activity development in Ukraine.

E) Peculiarities of tax incentives for stimulating innovation companies, innovation SMEs

Facilitation of innovation SMEs development as important competition players is attributed to special tax incentives. Thus, it is necessary to keep simplified taxation system and its modernization through improvement of taxpayers’ registration and accounting procedures, elimination of possibilities for minimization of tax revenues and tax discrimination effect, stimulation of innovation activity. Currently in Ukraine there are three simplified taxation regimes for small businesses: single tax (for natural persons-entrepreneurs rate is from UAH 20 through 200 per month, for legal entities rate is 6% of proceeds where taxpayer is VAT payer, and 10% where it is not VAT taxpayer); fixed tax (for natural persons-entrepreneurs rate is from UAH 20 through 100 per month); fixed agricultural tax (0.03 – 0.45% of pecuniary estimation of land plot per year). Rates of taxes introduced in 1998 have not been reviewed, while inflation rate for last 10 years increased significantly. Considering this, it is appropriate to keep simplified taxation system (this is foreseen in further amendments to TCU) but subject to adjustment both single tax rate and amount of proceeds considering inflation rate for 1998-2008 and separation of payments to the Pension Fund, with simultaneous reformation of this taxation system from the point of view of its improvement, particularly, in terms of stimulation of innovation company (introduction of incentive allowances for those involved in innovation activity) and increasing responsibility of small businesses thus assisting SMEs sector development in Ukraine.64

We should notice that TCU provides for tax holidays for SMEs.

Namely, according to paragraph 154.6 of TCU Article 154 ‘0’ tax rate shall be applied since April 1, 2011 through January 1, 2016 for CIT taxpayers with cumulative income of every reference fiscal period since the beginning of the year not exceeding UAH 3 Mio, amount of wages of personnel having employment relations with taxpayer for every month of the reporting period exceeding two minimum wages, and complying with one of the following criteria:

- legally incorporated after April 1, 2011;
- acting, which declared annual income for three previous consequent years (or during all previous periods where company was incorporated less than 3 years ago) in the amount not

64 G. Filyuk. Impact of budget and tax policy on transformation of market structures in Ukraine // Finances of Ukraine, issue No 5, 2009, p. 64.
exceeding UAH 3 Mio, and if average number of personnel during mentioned period does not exceed 20 persons;
- legally registered as single tax taxpayer until TCU entered into force, with proceeds from selling of goods (works, services) during the previous calendar year not exceeding UAH 1 Mio and with average number of personnel not exceeding 50 persons.

At the same time where taxpayers applying provisions of this paragraph in any of reporting periods reached indicators of received income, number of personnel or average wage of personnel, amongst which at least one does not comply with the criteria mentioned in this paragraph, such taxpayers shall tax profit received in such reporting period with the rate set in paragraph 151.1 of TCU Article 151.

To compare we should focus attention on UK experience regarding granting tax allowances for scientific researches. In 2000 the incentives system for SMEs was introduced through granting additional 50 % discount of profit tax to be spent for R&D. 100 % discount of taxes on capital also remained amongst incentive tools, but based on broader R&D definition. 50 % tax discount is granted to SMEs in the case they make expenditures independently from whether this work is internal of executed according to contract for other entity – in this case only 65 % of payments according to sub-contract fall within such tax allowances. In Russian Federation innovation small businesses are allowed to deduct from profit any amounts spent for construction, reconstruction and renovation of fixed assets, assimilation of new equipment and technologies. Tax shall not be levied on grants provided by foreign charity organizations to budget-financed establishments or to other non-profit organizations for implementation of target programs related to their principal activity. Academic and industrial R&D establishments, state scientific centres are exempted from property and land taxes. These measures shaped the tax allowances system which currently is under development.

F) Peculiarities of tax incentives for using IPR objects

TCU provides for taxation of income in the form of leasing payments (including royalty) for using IPR objects. According to paragraph 137.11 of TCU Article 137, accrual date of such income is the date set according to the provisions of concluded contracts.

Determining the tax object according to subparagraph 140.1.2 of TCU Article 140, expenses (except for those subject to amortization) connected with R&D for business activity, inventions and rationalization of business processes, production and testing of models and samples connected with taxpayer’s principal activity, royalties and purchase of intangible assets (except for those subject to amortization) for their use in taxpayer’s business, shall be cumulated.

It should be noted that TCU does not contain special provisions for recognizing income connected with rendering services, namely transfer of rights pursuing to copyright agreement or license agreement, other means of transferring the rights on copyright objects, patents, trademarks for goods and services, other IPR objects, including those of industrial property. TCU does not provide for privilege taxation of incomes from the use of IPR objects similar to the allowances in number of foreign countries, thus discouraging authors and legal entities from implementation of IPR objects.

G) Peculiarities of tax incentives for engineering

Engineering means rendering services (execution of works) connected with drafting terms of references, project proposal, scientific research and feasibility studies, execution of front end engineering design, project operations, engineering surveys and exploration for construction of objects, development of technical documentation, design and engineering development of equipment and technologies, consulting and on-site designer supervision in the course of installation and start-up operations, consulting of economic, financial or other nature as part of such services (works). It is worth mentioning that since according to the Law of Ukraine “On Standardization” No 2408-III of May 17, 2001 technical specifications shall be deemed as the document setting technical requirements the products, processes or services must comply with, the process of rendering services connected with technical specification drafting shall be deemed as engineering for taxation purposes.

Subparagraph 139.1.14 of TCU Article 139 envisages certain limitation: amount of expenses connected with purchasing from a non-resident of engineering works (services) not exceeding 5 % of customs value of equipment imported under the respective contract shall be classified as expenditures except for cases mentioned in subparagraph 139.1.15; subparagraph 139.1.15 of TCU Article 139 indicates that additionally to mentioned in previous subparagraph 139.1.14 of TCU Article 139 engineering services with
value exceeding 5% of equipment value, cost of such services shall not be classified as expenditures also in cases where the non-resident has the off-shore status and is not beneficial owner of payment for engineering services\textsuperscript{65}.

1.2.2. Tax Code of Ukraine and innovation activity

In order to improve financing status and taxation of Ukrainian scientific sector, \textit{range of systemic measures directed towards improvement of Ukrainian financial and tax system} is needed.

It should be noted that TCU creates conditions for development of favourable institutional environment for taxation, amends structure of system of taxation, reforms system and methods of administration of taxes and charges, but it does not provide stimulation of innovation activity through tax incentives, except for taxation of corporate income generated following implementation of energy efficient technologies (TCU Article 158). This does not correspond to the fact that currently Ukraine implements state strategic policy of shifting to innovation model of development. Application of tax incentives in innovation activity and R&D is currently the main strategic issue of reformation of Ukrainian economy in the course of overcoming the crisis.

It is worth mentioning that TCU does not contain such terms as ‘innovations’, ‘innovation activity’, ‘innovative product’, ‘commercialization of IPR objects’, ‘innovation-intensive company’ etc., which prevents actual innovators from finding their place in tax relations.

It should be noted that amortization taxation policy is that TCU indicates minimum acceptable fixed assets’ and other non-current assets’ useful life without considering their actual amortization. This emphasizes the strengthening of amortization taxation policy not in favour of innovation activity development leading to the situation where companies would have insufficient amortization fund as effective source of investments.

TCU does not operate the criteria of \textit{qualified expenses} for R&D. At the same time it is necessary to consider differences in R&D expenses accounted after R&D completion in scientific establishment and expenses for innovation project implementation in production requiring expenses for creation of technical conditions for project implementation (development of test benches, equipment, and respective stocks of material resources) and expenses for direct implementation of innovation project (drafting design documentation, pilot installation, adaptation to company’s technological cycle etc.).

In Ukraine investment tax credit is not applied and it is not foreseen in TCU. Its introduction is prevented by unclear rules of classification of expenses – in accounting and tax reports expenses are classified using different methods. In Ukraine anti-cost mechanism of formation of expenses in the course of corporate income calculation is not encouraged, thus preventing introduction of tax innovation regulators.

We should also note that previous effect of technological parks lost its prospective due to taxation. Adopted TCU does not grant such incentives, and there are no intentions to renew mentioned incentives for technological parks.

It is necessary to keep simplified taxation system in TCU and its modernization through improvement of taxpayers’ registration and accounting procedures, elimination of possibilities for minimization of tax revenues and tax discrimination effect, stimulation of innovation activity.

TCU does not contain special provisions for recognizing income connected with rendering services, namely transfer of rights pursuing to copyright agreement or license agreement.

1.3. Issues to be solved

A) Incentives for innovation activity through amortization

- Introduce differentiated amortization allowances depending on the fixed and intangible assets taking into consideration amortization periods accepted in leading countries with the purpose of accumulation of funds on special accounts and creating effective reproduction reserves, which will serve as \textit{capital investments fund}\textsuperscript{66} to be used for reproduction of fixed and intangible assets. In this connection every company should be allowed to introduce in accounting policy own \textit{innovation amortization policy} considering fixed and intangible assets effective amortization, at the same time cancel tax limitations.

\textsuperscript{65} Academic and practical comments to the Tax Code of Ukraine, 3 volumes / composite authors (under the general editorship of M. Azarov). The Ministry of Finance of Ukraine, National University of State Tax Service, 2010.

\textsuperscript{66} N. Dovgopol, M. Nesterenko. Depreciation: subject essence and degree of impact on reproduction of capital assets //Accounting and Audit. Issue No 12, 2010, p. 3.
regarding fixed minimum acceptable periods of useful life of fixed assets and other non-current assets with simultaneous agreement of individual amortization schedules with tax authorities.

- Cancel validity terms of right of use for accrual of amortization for intangible assets set in TCU subparagraph 145.1.1, which are not less than 5 years for industrial property rights and not less than 2 years for copyrights and related rights, and which do not take into account company’s innovation development factor under prompt change and short useful life of intangible assets, regarding which company has more information. Term ‘according to entitling document’ should be changed, since it prevents companies from independent definition of useful life of the right to use, at the same time entitling documents (patents, certificates) as a rule provide for longer periods than useful life period of the right to use, and certain objects even do not presume issue of protection documents (for example, commercial name, commercial secret, including know-how, etc.).

**B) Incentives for companies to provide R&D**

- Provide for (considering EU member states’ experience) tax incentives for companies to provide R&D through increasing expenses eligible to be deducted from the taxable profit for taxation purposes for a certain share of executed works (125-200 in EU member states), or deduction of a certain amount of R&D spending from profit (20-35 % in EU member states).

**C) Tax incentives for scientific establishments and higher education establishments**

- Grant exemption from customs duty, VAT and other mandatory payments for scientific equipment, tools, supplies and consumables for them, reagents, materials for researches, R&D and educational literature upon their importation to Ukraine for support of own R&D of scientific establishments, NAS organizations and higher education establishments in Ukraine;
- Provide opportunities for accumulation of proceeds in foreign currency received by budget-financed establishments and organizations and their application for purchasing of equipment and for other purposes of scientific establishments. For this, provide for tax relief resources of special fund of scientific establishments, which shall be transferred for the next year.

**D) Application of tax allowances for innovation projects implementation**

- Introduce tax incentives for innovation projects and technology transfer projects implementation falling within priority sectors for certain period, transferring unpaid tax revenues on special accounts of companies with their further application for R&D, development of R&D facilities (investment tax credit) for:
  - projects falling within priority sectors, selection and implementation monitoring of which is to be provided by dedicated central authority;
  - projects implemented through technological and scientific parks, technology cities;
  - projects implemented in free economic zones.

**E) Tax incentives for innovation activity in start-up companies and SMEs**

- Introduce allowances in corporate income tax for start-up companies in the following cases:
  - selling of high-tech products;
  - exportation of high-tech products;
  - purchasing of new technologies;
  - receiving profits generated by application of new inventions.

**F) Stimulation of companies’ innovation activities**

- Provide with privileged taxation of investments in purchasing and application of new technologies in the form of reducing the corporate income tax amount for the amount equal to certain share of mentioned expenses but not exceeding 75 % of the total amount of CIT in case of purchasing domestically produced technologies and equipment.

**G) Incentives for application of IPR objects**

- Introduce privilege taxation of incomes generated by inventions application by Ukrainian companies.

2. **Analysis of tax regulation of innovation activity in the Russian Federation**
2.1. Tax regulation of innovation activity before 2010

A) Main tax mechanisms applied

Russian legislation in the field of tax regulation of R&D was developed in post-Soviet times and undergone several development stages. Current tax regulation system was introduced by new Tax Code (TC) entered into force since January 1, 2002. During last 4-5 years tax regulation develops in 2 directions: reduction of number of tax allowances granted to scientific establishments and increasing number of allowances for stimulating innovation activity.

Below is the brief list of support measures adopted recently:
- period of acceptance of R&D expenses for their deduction for tax base determination for CIT taxation is reduced to 1 year;
- limitation for writing off expenses for R&D which has not shown positive results is cancelled. Earlier expenses for failed R&D have not decreased CIT tax base;
- normative share of expenses for R&D in the form of charge to Russian Fund for Technological Development and other industrial funds is increased up to 1.5 % of proceeds (thrice comparing to previous rate);
- multiplying coefficient is introduced enabling to deduct from CIT tax base in 1.5 times more R&D expenses than actually borne; at the same time list containing more than 120 research sectors expenses for which shall be accepted with coefficient is approved;
- option for fixed assets accelerated amortization is introduced in the form of ‘amortization bonus’ – immediate classification as expenses of up to 10 % (30 % for 3-7 amortization groups) of initial value of fixed assets;
- application of declining (accelerated) method of amortization is allowed enabling to classify as expenses up to 50 % of initial value of fixed assets during first quarter of their useful life period;
- organizations applying general and special tax regimes are allowed to transfer losses for the future periods;
- privileged treatment for target capital funds created with the purpose of financing non-profit organizations is established;
- VAT, CIT, property tax, land tax and insurance allowances are set for residents operating in special economic zones;
- there is an option to use investment tax credit, including in the course of R&D, technical upgrading, innovation or assimilation activity;
- possibilities for classification as expenses of personnel professional training and advanced training expenses are enlarged;
- transfer of exclusive rights and rights on the basis of license agreement for inventions, industrial designs, software and know-how is exempted from VAT;
- importation of technological equipment analogues of which are not produced in Russia is exempted from VAT and customs duty;
- limitations regarding the term of acceptance of deductible VAT paid to suppliers and contractors in the course of capital construction;
- there is an option to receive VAT refund in reporting period (before completion of in-house audit) for major taxpayers or subject to submission of bank guarantee.

Main support mechanisms in economically developed countries include:
- Deduction of R&D and similar expenses multiplied by coefficient from CIT tax base;
- Granting tax credit for the amount of R&D expenses; there are absolute tax credit being deduction of total amount of R&D expenses from CIT amount, and incremental tax credit connected with deduction from CIT amount not the total amount of R&D expenses but its incremental amount comparing to certain reporting period;

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67 Term ‘tax credit’ in foreign practice differs from the term ‘investment tax credit’ applied in Russian tax legislation. Unlike Russian practice, ‘tax credit’ in most foreign countries means deduction of certain amount from amount of taxes to be paid without any liability regarding further repayment of this amount to budget.
- Accelerated amortization (up to immediate writing off and inclusion into current expenses) for certain type of equipment used innovation activity;
- Transfer of losses to future or past fiscal periods for all taxpayers or certain innovation companies;
- Exemption of innovation companies or certain types of property used for R&D from property tax;
- Tax holidays in terms of CIT and / or social contributions for certain tax payers (limited to R&D-connected activity of companies performing R&D);
- Investment tax holidays (deferment of payment CIT share within the amount of investments) for investments into high-tech equipment. All these mechanisms to certain degree are applied in Russia.

Innovation support in Russia through tax policy instruments is intended to be implemented in 2 ways:
1 – it is necessary to support demand for innovations (encouraging companies to modernize and consume innovations and scientific developments);
2 - it is necessary to support supply of innovations (creating incentives for effective operations of companies-leading suppliers of innovation products)\(^68\).

**B) Drafting amendments to legislation**

Until 2007 there were actually no incentives for innovation activity since measures able to be qualified as ‘innovation’ were not even neutral to innovation activity, but only preventing it. Particularly, CIT tax base excluded only R&D expenses that demonstrated positive result, and not in the full amount, but only 70 % of actual expenses. This made companies’ investments to R&D extremely unprofitable. Discussions were launched in 2006, and in 2007 number of new laws were implemented. Administration of President along with members of Russian Parliament drafted range of draft laws consisting of 14 new laws and amendments to current legislation. Particularly, the following measures of indirect regulation were proposed:
- reduction of Single social contribution rate for scientific establishments and innovation companies;
- exemption from R&D, patent, license and certain other types of transactions from VAT;
- deduction of recipient’s non-repayable grants of money and property for financing scientific and educational activity received by taxpayer from CIT amount;
- introduction of accelerated amortization of equipment used by scientific establishments and innovation companies;
- classifying R&D expenses as expenses eligible for deduction from CIT tax base in case of both failure and availability of positive results.

Following discussions with authorities proposed range of bills was materially decreased, and until late January 2007 following proposed amendments to TC were agreed and entered into force\(^69\):
- On exemption of incomes generated by patents and licenses for innovation technologies from VAT (Art. 149);
- On exclusion of amounts received on non-repayable basis by scientific establishments and science and education support funds from CIT taxation object (Art. 251);
- On inclusion to expenses for CIT taxation purposes of share of amounts spent for R&D by innovation establishments additionally to scientific ones (Art. 259);
- On amending list of expenses for which taxpayer may use simplified taxation system and deduct received income (Art. 346.16). Simplified taxation system may be used only by small innovation companies since according to Russian TC turnover of organizations qualified to apply simplified taxation system should not exceed RUR 15 Mio, and the number of personnel should not exceed 100 persons (Art. 346.12 “Taxpayers”). List of expenses qualified to be exempted from taxation includes:
  - Expenses for purchasing exclusive rights for inventions, utility models, industrial designs, software, databases, integrated circuit layouts, know-how, and rights to use mentioned results of intellectual activity on the basis of license agreement;
  - Expenses for patenting and/or payments for legal services connected with obtaining legal protection of results of intellectual activity, including means of personalization;

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- R&D expenses recognized as such according to paragraph 1 of TC Article 262;
- Increasing normative share of expenses for R&D in the form of charge to Russian Fund for Technological Development and other industrial and inter-industrial funds of R&D financing from 0.5 % to 1.5 % of proceeds (paragraph 3 of Art. 262);
- Exemption from property tax of the property entered in the books of entities-residents of special economic zones, purchased or produced with the purpose of pursuing activity on the special economic zone territory, placed and used on such territory according to an agreement on establishment of special economic zone, for the period of 5 years from the date of posting such property to the accounts.

Simultaneously with creation of special economic zones the decree on creation of seven IT-parks was issued and amendments to TC of RF were adopted, creating favourable conditions for taxation of entities active in IT sector.

According to the Law, procedures of calculation of single social contribution (SSC) rates are changed for mentioned entities (except for those being residents of technological and implementing zones). In order to be eligible to pay privilege SSC entities should be registered, share of foreign finance sources should constitute not less than 70 %, and average number of personnel should exceed 50 persons. Thus, this incentive is designed to cover not all companies in IT-sector, but only those working according to outsourcing pattern, in such a manner stimulating exportation of IT-products. Actually it was first attempt to link instruments of direct (creation of infrastructure) and indirect (privilege taxation) incentives for innovation activity, at least in special economic zones and only in IT sector. Further practice demonstrated that only minor share of IT companies want to receive SSC allowances. As of March 2008 only 51 Russian IT-companies underwent accreditation to be eligible for SSC privilege. Major software developers rejected this option. Currently companies cannot use this benefit since respective amendment regarding privilege is not reflected in pension legislation.

- Exemption of entities-residents of special economic zones from land tax regarding land plots located on special economic zone territory for 5 years from the date of commencement of ownership for every individual land plot.

C) Problem issues of tax incentives

Practice of application of privilege VAT taxation and number of other tax allowances is linked with certain legal problems, including:
- classification of works as R&D and technological works;
- definition of the status of entities eligible for tax exempt of works executed by them.

Provisions setting particular rights and obligations mainly do not contain reference to the term ‘innovation activity’. Namely, tax allowances are granted upon execution of R&D, patent rights – upon patenting of invention, etc. Additionally, guidelines for estimation of goods and services, activity types, technologies and criteria of their classification as innovation (new, modernized) are not developed, and in number of cases this complicates application of tax allowances presumed by law. TC does not have definition of ‘R&D’, and definition of scientific activity given in Federal Law on Science and State Research and Development Policy (M 127-FL dated 23 August 1996) can hardly be applied to taxation purposes: according to this law, scientific activity means ‘activity aimed at generation and application of new knowledge’. Definition of ‘new knowledge’ is very judgmental and thus it is complicated to formalize it. Therefore, VAT allowances may be applied only by entities managed to overcome difficulties mentioned above.

2.2. Ways to improve tax incentives for innovation activity

2.2.1. Regulation of innovation activity through amortization

Reform of amortization accrual has not yet completed as it was presumed in Main directions of Russian Federation tax policy for 2011 and plans for 2012 and 2013. TC indicated the taxpayers’ possibility to use declining method of amortization accrual based on amortization accrual applying declining balance not in terms of every individual object, but considering total value of amortization group.

70 Tax incentives for innovation processes. - International economy and International relations institute of Russian Academy of Sciences, 160 pages.
Presently composition of amortization groups approved by the Decree of the Russian Federation Government of January 1, 2002 No 1 “On Classification of Fixed Assets Included into Depreciation Groups” is based on period of physical life of particular fixed asset.

Therefore, it is proposed in middle-term perspective to review the approaches to classification groups of fixed assets and setting amortization rates for such groups. For this proposals drafted by the RF Ministry of Finance in the course of drafting TC in late 90s can be used. At the same time implementation of this reform due to its large scale and possible material effect on budget revenues can take several years.

At the same time special coefficient (not exceeding 3) may be applied to basis amortization rate regarding depreciated fixed assets used only for R&D. In foreign countries amortization allowances are the instrument of industrial policy and stimulation of development of certain industries.

2.2.2. Tax incentives for R&D

Currently the process of amending legislation in continuing, particularly, since 2009 such important amendment as possibility of single classification of certain expenses as R&D, including for failed R&D, and their writing-off using coefficient 1.5. In other words, expenses shall include amount 1.5 time higher than actual expenses.

Introduction of provision regarding writing off R&D expenses with coefficient 1.5 seems to be a progressive step. Nevertheless effect could be lower than in leading countries. Foreign countries apply progressive CIT rate, and decreasing tax base subsequently decreases tax rate. Much more important that this privilege covers only certain R&D types the list of which is approved by the Decree of the Russian Federation Government of December 24, 2008 No 988 “On Approval of the List of Research and Development Taxpayers’ Expenses” which according to paragraph 2 of Article 262 of Part Two of the Tax Code of Russian Federation shall be included into other expenses in the amount of actual expenses with the coefficient 1.5. This list contains 32 technologies. At the same time scientific researches and developments aimed at technologies development in traditional industries are not included into the list, thus preventing innovation activity in these industries. Generally this measure may lead to increased complexity of administration of taxes and increased risks of abuses both by taxpayers and tax authorities.

This way of development presumes clarification of procedure of classification of expenses for scientific researches and/or R&D.

Currently applied TC provisions regulating procedure of tax accounting of R&D expenses for the purpose of CIT taxation do not enable clear interpretations in the following situations:
- Procedure of accounting R&D expenses which gave positive results but results of which shall be used in production and/or selling of goods (works, services) or registered in the form of IPR objects after certain time following R&D completion;
- Recognition of R&D expenses result of which company terminates to use before completion of period set by the tax legislation for their writing-off;
- Reference time for calculating 12 months during which expenses for failed R&D shall be included into expenses.

Additionally, TC was amended by certain provisions aimed at bringing in line the accounting procedures for the purposes of R&D expenses taxation independently from the fact whether positive result was achieved or they grew stale.

Also it is appropriate to indicate in TC the list of cost items (wages of personnel, equipment amortization, etc.) to be classified as R&D expenses. This issue is particularly important in connection with the approval by the Russian Federation Government of tax liabilities reduction under validity from January 1, 2009 of multiplying coefficient 1.5 to R&D expenses.

Separate issue of tax accounting of R&D tax accounting is creation of reserves of future expenses for R&D. It is proposed to enable entities to create reserves of future expenses for R&D. Mechanism of creation and use of reserves may be similar to that presumed by TC for reserves.

Namely, TC will presume that taxpayer on the basis of developed and approved by such taxpayer programs independently decides to create reserves reflecting this in accounting policy for taxation purposes. At the same time taxpayer’s expenses for the implementation of mentioned programs shall be made out of funds of this reserve thus decreasing its amount.

Amount of allowances to the reserve of future R&D expenses shall be included into non-operating expenses as per last day of reference (fiscal) period. At the same time tax legislation will set limits of allowances to this reserve and marginal terms of application of amounts transferred to reserve. Remained
amount of reserve not used by taxpayer during scheduled period shall be subject to inclusion into non-operational expenses of reference (fiscal) period.

Procedure of using investment tax credit was also amended. According to TC Article 67, one of the following conditions should be met in order to benefit from investment tax credit: providing R&D, providing innovation and assimilation activity, execution of particularly important contract for social and economic development of the region, execution of state defence contract.

R&D is exempted from VAT in the cases where R&D includes engineering project design, development of new technologies or creation of industrial designs for own needs, cession (purchase) of a right (claim) under loan or credit agreements.

Object of CIT taxation shall not include amount of financing received from Russian Fund of Fundamental Researches (RFFR), Russian Fund of Technological Development (RFTD), Russian Humanitarian Scientific Fund (RHSF), Fund of Assistance to Development of Small Businesses in R&D Sector and Federal Fund of Production Innovations. Amounts transferred to RFTD and other industrial and inter-industrial funds of R&D financing registered according to the Federal Law of August 23, 1996 No 127-FL Federal Law on Science and State Research and Development Policy according to the list approved by Russian Federation Government (subparagraph 12, paragraph 1, Article 251 of TC of Russian Federation).

Mentioned instrument was further developed by delegating powers to decide on granting investment tax credit for CIT and property tax to RF constituent entities.

Currently TC mainly regulates provisions regarding changes in terms of payment of taxes and charges in the form of deferral (extension), investment tax credit. At the same time amendments introduced to TC in 2008 aimed at delegating to the Minister of Finance of Russian Federation of powers to decide until January 1, 2010 to grant deferral (extension) of payment of federal taxes, covered only limited number of cases. Mentioned powers were terminated since January 1, 2010.

In order to ensure broader use of investment tax credit and clarification of current regulations on changes in terms of payment of taxes and charges, in Russian Federation it is proposed to:

- In order to increase promptness of decisions and bringing taken decisions in line with the region’s budget policy, to delegate powers for taking decisions on granting investment tax credit (including to innovation companies) for CIT (with the rate set for payment to the RF constituent entities’ budgets) and property tax to RF constituent entities with subsequent administrating by tax authorities under respective procedure (this means that tax authorities keep their powers to administer the procedure of application of credit, but not to decide on its granting and its amount);

- Increase the amount of investment tax credit to be granted to respective entity in the case where such entity provides R&D or technical re-equipment of own production from 30 % to 100 % of equipment value purchased by respective entity.

2.2.3. Tax incentives for investment in new technologies

RF legislation provides for exemption from property tax of energy efficient equipment for the period of 3 years from the day of its commissioning, and of equipment used for creation of R&D products.

Entering into force by the Federal Law “On Energy Saving and Increasing Energy Efficiency and on Amending Certain Legal Acts of the Russian Federation” opened possibilities to classify equipment depending on its energy efficiency. Development of this classification system creates possibilities for exemption from property tax of technological equipment with high energy efficiency class (similar to current possibility to use multiplying coefficient 2 for amortization accrual for objects with high energy efficiency). Also it is provided for to consider the issue regarding exemption from property tax of equipment handed over to educational and scientific (innovation) entities for manufacturing R&D products.

This measure presumes exemption from property tax of machines, equipment, prototypes, and experimental models and other fixed assets handed over for tests and experiment or were handed over by customer to educational and scientific (innovation) entities free of charge in the course of execution of contract (order) for creation R&D products according to contract provisions.

2.2.4. Peculiarities of tax incentives for new innovation companies, innovation SMEs

Specificity of innovation activity connected with high business risk, need for minimization of time lag between taking decision until its implementation, made SMEs effective (Federal Law “On Development of Small and Medium Businesses in Russia” of July 27, 2007 No 209-FL). Variety of tax allowances in SME sector caused prompt increase of this innovation sector in Russia. Currently there are 1.3 Mio of small
businesses employing 10.4 Mio of persons, or 13.8% of active population, with turnover reached RUR 18.7 trillion in 2008.71

Small innovation companies were allowed to deduct amounts spent for construction, reconstruction and fixed assets renewal, assimilation of modern equipment and technologies, from profit. Tax shall not be levied on grants provided by foreign charity organizations to establishments financed from budget or to other non-profit organizations for implementation of target programs related to their principal activity. Academic and industrial R&D establishments, state scientific centres are exempted from property and land taxes. These measures shaped the tax allowances system compensating deficiencies of current tax system; assist under complicated financial situation of scientific establishments network, thus facilitating attraction of foreign funds in the form of grants, scientific equipment and literature. All this contributed to growth of small innovation companies.

From one side, there are continuous discussions regarding instruments of support and stimulation of small innovation company, variety of measures are proposed aimed at reduction of tax burden for them. Namely, currently discussions are being held on the issue on cancellation of number of limitations for entities willing to apply simplified taxation system, including those proposed by the Decree of the Russian Federation Government of July 15, 2009 No 602 “On Approval of the List of Russian Entities, Grants (Non-repayable Assistance) of which Provided to Taxpayers for Support of Science, Education, Culture and Arts in Russian Federation, shall Be Deducted from Taxes:

1) increasing of the upper limit of annual income enabling to apply simplified taxation system for small innovation companies up to RUR 200 Mio;

2) cancellation of limitations regarding subject structure of founders and shareholders of scientific establishment and innovation company;

3) reduction of the tax rate used in simplified taxation system from 6% to 3% in the case where profit is tax object, and from 15% to 5% in the case where the tax object is the profit with deducted amount of expenses – for all small innovation companies;

4) introduction of open-ended list of expenses for those taxpayers who use ‘profit minus expenses’ system.

On the other hand, on January 1, 2010 the Federal Law “On Insurance Contributions to the Pension Fund of the Russian Federation, the Social Security Fund of the Russian Federation, the Federal Fund of Mandatory Medical Insurance and Local Funds of Mandatory Medical Insurance” enters into force (No 212-FL of July 27, 2009). According to this Law since January 1, 2010 SSC is substituted by insurance contributions to the Pension Fund of the Russian Federation, the Social Security Fund of the Russian Federation, the Federal Fund of Mandatory Medical Insurance and Local Funds of Mandatory Medical Insurance. At the same time in 2010 the rates will not be changed, but since 2011 rates will be increased, subsequently tax burden on businesses applying simplified taxation system will increase in 2.4 times.

In this direction of development it is also presumed to exempt profits in the form of disposal value of property remained after expiry of grant agreement, from taxation.

Presently, in case where after expiry of grant agreement an entity keeps property purchased (produced) out of grant funds, such entity must add disposal value of this property to its profit on the date of expiry of grant agreement.

It is proposed to exempt profits in the form of value of property remained after expiry of grant agreement, from taxation, but within the limits of 20% of initial value of such property. Since amortization for tax purposes for the equipment purchased (produced) out of resources of target funds, including grants, is not accrued, it is proposed to use accounting data regarding initial and disposal value of such property.

At the same time the objective of tax policy should be elimination of existing barriers to modernization and innovation activity from the point of view of share of tax liabilities and complexity of their payment.

In order to attain the set objective it is proposed to implement a range of instruments within the following main directions:

1. Adjustments of rates of insurance contributions for mandatory pension, medical and social insurance.

As it was earlier mentioned, on January 1, 2010 the Federal Law “On Insurance of Contributions to the Pension Fund of the Russian Federation, the Social Security Fund of the Russian Federation, the Federal

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Fund of Mandatory Medical Insurance and Local Funds of Mandatory Medical Insurance” enters into force (No 212-FL of July 27, 2009), presuming cancellation of single social contribution and shifting to insurance principle of revenues channelled to system of mandatory pension, medical and social insurance with increasing of aggregate rate of insurance contributions for these purposes from 26 to 34 % to be levied from payments to one employee in the amount up to RUR 415 000 annually (margin for taxation for 2010).

Instrument of support for innovation sector to be implemented in the nearest future is decreasing for long period (until 2015, and for certain categories – until 2020) of aggregate rate of insurance contributions for certain categories of payers to 14 % within the limit of annual insured salary. At the same time it is proposed that federal budget shall be responsible for payment of contributions with full rate for mentioned employees. First of all this privilege will be granted to payers of contributions pursuing activity in innovation sectors, which before SSC cancellation benefited from reduced rates or privilege contribution schedule of rates. This incentive is to cover entities and private persons – entrepreneurs having resident status in technical and implementing special economic zone and providing payments to natural persons employed on the territory of technical and implementing special economic zone, and entities pursuing activity in IT sector.

2. Reduced rate of contributions will temporarily cover other categories of payers pursuing activity in innovation sector.

Namely, this incentive is to cover entities incorporated according to the Federal Law of August 2, 2009 No 217-FL “On Amending Certain Legal Acts of the Russian Federation Regarding Incorporation of Business Entities by Scientific and Education Establishments Financed from Budget with the Purpose of Implementation of Results of Intellectual Activity”, and entities not only exporting software but also supplying it on domestic market.

Additionally, transitional period until 2015 will be foreseen for payment of insurance contributions by mass media entities, with rate to remain 26 % in 2011, increasing to 27 % in 2012 and smooth increase to general level in 2015.

2.2.5. Peculiarities of tax incentives for the use of intellectual property

Clarification is envisaged for the procedure of recognition of expenses in the form of payments under license (sublicense) agreements for taxation purposes.

Now there is lack of legal clarity in the procedure of recognition for income taxation purposes of expenses for the acquisition of right to use software, computers and databases under a sublicense agreement, as well as one-time payments for the use of rights for the results of intellectual activity and means of individualization.

It has been suggested to specify the corresponding provisions of the Tax Code so that the above-mentioned expenses upon condition of economic justification and documentary proof thereof will be recognized while identifying the tax base for the corporate income tax. In such case the amount of a one-time payment under license (sublicense) agreements may be recognized for taxation purposes either once or in equal portions throughout the whole duration of the agreement at the discretion of the tax payer that must be determined by the accounting policy for taxation purposes.

2.2.6. Other directions of support of innovation activity

It is planned to provide tax relief in regard to the incomes derived from the sale of securities that are not traded on the organized market and have not been owned by a person for no less than 5 years. The introduction of such relief is also supposed to be applied to the securities purchased starting from 2011. This measure will allow small innovation companies to invite long-term investments on more favourable terms.

It is planned to ensure the possibility of unimpaired transition to the simplified tax system for small spin-offs.

The relief from the corporate income tax is envisaged for some non-profit organizations that are not subject to exemption from accounting in connection with carrying out statutory activities, receipt and use of funds. This will keep the possibility of control on the part of tax authorities both over legality of such relief and with the purpose to prevent misuse of funds.
A key step for the efficient introduction of the suggested measures in this area is the creation of non-profit organizations identification system (maybe by means of identifying different categories of NPOs) with the purpose to obtain the right for the corporate income tax relief.

While creating an institutional environment it has been suggested to introduce amendments to the TC in the nearest future aimed at the establishment of the special procedure of taxation of non-profit organizations, including state-financed institutions, with the corporate income tax. This procedure envisages the deduction of the profits of the above-mentioned organizations (by means of application of zero tax rate), gained in connection with carrying on business activities, from the income tax upon condition of meeting the restrictions and terms related to combining their business activities and major activities.

Personal income tax deductions in the amount of the paid education loan interest are also envisaged.

At present the TC stipulated the right for personal income tax social deduction in connection with the amount paid by the tax payer for his/her education. In such case similar deduction shall not be applied to the payment of the education loan interests.

After the legal norms that regulate the procedure of granting education loans come into force it is suggested to extend the application of personal income tax deductions that is now provided for the amounts of tuition payments to the payment of education loan interests.

3. Comparative analysis of legislative regulation of tax incentives aimed at stimulation of innovation activities in the EU member states, Ukraine and other countries

3.1. Types of tax allowances aimed at stimulation of innovation activities

Generalization of the world’s experience allows to identify such types of tax allowances aimed at stimulation of innovation activities:

1) write-off of R&D expenses which reduces the base for the tax calculation;
2) investment tax deductions;
3) reduction of tax rates for innovation companies;
4) establishment of non-taxable minimum rates for taxable entities aimed at providing incentives to small and medium businesses;
5) relief from certain taxes for venture companies;
6) deduction from the determined tax amount for those involved in the production of innovative products based on the results of innovation activities;
7) accelerated amortization in case of technical reequipping and for the equipment used in scientific research etc.;
8) allowances in case of purchase of new technologies;
9) corporate income tax deduction in the amount that equals to a certain interest of R&D increase or by the amount that equals to a certain interest of the enterprise’s expenses for the conduction of R&D activities;
10) tax incentives for start-ups;
11) tax allowances in case of investment into knowledge-based sectors;
12) tax allowances in case of merging of enterprises aimed at the implementation of innovation projects;
13) reduction or tax rates for high-technology enterprises;
14) reduction or tax rates for export-oriented enterprises.

3.2. Amortization regulation of innovation activities

The experience of developed economies shows corresponding advantages that are used in the amortization policy of these countries and that may be suitable for the conditions of innovation activities in Ukraine.

OECD countries that use tax incentives (hereinafter “TI”) for the R&D allow the application of R&D income tax deductions (e.g. wages) in the year of receipt thereof. As for the capital investments (e.g. vehicles, equipment and/or R&D-related infrastructures), some countries also allow the write-off thereof for the year when they were obtained, while others require these investments, or parts thereof, to be reduced during their own economic life cycle. Other aspects are similar (concerning terms and conditions of TI). At the same time, R&D income taxes tend to be lower in the countries that allow immediate or accelerate write-off of related investments (see Table 2).  

Table 2

<table>
<thead>
<tr>
<th>Country</th>
<th>Machinery and equipment</th>
<th>Allowances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Austria</td>
<td>5 years</td>
<td>40 years</td>
</tr>
<tr>
<td>Belgium</td>
<td>3 years</td>
<td>20 years</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>5 years</td>
<td>30 years</td>
</tr>
<tr>
<td>Denmark</td>
<td>30%</td>
<td>20 years</td>
</tr>
<tr>
<td>Finland</td>
<td>25%</td>
<td>20%</td>
</tr>
<tr>
<td>France</td>
<td>40%</td>
<td>20 years</td>
</tr>
<tr>
<td>Germany</td>
<td>20%</td>
<td>33 years</td>
</tr>
<tr>
<td>Greece</td>
<td>3 years</td>
<td>12.5 years</td>
</tr>
<tr>
<td>Ireland</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Italy</td>
<td>10</td>
<td>33 years</td>
</tr>
<tr>
<td>Netherlands</td>
<td>5 years</td>
<td>25 years</td>
</tr>
<tr>
<td>Poland</td>
<td>5 years</td>
<td>40 years</td>
</tr>
<tr>
<td>Portugal</td>
<td>4 years</td>
<td>20 years</td>
</tr>
<tr>
<td>Spain</td>
<td>100%</td>
<td>33 years</td>
</tr>
<tr>
<td>Sweden</td>
<td>30%</td>
<td>25 years</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Norway</td>
<td>20%</td>
<td>4%</td>
</tr>
<tr>
<td>Switzerland (Zurich)</td>
<td>40%</td>
<td>8%</td>
</tr>
<tr>
<td>Other countries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>5 years</td>
<td>40 years</td>
</tr>
<tr>
<td>Canada (federal)</td>
<td>100%</td>
<td>4%</td>
</tr>
<tr>
<td>New Zealand</td>
<td>22%</td>
<td>4%</td>
</tr>
<tr>
<td>US (federal)</td>
<td>5 years</td>
<td>39 years</td>
</tr>
</tbody>
</table>

Tax allowances for amortization is acquiring an increasing significance in Great Britain. According to the tax legislation in force, companies are entitled to tax allowances in the form of norms of accelerated amortization with regard to certain types of the purchased fixed assets (equipment, vehicles etc.) in the R&D sector. Presently, 100% amortization rate of deductions in regard to the investments into R&D is in effect, as well as the following tax allowances schemes in regard to amortization deductions for the first year of an organization’s business activities:

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73 OECD (2002), [http://www.cesifo-group.de](http://www.cesifo-group.de)
- 40% amortization deductions for small and medium enterprises investing into plants and mechanical equipment (vehicles, fixed assets, as well as leased plants and mechanical equipment are not subject to this type of allowances);
- 100% amortization deductions for small enterprises investing into information and communication technologies (computers, software and mobile phones of new generation with the Internet access available);
- 100% amortization deductions in regard to investments into energy-efficient equipment and technologies (in accordance with the Energy Technology List);
- 100% amortization deductions in regard to investments into water-saving devices (in accordance with the Water Technology List);
- 100% amortization deductions in regard to investments into vehicles with low CO2 emissions;
- 100% amortization deductions in regard to investments into small and medium companies in Northern Ireland, particularly, in regard to mechanical equipment.

3.3. Tax incentives for R&D activities

Marginal Effective Tax Rate on investment in R&D assets (METR) is used to conduct comparative analysis of the level of tax incentives on innovation activities within the OECD. This rate shows the increase of tax burden on an innovation-active enterprise in case of increase of investments into innovation activities by one conventional unit. The less the Marginal Effective Tax Rate, the more favourable the tax regime. The least METR indicator is shown by Spain, Canada, Czech Republic, New Zealand, Portugal, Hungary, France, Australia, Japan. More significant tax allowances for small innovation enterprises in comparison with the big ones is demonstrated in Italy, Canada, Japan, the Netherlands and Denmark.74

Table 375 shows the level and the major types of TI for R&D used by OECD countries (abbreviations of the countries’ names are used in the Table) in 2007. The Table excludes regular expenditure deductions in the form of R&D-related tax deductions, though these deductions sometimes are also identified as TI for R&D activities.

<table>
<thead>
<tr>
<th>R&amp;D-related TI types in OECD countries</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of tax deduction</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Income tax credit</td>
</tr>
<tr>
<td>Expenses write-off for tax payers</td>
</tr>
<tr>
<td><strong>Tax deduction base</strong></td>
</tr>
<tr>
<td>Volume of R&amp;D expenses</td>
</tr>
<tr>
<td>BE, CZ, DK, HU, TR, UK</td>
</tr>
<tr>
<td>AT, BE, CA, MX, NL, NO, PL, NZ, US</td>
</tr>
<tr>
<td>FR, IE, JP, KR, PT, ES</td>
</tr>
<tr>
<td>Increase of R&amp;D expenses</td>
</tr>
<tr>
<td>R&amp;D volumes and increase</td>
</tr>
<tr>
<td>AU, AT</td>
</tr>
<tr>
<td>Legal expenses</td>
</tr>
<tr>
<td>AU, AT, CZ, DK, HU, TR, UK</td>
</tr>
<tr>
<td>AT, CA, ES, FR, IE, JP, KR, MX, NO, PT, NZ, US</td>
</tr>
<tr>
<td>KR, ES</td>
</tr>
<tr>
<td>Various expenses</td>
</tr>
<tr>
<td>Fixed cost of owner’s capital</td>
</tr>
<tr>
<td>BE</td>
</tr>
<tr>
<td>Fixed investments</td>
</tr>
<tr>
<td>AT</td>
</tr>
<tr>
<td>Amortization</td>
</tr>
<tr>
<td>AU</td>
</tr>
<tr>
<td>R&amp;D personnel</td>
</tr>
<tr>
<td>AU, AT</td>
</tr>
<tr>
<td>FR, JP, NZ</td>
</tr>
<tr>
<td>BE, NL</td>
</tr>
</tbody>
</table>

75 OECD, 2007.  
76 The reference materials include the studies of Atkinson, 2007, Garcia-Quevedo, 2004, Hall and Van Reenen, 2000, as well as those referred to by Blum and others (2000) as main authors who presented comparative data in regard to the mentioned countries.
### R&D identification

<table>
<thead>
<tr>
<th>Frascati Manual - (FM) for the OECD</th>
<th>AT, DK, HU</th>
<th>AT, BE, JP, MX, NO, UK</th>
</tr>
</thead>
<tbody>
<tr>
<td>More detailed than FM</td>
<td>AU, BE</td>
<td>FR, KR, NL, PL, ES, NZ</td>
</tr>
<tr>
<td>Less detailed than FM</td>
<td>AU</td>
<td>CA, IE, NL, ES, US</td>
</tr>
</tbody>
</table>

### Off-shore R&D

| Not covered | DK, BE | CA, HU, KR, MX, PT, US |
| Covered     | UK     | JP, NO, PL             |
| Covered partially | AU, AT | AT, BE, ES, FR, IE, NL, NO, NZ |

### Special conditions

| Additional stimulation of small enterprises | UK | CA, JP, NL, NO, PL |
| Additional stimulation of cooperation projects in the R&D field | DK, HU | NO |
| Only joint projects in the R&D field |                | BE |

### Regulation of unprofitable campaigns

| Regulation of future expenses | AU, BE, CZ, DK, HU, UK | CA, FR, IE, JP, MX, PL, PT, ES, US |
| Reduction of previous expenses | UK, AU | US |
| Direct support |                | FR, NO, NZ |
| Direct support of some campaigns only |                | CA, AT |

#### The abbreviations of the countries’ names stand for:

- Austria - AT
- Belgium - BE
- Denmark - DK
- Canada - CA
- Mexico - MX
- Netherlands - NL
- Australia - AU
- Austria - AT
- Belgium - BE
- Denmark - DK
- Canada - CA
- Mexico - MX
- Netherlands - NL
- Norway - NO
- Ireland - IE
- Poland - PL
- Japan - JP
- New Zealand - NZ
- Korea - KR
- USA - US
- Portugal - PT
- Hungary - HU
- Estonia - ES
- France - FR

The Table shows the difference between the two TI types, that is (1) the provision of a tax credit or write-off of income taxes.

Summary information on tax incentives is presented in Table 4. **Table 4**

#### General structure of TI schemes on R&D in different countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Structure of TI schemes on R&amp;D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Allows a 125% deduction for R&amp;D expenses</td>
</tr>
<tr>
<td></td>
<td>Plus a 175% deduction for R&amp;D expenditures exceeding a base amount of prior-year</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Country</th>
<th>R&amp;D Incentive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>Offers a permanent 20% R&amp;D tax credit.</td>
</tr>
<tr>
<td></td>
<td>Also, many provincial governments offer various incentives (e.g., refundable credits) for R&amp;D activities conducted in their provinces.</td>
</tr>
<tr>
<td>China</td>
<td>Offers foreign investment enterprises a 150% deduction for R&amp;D expenditures, provided that R&amp;D spending has increased by 10% from the prior year.</td>
</tr>
<tr>
<td>France</td>
<td>Allows a 40% R&amp;D credit for R&amp;D expenditures in excess of average R&amp;D spending over the two previous years, or a 10% flat credit on volume.</td>
</tr>
<tr>
<td>India</td>
<td>Companies carrying on scientific research and development are entitled to a 100% deduction of profits for 10 years.</td>
</tr>
<tr>
<td></td>
<td>Automobile industry also is entitled to a 150% deduction for expenditures on in-house R&amp;D facilities.</td>
</tr>
<tr>
<td>Ireland</td>
<td>Offers a 20% R&amp;D tax credit, plus a full deduction, as well as a low generally applicable 12.5% corporate income tax rate.</td>
</tr>
<tr>
<td></td>
<td>R&amp;D grants also available, covering up to 50% personal and capital costs.</td>
</tr>
<tr>
<td></td>
<td>Capital expenditures may also qualify for a separate flat credit.</td>
</tr>
<tr>
<td></td>
<td>No stamp duty on transfers of IP into Ireland.</td>
</tr>
<tr>
<td>Japan</td>
<td>Offers a flat 10% R&amp;D tax credit (a 15% flat credit is provided for small companies), in addition to other incentives.</td>
</tr>
<tr>
<td>Korea</td>
<td>Tax holidays, up to 7 years, are provided for high-technology businesses.</td>
</tr>
<tr>
<td></td>
<td>In addition, a variety of tax credits are provided for R&amp;D-type expenditures.</td>
</tr>
<tr>
<td>Poland</td>
<td>Acquisition cost of the R&amp;D results is tax deductible up to 150%.</td>
</tr>
<tr>
<td></td>
<td>Entities having an R&amp;D centre can establish within the entity an innovation fund.</td>
</tr>
<tr>
<td></td>
<td>Monthly contributions to this fund amounting to 20% of the given month revenue, are treated as deductible costs.</td>
</tr>
<tr>
<td></td>
<td>Revenues from the R&amp;D activities carried on in Special Economic Zones are exempt from corporate income tax up to 70% of investment cost or two years labour costs.</td>
</tr>
<tr>
<td>Singapore</td>
<td>“R&amp;D and Intellectual Property Management Hub Scheme” offers U.S. companies a 5-year tax holiday for foreign income earned with respect to Singapore-based R&amp;D.</td>
</tr>
<tr>
<td>Thailand</td>
<td>Offers a 100% deduction on expenses, and income tax exemption based on R&amp;D results.</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Allows a 125% (to increase to 130% effective April 1, 2008) deduction for R&amp;D expenses, plus a 175% deduction for small and medium sized companies for R&amp;D expenditures exceeding a base amount of prior-year R&amp;D spending.</td>
</tr>
<tr>
<td>USA</td>
<td>Current US law has lapsed but prior law includes 3 versions as follows:</td>
</tr>
<tr>
<td></td>
<td>Provides a maximum 10% credit for qualified R&amp;D expenditures in excess of a 1984-88 base (measures related to R&amp;D expenditures against gross sales receipts for the period).</td>
</tr>
<tr>
<td></td>
<td>The Alternative Simplified credit provides a credit of 12% for R&amp;D expenses that exceed 50% of average R&amp;D expenses over the prior of 3 years.</td>
</tr>
<tr>
<td></td>
<td>The Alternative Incremental Research Credit formula combines a three-tiered fixed-base percentage with a reduced three-tiered credit percentage.</td>
</tr>
</tbody>
</table>
The business deduction for R&D expenses must be reduced by the amount of any R&D credit.

From the point of view of Ukrainian economic outlook, the examples of Great Britain and France should be interesting since they are large European countries with comparatively favourable TI regulatory schemes on R&D that has been existing in one form or another for a rather long time. However, other countries subject to comparative analysis include countries with the transition economy – Hungary and Poland, both of which have recently implemented significant economic reforms following the collapse of the Soviet Union and the socialist/communist political system as a whole. Unfortunately, however, the data regarding the volumes of public investments into R&D as a result of application of tax incentives schemes are available for examination only in two countries – the United Kingdom and France.

In UK R&D tax allowances have been applied since 1940s in the form of immediate write-off of expenditures on payment of R&D asset tax. The efficiency of this policy wasn’t comparatively high, as usual, since the definition of the term “scientific research” was interpreted only as research carried on by specialists in laboratories, and in any rate the only benefit obtained was cash flow. In 2000 incentives for small and medium enterprises (SMEs) was introduced in the form of additional 50% R&D income tax deductions. Meanwhile “R&D” acquired a new definition to replace the old term “scientific research”. The new definition emphasized the inclusion of research and development works to the qualification criteria of scientific and research activities. 100% capital tax deductions remained one of the incentives, though from then on based on a wider definition of R&D. 50% tax deduction is provided for an SME spending for R&D notwithstanding whether such work is carried on in-house or under a contract for another party, though in case an SME carries on works under a contract only 65% of expenditure under a subcontract are entitles to these tax allowances.

<table>
<thead>
<tr>
<th>Scheme for small and medium enterprises</th>
<th>Scheme for large enterprises</th>
</tr>
</thead>
<tbody>
<tr>
<td>150% tax deduction rate</td>
<td>125% tax deduction rate</td>
</tr>
<tr>
<td>Per each GBP 100 spent on R&amp;D GBP 24 refunded</td>
<td>Not provided</td>
</tr>
<tr>
<td>A company may request R&amp;D tax deductions, including under a contract agreement</td>
<td>A company may request R&amp;D tax deductions only if it carries on such activities independently or under a contract agreement with universities, non-profit organizations and scientific laboratories</td>
</tr>
<tr>
<td>A company may be entitles to tax deductions in case it contributes to conduction of independent research</td>
<td>A company may request tax deductions in case it contributes to conduction of independent research</td>
</tr>
<tr>
<td>The amount of tax deductions may be reduced in case of financing the company’s R&amp;D activities or providing an R&amp;D grant</td>
<td>Reduction of tax deductions in case of receipt of financing or grants in not envisaged</td>
</tr>
<tr>
<td>One of the compulsory conditions for receiving a tax deduction is IP rights for R&amp;D results.</td>
<td>It is not compulsory for a company to have IP rights for R&amp;D results.</td>
</tr>
</tbody>
</table>

As for the corporate income tax, since its rate had been fixed at 30% for many years, such additional tax deduction its cash value was expressed in the amount of GBP 15 per each GBP 100 proved to have been spent for R&D. It is important for SMEs that in case tax deductions remained one of the incentives, though from then on based on a wider definition of R&D. 50% tax deduction is provided for an SME spending for R&D notwithstanding whether such work is carried on in-house or under a contract for another party, though in case an SME carries on works under a contract only 65% of expenditure under a subcontract are entitles to these tax allowances.

Table 5

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In 2002 a similar income tax incentive initiative was applied to the companies that do not belong to the category of SMEs (e.g. “large” enterprises), however, tax deduction rate made 25% of the revenues spent without cash refund. Tax incentives are provided to persons involved in R&D notwithstanding who actually finances these activities, so R&D activities carried on by a company for its clients is also entitled to such tax allowances. Such regulation aimed at providing incentives for multi-national companies to increase and maintain at the same level their investments into R&D of the UK rather than other countries. Moreover, additional tax allowances rates for large companies increased from 25% to 30% for the expenses incurred after April 1st, 2008.

In France TI are represented in the form of loans for the conduction of research (crédit d’impôt recherche (CIR)). Such loans are expressed in the form of tax allowances – up to 30% of R&D funds if this amount does not exceed EUR 100 Mio. 5% deduction is applied to the amounts that exceed EUR 100 Mio. Companies that apply for tax deductions for the first time may receive 50% R&D expenses deduction during the first year of activities and 40% during the second year. Simplified R&D Tax Incentives system was introduced in France in the beginning of 2008, and tax incentives are now fully applied only in regard to R&D expenses. Earlier the scheme was based on the R&D increment ratio.

There is a special form to be filled in by the applicants who request R&D tax incentives. Direct subsidies provided to a company through R&D tax incentives must be reduced to the calculation of CIR. Each company may request prior assessment of R&D expenses from tax authorities.

Fields of activities that may be entitled to R&D tax incentives must comply with the international definition of R&D activities presented in Frascati Manual published by the OECD. In 2004 the reduction in the number of enterprises that requested tax allowances in their tax declarations resulted in the introduction of a combination of new tax reductions based on the calculation of the volume of expenses (5% deduction) and tax reductions based on the funds increase (45% within the margin not exceeding EUR 8 Mio).

France takes the first place among the OECD countries in terms of allocation of funds for R&D tax incentives. According to presented prognosis, the amount of funds spent for R&D tax incentives in 2008 will be EUR 3 Mio.

Hungarian legislation envisages a number of TI aimed at stimulation of R&D activities. Main IT types aimed at providing support to R&D are related to corporate income tax and special taxes where R&D costs are deducted from the amount of gross profit before the payment of taxes by the company; double tax deduction is also possible. Additional tax credits are possible in respect of corporate tax income, however, these TI are related to several categories and administrative requirements. The legislation in the sphere of innovation development also stipulates the provision of a tax credit to the companies involved in R&D activities. Particularly, Hungarian legislation envisages two types of TI aimed at stimulation of R&D activities and corresponding investments: corporate tax deductions and tax credits that may be applied for the reduction of tax liabilities.

In accordance with the Corporate Income Tax Act, direct expenses on in-house R&D activities or the purchase of R&D are subject to corporate income tax deduction in the fiscal year when such expenses occur or, in case the funds spent for the purchase or development of R&D, are recognized as assets in compliance with the experimental developments (intellectual property) costs. Companies may be entitled to corporate income tax deduction in the amount of amortization funds stated in the accounting documents for the fiscal year in regard to these assets. According to the above-mentioned, effective double R&D expenses deduction is practices in Hungary. This measure was introduced in 1997.

In addition to the above-stated, if R&D activities are conducted on the principles of collaboration and based on the agreement signed with the spin-offs established by universities or the Hungarian Academy of Sciences, such company may request the return of R&D expenses in the amount that thrice exceeds the actual expenses incurred as additional tax reduction from its tax base in the amount of up to 50 Mio Hungarian forints. The same tax deduction may be applied to the companies if such collaboration agreement is carried on with a similar organization of the European Economic Area. This measure was introduced in 2004.

Moreover, Hungarian legislation offers TI aimed at stimulation of investments into R&D (tax credits). This kind of incentives is open for tax payers who invest at least 100 Mio Hungarian forints in R&D projects. In accordance with this regulation, a company may be entitled to corporate income tax deduction
(80% of tax liabilities at most reduced due to other types of tax deductions) that equals to the invested amount according to the current prices. However, the application of this tax allowance requires compliance with several criteria stipulated in a separate governmental decree. This measure was introduced in 2003.

Another support measure stipulated by Hungarian legislation is a special reduction in regard to some R&D funds. According to this TI, a company may be entitled to corporate income tax deduction (other tax allowances allow an up to 70% corporate tax deduction) during a current fiscal year, and 10% wage tax deduction in case the incurred expenses are related to direct spending on fundamental and applied research and experimental developments or the funds paid to software developers. This TI policy is applied notwithstanding whether the possibility of basic taxes reduction was used. This measure was introduced in 2005.

In addition to the above-mentioned R&D tax incentives, two additional types of R&D-related tax allowances may also be applied. Starting from September 1st, 2006 corporate enterprises are subject to solidarity tax amounting to 4%. This tax is deducted from the gross revenues prior to the allocation of taxes indicated in the financial statements, and may vary depending on special conditions. This tax may be reduced by means of refunding of R&D expenses.

Conditions for the application of a special tax deduction base are detailed as well as norms regarding the payment of corporate income tax. This measure was introduced in 2006. Meanwhile, since 2004 companies are obliged to make the so-called innovation contributions. Innovation contribution in the amount of 0.3% of the local entrepreneurial activities tax base which includes network sales revenues with the deduction of material funds, revenues from products sales and intermediary services. Tax liabilities related to innovations may be reduced by means of deduction of in-house R&D expenses, as well as expenses on ordering R&D from private and public organizations. This measure was introduced in 2004.

Poland practices the application of two main tax incentives aimed at stimulation of R&D or innovation activities: (1) provision of status of an R&D centre which allows introduction of special tax allowances and monthly write-off of expenses to the Innovation Fund, and (2) support for the purchase of new technologies. R&D centre status may be provided to an enterprise by an administrative resolution of the Ministry of Economy adopted after an official application was submitted. The terms for obtaining this status are as follows: net revenues from the sales of this product and financial transaction during the year preceding the year of submitting the application for obtaining this status must amount to at least EUR 800.000, net revenues from the sales of R&D research results must amount to at least 50% of the total revenues; at the same time, no outstanding tax or insurance liabilities are acceptable. As soon as an enterprise obtains the status of an R&D centre it may be entitled to real estate tax deductions, as well as agricultural tax and forestry tax deductions.

Additional instrument of innovation activities stimulation is related to the Innovation Fund that may be established on the basis of an R&D centre. An R&D centre is authorized to channel funds to the Innovation Fund with the 20% write-off of the monthly revenues. Such write-off is conducted on account of the funds excluded from the taxable amount. Innovation Fund resources must be localized for covering R&D expenses incurred by an R&D centre during the current year.

Another incentive is potentially aimed at R&D activities support providing the possibility to deduct amounts allocated for the purchase of the so-called new technologies from the taxable expenditures. New technologies are defined as technological knowledge in the form of non-material assets (in particular, results of R&D activities) which enables the production of new or updated products or services and are used throughout the world during no longer than five years. Fulfilment of the above-stated conditions must be confirmed by an independent scientific department. If the above-mentioned and other criteria are met an enterprise may write-off up to 50% of expenses for new technologies from their tax base.

As for other kinds of support in regard to R&D activities, after Poland’s accession to the EU the country may apply for the receipt of a grant from the EU Structure Fund with the purpose to attract new investments into R&D sector or conduct R&D activities.

Some support of R&D activities may be provided in the form of corporate income tax relief for an enterprise within the Special Economic Zone, or in the form of real estate tax relief provided at the regional level.
**Spanish** innovation legislation stipulates a combination of *volume* and *incremental* allowances. In 2006 innovation enterprises were allowed a 100% write-off of R&D expenses as production costs. They may also be entitled to tax credit amounting to 30% of the R&D expenses incurred during the current fiscal year and 50% from the expenditure in excess for the last two years. Moreover, additional allowances in the innovation sector have been introduced on the regional level as well.

In **Canada** tax incentives for innovation activities envisages, together with 100% write-off of R&D qualified expenses as production costs (expenses on fundamental and applied research and experimental developments, including capital expenses for leased fixed assets, R&D services), provision of *investment tax credit* in regard to income tax by means of reduction of the taxable profit by 20-35% of R&D expenses. In practice, this means the reduction of income tax amount by 100-200%. The amount of the investment tax credit that is not used in the current year may be eligible to claim for covering tax liabilities during the next 20 years or the previous 3 years with the purpose of income tax deduction in these periods.

Compensation of the unused credit in its cash equivalent is allowed for the stimulation of development of small innovation enterprises (spending for R&D up to CAD 2 Mio annually).

In **Australia** starting from 2002 companies are entitled to 125% write-off of R&D expenses as production costs and, upon condition of exceed in the current reporting period of the average of such expenses for the previous three years, to 50% tax deduction.

In the **USA** *investment tax credit* is applied that is calculated based on an increment method. This allowance was introduced in 1981 for a period of five years, and the term of its validity has been continuously extended ever since. It has been effectively applied up to present. The amount of this allowance (reduction of the income tax calculated according to the base rate) makes 20% of R&D qualified increment compared to average expenses during the previous 4 years.
10. Issues of legislative regulation of innovation development of small and medium enterprises (SMEs)

1.1. Acts which regulate the area of legal relationship

Legal and legislative regulation of innovation activity is crucial for assuring innovation development of SMEs. In Ukraine legal basis of innovation development and support of SMEs continues its formation. The mechanisms of supporting SMEs and innovation activity are contained in legal acts and regulate basic principles of business activity. They include Civil Code, Economic Code, laws of Ukraine, Decrees of the President of Ukraine, Decisions of the Verkhovna Rada of Ukraine, Decrees of the Cabinet of Ministers, innovation development strategies, and programs of support for small businesses, adopted at state, regional and sectoral levels.

In Ukraine first laws relating to entrepreneurship and innovation activity were adopted during 1990’s. Before 2010 Ukraine has created relatively wide legislative basis in the field of science, innovation and entrepreneurship, including laws defining formation and functioning of innovation infrastructure.

Basic legislative acts regulating innovation development in Ukraine include the following legal acts:

- Tax Code of Ukraine No 2755-17 of 01.01.2011.
- Decree of the Cabinet of Ministers of Ukraine “Provisions on the Procedure of Establishment and Functioning of Technological Parks and Innovation Structures of Other Types” of 22.05.1996 No 549.
- Decree of the Cabinet of Ministers of Ukraine “Provisions on the Procedure of Consideration and State Registration of Investment and Innovation Projects which are Implemented According to Priority Areas of Technological Park Activity” of 17 December 1999 No 2311//Ofitsiinyi Visnyk Ukrainy. – 1999 – No 5 of 06.01.2000.
- Decree of the Cabinet of Ministers of Ukraine “Provisions on the Control Procedure for Dedicated Use of Raw Materials, Materials, Equipment, Arrangements, Parts and other Goods Imported to Ukraine to Fulfill Investment and Innovation Projects According to Priority Areas...
of Technological Park Activity” of 17 December 1999 No 2311//Ofitsiynyi Visnyk Ukrainy. – 1999 – No 5 of 06.01.2000.


State support of small businesses is performed according to the Law of Ukraine “On the National Program of Contributing to Development of Small Business in Ukraine” of 21 December 2000 No 2157-III (VVR, 2001, No 7, p. 35) as amended by the Law No 2388-VI (2388-17) of 01.07.2010, VVR, 2010, No 37, p.496.

1.2. Analysis of legislation

Discordant innovation policy, unfavourable innovation climate stipulated by existing legislation and legislative practice may be considered as factors which restrain innovation activity of businesses. There is continuing practice of suspending individual articles of laws relating to the funding of innovation activity adoption of new legislative acts and regulatory legal documents without appropriate analysis and evaluation of previous instruments.79

The Law of Ukraine “On Innovation Activity” No 40-IV of 04.07.2002 with amendments and supplements provides for the line of actions concerning public regulation of innovation field. Thus, Article 6 of the mentioned Law declares “financial support of fulfilment of innovation projects, establishing favourable taxation of innovation subjects”. In addition, this Law has essential discrepancies which relate to providing of funding for innovation activity by state budget. The Article 13 point 10 states that “state registration of innovation project does not provide for any obligations relating to budget crediting of its fulfilment or other state support”, and the Articles 21 and 22 providing for favourable taxation and customs regulation of innovation activity are exempted form the Law in 2005 at all. State does not practically support innovation businesses and economic operators are not interested in implementing of innovation projects.

The Law of Ukraine “On Amending the Law of Ukraine “On Special Regime of Innovation Activity of Technological Parks” and other Laws of Ukraine” No 3333-IV of 12.01.2006 is adopted with the view of establishing conditions for cooperation of economic operators and partially resumes special regime of innovation activity of technological parks and increases the number of technoparks. In 2004 the favourable regime for innovation activity of technoparks was cancelled causing their considerable losses. Renewal of favourable conditions of functioning of technical parks provided implementing of innovation products at UAH 1.69 Mio during three quarters of 200680, which is evidence of essential influence of institutional environment on effectiveness of innovation activity.

The Law of Ukraine “On State Regulation of Activities in the Field of Technology Transfer” No 143-V of 14.09.2006 provides for the line of actions related to businesses stimulating which perform transfer of technologies and introduce innovations: minimum remuneration rate for persons who perform transfer of technologies; directed subsidy of technology transfer for sums of income tax obtained from technology introduction and sums of import duty obtained upon import to Ukraine for implementing of technology transfer projects of equipment, arrangements and parts which are not produced in Ukraine; providing state guarantees relating to settlement the credits of large banks, given for purchase of technologies and their components, to businesses which belong to the area of management of central executive authorities, National and sectoral academies of sciences.

Adopting the Law of Ukraine “On State Regulation of Activity in the Field of Technology Transfer” directed to providing effective use of scientific and technical and intellectual potential, increasing the level of protection of property rights on domestic technologies, continued for five years and scientists made many efforts to remove unfavourable provisions of the Law and process of its adopting was quite problematic. In

80 Indexes of the activity of technological parks in 2006. // www.mon.gov.ua/science/innovation
addition, assuring basic provisions of the mentioned Law provides for adopting line of bylaws, amendments to individual laws, bringing of state standards into compliance with the Law, which is presently not carried out.


Imperfection of legal basis of innovation activity is strengthened by the practice of suspension of certain articles of laws in force by legislative acts or bylaws. It is also proved by materials of parliament hearings, which took place on 17 June 2009. During adopting of laws of Ukraine on the budget for current or next years practice of ignoring of legislation or suspending articles of laws related to financial support of innovation activity (including individual provisions of the Law of Ukraine “On Innovation Activity”, “On Special Regime of Innovation Activity of Technological Parks” etc.) became widespread. Articles 21 and 22 of the Law of Ukraine “On Innovation Activity” provided for stimulating innovation activity by establishing tax privileges. However, these articles were suspended first in 2003, and later in 2004. Finally, in 2005 these articles were fully repealed.81

Participants of Parliament hearings on “Strategy of Innovation Development of Ukraine for 2010-2020 in Conditions of Globalization Challenges” stated that Ukraine had:

- disagreement of legislation in the field of innovation mainly with corporate, investment, tax and social legislation, non-compliance of bylaw norms with progressive norms of effective laws, which does not provide practical putting into service of the last;
- inconsistency in actions of state relating to the subjects of innovation activity;
- considerable decrease of innovation activity of businesses and general deterioration of innovation culture in society;
- ineffectiveness of mechanisms for legal protection of intellectual property;
- absence of appropriate forecasting system for science-technology and innovation development;
- spreading the practice of ignoring effective norms of legislation and suspending articles of laws relating to financial support for innovation activity during adopting laws on state budget for current or next year.82

Ukraine doesn’t have formed mechanism of stimulating for establishment of innovation infrastructure.83 Effectiveness of state policy for forming and development of innovation infrastructure is significantly decreased due to its unsystematic character, inappropriate reasonableness, and absence of clear separation of tasks between central and local executive authorities and local self-government, absence of coordination in their activities, absence of intersectoral and interregional connections. Development of innovation infrastructure is not defined as individual problem within the framework of state programs, their measures are aimed at establishment of individual innovation infrastructures.

The Tax Code of Ukraine does not provide for tax privileges for innovation businesses. Article 14 “Definitions” does not contain such concept as “innovation activity”.

The Tax Code of Ukraine does not include purpose-oriented philanthropic assistance of any amount given by residents – natural or legal persons to: … e) taxpayer who carries out scientific research or development, for compensation of equipment, materials and other costs (except salary payments, additional goods, other expenses for personal needs) under condition that results of such research or developments are published and cannot be the subject of patenting or other restrictions relating to their publishing or free distribution objects of intellectual (industrial) property right, obtained as result of such research or

development, and when such assistance is not a precondition for any contractual obligations between philanthropist or third party and acquirer of assistance in future except obligations relating to purpose-oriented use of such philanthropic assistance.

Imperfect legislative regulation of innovation activity has negative impact on innovation activity of businesses of all sizes; however, small businesses require particular attention of the state. Ukraine does not have legislative economic mechanisms of support for innovation activity of small businesses. Effective legislation does not provide for special measures relating to support of innovation activity of small and new businesses directed towards introducing scientific results and new technologies.

1.3. Issues to be resolved

1) Legislative provision of incentives for innovation activity of small, medium and large businesses;
2) Legislative provision of incentives for commercial banks in the field of credits for business innovation projects;
3) The Cabinet of Ministers of Ukraine should during preparation of draft budget of Ukraine for 2011 provide implementing provisions of:
   a. the Laws of Ukraine “On Scientific and Scientific and Technical Activity”, “On State Regulation of Activity in the Field of Technology Transfer”, “On Innovation Activity”, “On Special Regime of Innovation Activity of Technological Parks” and

2. Comparative analysis of regulation experience

European approach to the problem of contributing to innovation consists in establishing favourable conditions through the system of incentives for different participants of the process of establishing and commercialization of scientific research results. It should be mentioned that this approach was not always used. A couple decades ago legislation was more restrictive than stimulating. The framework program “Competitiveness and Innovation CIP”, adopted at pan-European level and aimed at contributing to innovation development of SMEs and ensure wide access to financial resources and services of supporting business in regions. The framework program “Competitiveness and Innovation” is intended for 2007-2013 and has total budget of € 3621 million. One of its components is framework program “Entrepreneurship and Innovation Program EIP” aimed at supporting of innovation at SMEs within following directions:

- Access to financing;
- Provision of business services through the EEN (Service Centres for business and innovation);
- Support for innovation policy improvements;
- Eco-innovation projects;
- Support of SMEs policy and innovation through the system of contracts and grants.

EU Member States apply different instruments for stimulating innovation which may be classified according to the character of means:

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- Tax preferences. Tax legislation is special legislative field and requires individual consideration, however, it is obvious that tax preferences for innovation process participants are one of widespread instruments applied in EU.

- Financial incentives. EU has various examples of programs which direct considerable financial resources for stimulating innovation. These programs operate at national and pan-European level and are called “structural funds”. For example, programs for joint financing of contract scientific research, subsidies for technology commercialization services, providing initial capital for start-up companies etc.

- Natural preferences. In addition to financial incentives a method of “services instead of money” is applied. These include as a rule personnel training; patenting assistance; product certification assistance; providing areas in incubators and technoparks etc.

The value of European programs is incomparable to Ukrainian opportunities, however, important are aim and mechanisms used rather than the scope of these programs. Experience of new industrial countries (South Korea, Chile, Mexico, Israel) who managed to achieve substantial progress in innovation activity development, is an evidence of applicability and possible success of EU principles under conditions of utterly restricted resources.

Recent years after the progress report on European innovation policy for 2009 (European Innovation Progress Report 2009)\(^{86}\) saw intensification and diversification of innovation policy instruments relating to SMEs. Cooperation between private businesses and public scientific organizations was recognized as one of the most important tasks of innovation policy, especially in Cyprus, Germany, Belgium, Austria, Greece, Spain, Hungary and Slovenia. New policy measures were adopted in order to contribute to collaboration and public-private partnership in innovation development. To solve financial problems of new businesses (start-up) and SMEs special programs were initiated in Ireland (including support of “gazelles” – fast growing businesses), Hungary, Greece, Bulgaria, Italy, Latvia, Slovenia and Spain. Innovation vouchers which allow SMEs to obtain consultant services in the field of innovation and increase demand for R&D results, achieved further development and spreading. This kind of innovation measures was applied in Belgium, Estonia, Greece, Portugal and Slovenia.

The following information gives examples of business innovation support in individual EU Member States.

**Business innovation activity support in Great Britain**

Great Britain does not have large scope programs of direct financing for industrial R&D and government considers that indirect and “soft” measures relating to contributing and stimulating R&D are more effective use of financial resources than direct financial support of business innovation. Special financial initiatives are directed to innovation support at SMEs, including grants for R&D and line of schemes of providing venture financing and financing at early stages of development of businesses for new (start-up) and SMEs. In addition, schemes of stimulating for all firms exist in the shape of tax credits for R&D at businesses. Great Britain’s innovation strategy is characterized by the shift of accent to regional market, thus partially public support of innovation is performed at regional level to provide more delicate response to regional and local needs and conditions. These functions are carried out by regional development agencies. Regional development agencies (RDA) play important role in contributing to connections between business and universities.\(^{87}\)

**Tax policy for development of businesses which support scientific research of industry in France**\(^{88}\)

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Support of new innovation businesses (start-ups) (SNIB). This measure is important for new businesses which specialize in the field of innovation and carry out R&D allowing them overcome difficulties of formation during first years of their operation. Law on current year financing sets tax and social provisions for “new innovation business”. These provisions cover new SMEs which operate for less than eight years and bear expenses on scientific research of not less than 15% of their budget.

Tax credit for scientific research. This tax measure is effective since 1983 and aims at developing business scientific research. It is applied to businesses and, in particular, to SMEs. For example, in 2002 tax credit was of € 489 million and was granted to 2760 businesses.

Individual investment business of increased risk (IIBIR). The law on finances of 2004 provides for new investment instrument for individual entrepreneurs, which is effective from 1 January 2004. Program “Individual investment business of increased risk” allows an entrepreneur to deposit their funds and spread share their experience with new businesses. IIBIR is exempted from business tax for 10 years and from income tax for the same period subject to entrepreneur being the only principal.

Measures contributing to establishing of new businesses, applicable in France. National competition for assistance during establishing of technical innovation businesses. The aim of this competition is to identify and develop business establishing projects, based on application of new technologies. Winners obtain financial support and corresponding assistance. It allows financing of two types of projects: projects at the “development” stage, which require implementing of supplementary “ripening” phase; here winners obtain subvention (within € 45 000) intended for carrying out work on evaluation of project implementing possibility, both from the economic and technical point of view; “establishing/development” projects, which are more advanced and obtain subvention (within € 450 000), which is given to an organized business for financing the part of innovation program.

Innovation business incubators, related to scientific research. Their aim is to provide assistance in establishing of innovation businesses on the basis of the results of state budget scientific research or due to such state budget scientific research carried out. Innovation business incubators, related to state budget scientific research, are selected within the framework of provisions of “Incubators and Initial Capital of Technological Businesses” project of 24 March 1999, developed by the ministry in charge of conducting scientific research and ministry of economy, finance and industry. These incubators were established mainly upon the initiative of higher education and scientific research institutions, united at regional level.

Initial capital. In March of 1999 five national funds were selected to form initial capital within the following areas: biotechnology, information technology and communication, energy and environmental protection, and six joint regional funds. These funds are specially intended for innovation businesses. Organizations for conducting scientific research and higher education institutions may participate in work of these funds to guarantee close contacts between investors and economic environment.

Support of small technology firms in Sweden

In Sweden support of small firms is provided through Swedish Industrial Development Fund – IDF. The fund provides credits and direct investment for small firms, whose products belongs to priority sectors of technological development (information and communication technologies, life sciences, industrial technologies) and which have staff of 250 people and a turnover of up to 400 million SEK. To obtain credit a small firm should demonstrate good commercial perspective of a project and its high management level. Project overall value should be of not less than 4 million SEK. IDF credit may cover up to 50% of project overall value. Credit interest rate is evaluated on market basis. IDF suggests various schemes including credit conversion into company shares upon successful business development. IDF may conduct investment at different stages of project development (seed, initial, and company expansion stage). To obtain seed capital a company must prove that project contains unique idea having evident commercialization potential. Demonstration of new business potential form the market expansion point of view is a very important aspect. Intellectual property rights for basis technologies must belong to company. However, IDF does not give grants (free financing). Primarily IDF is interested in technology companies which originate from universities. The sum of requested investment should be form 250 thousands to 2 million SEK.

Start-up company financing in Finland

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National Research and Development Fund – SITRA. The Fund has an independent status under the auspices of the Parliament and is managed as a fund, not as government agency. SITRA is a hybrid program with direct financing of start-up firms and financing of regional technological business support funds conducted within SITRA framework. SITRA provides venture financing for firms – in turn of shares, from 15 to 40 %, and sums from 200 thousands to EUR 2 Mio. Annual investment from this fund comprise about EUR 50 Mio. Once company reaches first formation stage, they begin to obtain private funds. In overall financing volumes state funds amount 10 %, however, the role of state support is much higher. State financing is not only the catalyst for external financing but contributes to increasing the level of technical experience of entrepreneurs.

Innovation support in Czech Republic

One of R&D support directions in Czech Republic is increasing of innovation activity level of SMEs and strengthening the cooperation of companies and scientific institutes. With this aim special attention is given to infrastructure development for technology transfer and innovation, clusters and technology platforms. Basic documents of Czech innovation policy include the following:


Extensive plan of Reform of the Research, Development and Innovation System in the Czech Republic, approved by the government on 26 March 2006, includes seven key targets. In relation to questions of business innovation support it is especially intended to strengthen cooperation between research sector (science) and users of scientific results by providing assistance to research projects, financed jointly with the private sector. Such project-oriented support shall be provided by new Technology agency. In addition, it was intended to exempt from taxes the R&D results, purchased by businesses from public scientific institutions and universities. Reform plan for Czech system of research, development and innovation is followed by legal, financial and organization measures, which are intended to be finished until the end of 2010. The basic document is “National Policy of Research, Development and Innovation in the Czech Republic for 2009–2015”. Business innovation support is recorded in the framework of direction “Use of R&D Results in Innovation Processes and Contributing to Cooperation of Public and Private Sectors in the Field of Research, Development and Innovation”. Measures of business innovation support include, in particular, support of cooperation between SMEs and research institutes by providing innovation vouchers for joint research, development and innovation, support of consulting services development to strengthen research, development and innovation in SMEs and use of scientific results.

Business innovation support in Estonia

Basic Estonian legislative act regulating the system of research, development and innovation, is “Organisation of Research and Development Act”, adopted in 1997 and modified in 2006. This Act regulates relationship in two areas with the Ministry of education and research in charge of science and Ministry of economy and communications in charge of technological development (innovation). The Parliament and Government bear main responsibility for research, development and innovation policy. The role of the Parliament is to adopt budget for research, development and innovation. Estonia has developed scientific and innovation development strategy for 2007-2013 (Knowledge-Based Estonia. Estonian Research and Development and Innovation Strategy 2007-2013), which determines policy and support measures for science and innovation. Enterprise Estonia is a state entity in charge of entrepreneurship and innovation support, which introduces various entrepreneurship support tools, including financial support,

http://www.proinno-europe.eu/index.cfm?fuseaction=page.display&topicID=52&parentID=52
consulting services and information on possibilities of establishing partner relationship in business. Estonia identified three basic targets of innovation development:

- Competitive quality and intensification of R&D;
- Innovation entrepreneurship to establish novelties in global economy;
- Innovation-friendly society, directed towards long-term development.

Special measures for increasing the level of business innovation activity contribute to the development of innovation entrepreneurship. These measures include centres of competence (platforms for cooperation between businesses and universities in the field of health, food industry, electronics, information and communication technologies and nanotechnologies), business incubator support, technical support at industrial businesses, innovation vouchers, program SPINNO (contributing to establishing of spin-off companies at universities); cluster program to expand export based on new products and services, for establishing conditions for closer cooperation between businesses of different sectors, and between science and business.

State subsidy in the form of innovation vouchers in the Netherlands

“Innovation vouchers” are an important form of state subsidy aimed at optimization of distribution of scientific and technical knowledge among SMEs. In Netherlands, for example, innovation voucher – certificate for a maximum sum of EUR 7.5 ths., using which SMEs may purchase information of scientific and technical character, order design work at public scientific-research institutions, universities and private research organizations. Businesses obtain innovation voucher according to program framework and use it to pay for external consulting services or associate contractors, which, in their turn, produce innovation vouchers for payment to public authorities in charge for such subsidy. Subsidy program in the form of innovation vouchers is implemented since 2004 under the auspices of Ministry of Economy of Netherlands through subordinate state agency SenterNovem. Application of innovation vouchers in Netherlands allows to perform parallel stimulating of innovation in the area of SMEs and motivation of scientific-research institutions for cooperation with business.

Conclusions

Increasing the level of innovation activity of SMEs is possible through bringing legal basis of scientific-technology and innovation activity to accordance with tasks of the Innovation Development Strategy of Ukraine for 2010-2020 under conditions of globalization challenges. To this aim it is necessary to:

- develop, make legal and introduce mechanisms of stimulating investment in scientific research and development and in the area of education, similar to those applied in industrialized countries. For example, tax exemption of sums spent on scientific-research activity and design developments, including costs of equipment and manufacturing of exploratory prototypes and demonstration models or in support of educational institutions, accelerated depreciation of scientific devices and experimental equipment of scientific-research institutions and innovation businesses etc.;
- improve effective Law “On Innovation Activity” having provided for real mechanisms of stimulating innovation activity of manufacturing businesses and organizations, particularly aimed at implementing of public identified priority directions;
- resume activity of State Innovation Fund, having provided for its filling by certain deductions from gross income (appropriate amount for Ukraine is 1.5-2 %) of all taxpayers;
- perform coordination of laws regulating legal relations in this area, develop and introduce Code of laws on scientific-technology and innovation activity. It shall normalize principles and legal status of non-public sources of financing for scientific-technology and innovation activity. In particular:


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due to importance of credit as a second source of financing account should be taken of program approach to interest of banks and other credit and financial institutions in financing innovation. Legal assurance of establishing program of stimulating commercial banks for granting credits to business innovation projects;

- contribute to strengthening the role of private investors by providing public support of innovation business through establishing venture funds and introducing support of their activity, in particular, due to state share in fund capital;

- it is urgent to establish public-private insurance company providing insurance of venture projects form losses which characterize this risky activity.

Legislative system of Ukraine in the field of innovation development requires considerable strengthening of norms determining responsibility of authorities and all participants of innovation processes for complete and effective compliance with legislation.

Increasing the level of innovation activity of small businesses requires legislative mechanisms of public support for small and new businesses. Public support measures may be the following:

- Introduction of favourable taxes for product release by small businesses in case they sell high-technology products, venture financing for new small businesses for part of shares from private investors.

- Introduction of mechanism for providing innovation vouchers for contributing to cooperation between small businesses and scientific institutions by providing innovation vouchers for joint research, development and innovation or to increase business personnel qualification and providing consulting services to small businesses by scientific institutions which contributes to increase of technical experience level.

- Credits and direct investment to small firms whose products belongs to priority directions of innovation development.

- Introduction of tax incentives for research and development performed within businesses.
11. Research and production of science-intensive products: incentives and development prospects

1.1. State priorities and development of material science

According to the Law of Ukraine No 2519-VI of 09.09.2010 “On Amendment the Law of Ukraine “On the Priority Areas of Scientific and Technical Development” the area of “New substances and materials” was referred to the strategic priorities of scientific and technical development by the year 2020.

The need of priority area “New substances and materials” is determined by Ukraine’s unique (at least for Europe) scientific and technical potential of material science and rich natural resources required for practical implementation of its underestimated possibilities. Based on the results of strategic market research in the area of “New substances and materials” the experts created a list of 22 priority critical technologies from the total number of technologies and classified them in five groups relating to methods of obtaining composite, structural, nano, functional and other materials. The selection of technologies was carried out in 2009 by the Ukrainian Institute of Scientific Technical and Economic Information (UkrISTEI) in accordance with the State program of forecasting scientific and technological development in Ukraine for 2008-2012, approved by the Decree of the Cabinet of Ministers of Ukraine of 11.09.2007 No 1118. The purpose of this program is to create legal, economic and organizational conditions for forecasting scientific and technological development, to work out the technology of carrying out strategic market research and to make systematic clarification of priority areas of scientific and technical development in Ukraine. The list of critical technologies made by experts and approved by the Scientific and technical council and by the State program of forecasting scientific and technological development in Ukraine for 2008-2012 was submitted to the Cabinet of Ministers of Ukraine to be taken into account while preparing a state order for scientific and technical products and for innovation projects. However, the mentioned list was given to industry-specific ministries and to oblast and municipal state administrations for possible introduction of critical technologies, and this list was posted on the official web-page of UkrISTEI.

The selected critical technologies correspond to the strategic priorities for innovation development of the state for 2003-2013 in terms of development, manufacturing technologies and introduction of new materials as specified by the Law of Ukraine of 16.01.2003 No 433-IV “On Priority Areas of Innovation Activity in Ukraine”. Thus, the Verkhovna Rada of Ukraine defined the following strategic priorities of innovation activity in Ukraine for the years 2003-2013: nanotechnology, microelectronics, information technology, telecommunications, improving of chemical technologies, new materials, development of biotechnology. According to the “new materials” strategic priority areas there were defined the following nationwide mid-term priority areas of innovation activity in Ukraine for the years 2003-2013:

- modern structural materials, technologies of their production and use;
- equipment and materials for welding and performing of related processes, durable welded structures;
- equipment, materials and new technologies for anticorrosive protection;
- ceramic materials of wide use;
- superhard tool materials;
- semiconductor materials based on ultrapure silicon, germanium, gallium arsenide and complex compounds;
- scintillation materials, optical and structural mono-crystals.

In order to ensure dynamic and effective management of innovation development of Ukraine and of timely corrective measures for the on-going state scientific and technological and innovation policy, the Cabinet of Ministers of Ukraine consistently monitors the implementation of priority areas of innovation development in Ukraine.

Based on the example of material science sphere. The recommendations were prepared taking into account Ukrainian practice and on the basis of the plans and strategies of enhancing research and development and of innovation activity in Austria, Germany, Czech Republic, Hungary and other EU Member States.
In the first quarter of next year all ministries and agencies of Ukraine annually submit to the Cabinet of Ministers of Ukraine reports on their measures for implementing innovation strategic and mid-term priorities and on the results achieved.

The joint Resolution of the Ministry of Education and Science of Ukraine and the National Academy of Sciences of Ukraine (No 1066/609 of 26.11.2009) approved the Basic scientific directions and the key issues of fundamental research in the sphere of natural, technical and humanitarian sciences for 2009-2013. Among the physical and technical issues of material science are the following:

- metal structural materials;
- strength of materials, of welded assemblies and structures (their diagnosis, issues of their lifetime in terms of material science);
- ceramic, composite, mono-crystal and film materials of different functional purpose (high temperature, instrumental, electronic, optical, biomedical, etc.);
- surface engineering;
- nanostructured (nanodispersed, nanocrystalline) materials: the issues of material synthesis under extreme temperature and pressure;
- hydrogen material science;
- computer material science.

Within the identified innovation research areas of the National Academy of Sciences of Ukraine, the Resolutions of the Presidium of the National Academy of Sciences of Ukraine approved the following budget programs: Departmental program of fundamental research department, Target program of PTIMS department “Fundamental issues of making materials with predetermined properties, methods of their combination and processing”; Target comprehensive program “The issues of lifetime and safety of structures, buildings and machinery (“Lifetime”).

Also, there is absolutely no state support of industrial development of fundamental research results. Moreover, while supporting fundamental research there is still a problem of insufficient funds allocated for purchasing new expandable material and new machinery and equipment, which hampers research on the international level.

The target programs of the National Academy of Sciences of Ukraine, such as “Lifetime”, stipulate some costs for production of research prototypes of the product that is being developed. The state support of State target programs approved by the Cabinet of Ministers is detailed in section 3.2. of the Law of Ukraine "On State Target Programs" (No 1621-15 of 18.03.2004).

The National Academy of Sciences of Ukraine established a powerful research centre on material science that was internationally recognized. The efforts of researches from the Department of Physical and Technical Issues of Material Science (DPTIMS) of the National Academy of Sciences of Ukraine are aimed at the implementation of priority fundamental and applied researches in the field of modern material science, at the development and introduction of modern science-intensive technologies, at making new materials with predetermined properties, at drafting and implementation of the most important for Ukraine target comprehensive scientific and technical programs. Among the most important areas it is necessary to mention the following research areas: welding and brazing theory, metallurgy, liquid state of materials, development of theoretical grounds for making materials with predetermined properties, physical and chemical mechanics of materials, the theory of materials interaction with working environment and crystallization processes, the impact of high pressures and temperatures on the properties of materials, the theory of the making new mono-crystals. These studies constitute the scientific basis for the development of many new materials and manufacturing processes. Their usage made it possible to significantly improve existing and create new types and methods of material processing and new types of production, which greatly influenced the development of entire sectors of national economy. The experts in material science have extensive scientific and technical ties with leading centres and enterprises in Western Europe, USA, Japan, China and Korea. In recent years there have been carried out the works under 105 international projects STCU, INTAS, UN, CRDF.
The primary importance was attached to carrying out State programs of fundamental and target research as efficient means of ensuring innovation development of economy sectors and solving major problems of the state.

Setting up production of the mentioned materials in Ukraine with innovation technologies will raise the following important industries to the international level: welded metal construction, (bridges, pipelines, tanks, pressure vessels and many other metal constructions), chemical engineering, aviation and aerospace industry and solar energy.

1.2. The issues of enhancing research and development in the sphere of material science

The development of research in this sector is constrained by limited resources for carrying out fundamental research and by the lack of targeted funding of research and construction works and by the lack of support of transferring research results to manufacturing industry.

It is necessary to have costs for purchasing modern equipment, machinery and expandable materials and spare parts.

In general, the level of research in the sphere of material science of Ukraine is high enough and for most of them it corresponds to the international level. For example, abroad the resistance of construction steel to destruction is estimated and prevented by the value of impact strength of KCV, which is determined by testing standard samples. But the researches at Ye.O. Paton Electric Welding Institute of the National Academy of Science of Ukraine found that KCV rate for domestic and foreign high-viscosity microalloyed pipe steels does not reflect its resistance to emergence of a viscous crack, which is estimated by the characteristics fracture mechanics $\delta_i$ (critical crack tip opening). As the value of KCV increases, the value of $\delta_i$ almost does not change. Thus the researchers determined the dependence of $\delta_i$ from the chemical composition and parameters of metal structure. This provides great opportunities for manufacturing construction steel with the preplanned resistance to viscous destruction.

For the first time in Ukraine the researchers developed the technology and mastered the production of domestic titanium alloys with mechanical and operational properties superior than the world ones for using them in medicine, chemical engineering, automotive manufacturing, aircraft and military technology.

Ukrainian researches have created new cathode-ray industrial equipment for obtaining large ingots of round, rectangular and hollow section. For the first time in the world the researches managed to obtain titanium ingots weighing up to 20 tons.

Thus the existing scientific and technical potential of Ukraine in the field of material research indicates at the possibility of scientific provision for developing the modern production sector for new materials in Ukraine that is competitive in Europe and other countries (compositional, structural, nano-, functional materials, etc.), and determines significant potential export opportunities in this field.

2. Production of new materials and products in the sphere of material science of Ukraine

Below is a brief overview of production capacities available in Ukraine for the introduction and expansion of new materials production.

2.1. Construction steel

At present the possibility of producing modern construction steels and welded metal structures of strategic destination in the areas of bridge engineering, shipbuilding, metal construction and pipelines is very important in Ukraine.

*Integrated iron-and-steel works “Azovstal”* (Mariupol) is one of the largest world-renowned integrated iron-and-steel enterprises of Ukraine. The works is one of three leaders of country's metallurgic industry in terms of production of iron, steel and rolling products. High quality of “Azovstal” products is appreciated in more than 70 countries.

“Azovstal” is a part of steel and rolling Division of Metinvest Group, it is a sustainably operating high-tech enterprise with a complete cycle of metallurgical production. “Azovstal” employs the system of product quality management conforming to DSTU, ISO 9001:2000, ISO 9001:2001 standards and API Spec Q1 specifications, eighth edition, and confirmed by certificates of American Petroleum Institute (API) and of Classification society TUV NORD SERT (Germany). This system covers all areas of enterprise business,
beginning from establishing management structures and functional interaction of departments, distribution of responsibilities and professional personnel training and ending with shipment of ready-made high quality products.

The quality of works product is confirmed by 32 documents (approval certificates and diplomas) covering almost all products.

The products are certified by almost all leading Classification societies, including:

- for shipbuilding: Lloyd's Register (UK), Germanischer Lloyd, American Bureau of Shipping, Bureau Veritas (France), DNV (Norway) Maritime Register of Shipping (Russia), Nippon Kaiji Kyokai (Japan) and RINA (Italy);

- for ordinary boilers and boilers of corresponding purpose: Lloyd's Register (UK), TUV NORD (Germany);

- for constructions of deep-sea platforms: American Petroleum Institute API (USA);

- for structures that are used in construction: Germanischer Lloyd, TUV NORD (Germany);

Designed capacities of “Azovstal” allow to produce over 6.2 million tons of iron, over 6.4 million tons of steel, including 4.4 million tons of converter steel, over 4.4 million tons of rolling products, up to 285 thousand tons of rail fasteners and 170 tons of grinding balls per year.

The plate shop has a plate mill 3600 with designed capacity of 1950 thousand tons per year. The range of plate shop – plate rolling 6-2000mm thick and 1500-3200mm wide for shipbuilding, heavy machinery, power and special machinery, bridge engineering and manufacturing of large diameter pipes for oil and gas long-distance pipelines, including for arctic works and deep-water construction, etc.

“Azovstal” pays great attention to production development, improvement of existing technological processes and equipment and to the development and implementation of new ones, to mastering of new products and expanding of export capacity. The works successfully implements an investment program that covers all redistributions.

**OJSC “Ukrstalkonstruktsia”**. This is a managing holding company. Today it supervises and coordinates the operations of enterprises that make part of the holding. In addition, it acts as a general contractor.

The holding is made up of five leading steel works of various specialization.

Equipment fleet and engineering facilities of Holding enterprises permit to manufacture both standard metal constructions and unique higher level complexity constructions (with one element weighing up to 50 tons).

Among these five works are OJSC “Dnipropetrovsk I.V. Babushkin metal works” (DMW). Today it specializes on production of bridge metal structures and constructions for heavy machinery, including for metallurgical, chemical, defense and mining industries. Production capacities of the enterprise are 95 thousand tons of steel structures per year. The works is equipped with modern machinery and technological equipment.

The products of the enterprise being subject to mandatory certification is certified in UkrSEPRO system. The certification of personnel and commercial certification of products in accordance with AWS and ASME requirements, and also certification of implementation of quality management system ISO 9001:2000 is on the go. Additional control of quality of welded joints is carried out by using non-destructive control methods (X-ray machines, ultrasound stethoscope, vacuum chamber).

Ukraine is among the world leaders in terms of design and construction of welded bridges. On November 5, 2003 a unique structural solution – manufacturing technology (there was created a special low-carbon “steel for welded bridges”) and assembly of world's first all-welded bridge named after Ye.O. Paton across the Dnipro river celebrated its fiftieth anniversary. Its putting in operation marked the most important and the most difficult stage of evolvement of welded bridge engineering in the whole world. In 1991 Ye.O. Paton bridge was recognized by American Welded Society (AWS) as an outstanding welded structure, and
Ye.O. Paton Electric Welding Institute of the Academy of Sciences of Ukraine was granted a commemorative plate from AWS.

Construction of Ye.A Paton bridge in less than 2 years is an outstanding example of innovation activities of Ye.O. Paton Electric Welding Institute of the Academy of Science of Ukraine and of Ukropproektstalokonstruktia enterprise. The scientific grounds of design, production technologies and securing operating capacity of welded bridges were developed in a short period of time.

Two cable-stayed bridges that were built across the Dnipro River in Kiev during the following years involving Ye.O. Paton Electric Welding Institute – Moscow bridge (1976) and South bridge (1990) – were included in the book by Juhani Virola “Famous bridges of the world”. – Kyiv: NTU, 2001.-56 p.

2.2. Titanium

Proceeding from the fact that Ukraine possesses enough raw materials and sufficient manufacturing base required to become a leader in titanium industry, there was created the “Titanium of Ukraine” holding made up of state and private enterprises. This is a vertically integrated holding – from extracting raw materials (Vilnohirsk mining and metallurgical works and Irshansk ore-dressing works) to production of ready-made products (SJSC “Titan”, CJSC “Crimean Titanium”, “Sumykhimprom” and Zaporizhzhia Titanium and Magnesium works (ZTMW).

“Zaporizhzhia Titanium and Magnesium works” (ZTMW). At present SE “ZTMW” is the only enterprise in Europe producing spongy titanium. The company possesses a certified quality management system according to ISO 9001:2000 standards. According to the documents and to the evaluation criteria of operation processes, the level of ZTMW quality management system is even higher than that of similar known systems. This ensures the growth of production efficiency and sustainable quality of the product.

For the coming years the promising strategic areas of development of the works are:
- technical re-trofitting of spongy titanium production;
- initiation of production of titanium ingots and titanium products;
- a complex of measures on energy saving and environmental improvement.

Today SE “ZTMW” produces world-class products. At present most of its products (semi-finished product – spongy titanium – is the source material for producing titanium ingots with subsequent rolling them into sheets and profiles) are sold at foreign markets. For example, in 2009 the exports of titanium sponge was 90% of its production.

Since production of titanium sponge is very dangerous for environment (the technology requires the use of chlorine), it is reasonable to establish in Ukraine the whole cycle of producing titanium products. As a part of experimental mode SE “ZTMW” began to recast titanium sponge into ingots. The next stage is rolling. These very products are supposed to bring the main profit. This program requires appropriate investment.

In recent years SE “Scientific and Production Centre “Titan” of Ye.O. Paton Electric Welding Institute (Kyiv), private international companies “Antares” (Kyiv) and “Strategy BM” (Kyiv) arranged the smelting of titanium ingots from spongy titanium and titanium scrap based on the modern cathode-ray technology (CRT). The overall performance of these enterprises is about 7000 tons of ingots per year.

Cathode-ray technology (CRT) permits to obtain high quality products at relatively low cost price compared to vacuum-arc technology that was used previously. More stringent requirements to the quality of metal and the latest achievements in enhancing reliability of cathode-ray equipment and its automation led to increasingly wider use of CRT for metallurgical processing of titanium. At the turn of the twentieth and twenty-first centuries there were put into operation new cathode-ray furnaces (CRF) for melting titanium ingots in the U.S. (TIMET and Allegheny Technologies Inc. companies), in Ukraine (Scientific and Production Centre “Titan” of Ye.O. Paton Electric Welding Institute, international companies “Antares” and “Strategy BM”), in Russia (Southern Ural metallurgical works, NPO “Composite”) and in Japan (TOHO Titanium). The new CRF for melting spongy titanium and titanium scrap are currently being constructed in U.S. (TIMET), China (Baoji), Japan (TOHO Titanium), Ukraine (Scientific and Production Centre “Titan” of Ye.O. Paton Electric Welding Institute, international companies “Antares” and “Strategy BM”).
Soon in Ukraine the total annual production capacity of titanium CRT ingots can reach 50 thousand tons.

2.3. Pure silicon.

**OJSC “Semiconductor works”** (Zaporizhia). It was created in January 2002 on the basis of separated from SE “Zaporizhia Titanium and Magnesium Works” production of semiconductor silicon. Renaissance of the enterprises began in July 2007 and on December 5, 2008 for the first time after suspension of production in 1998, OJSC “Semiconductor works” obtained the mono-crystals of silicon of solar quality with diameter of 167 mm from foreign raw materials.

World-leading countries gradually increase their pure silicon production capacities. At present, there is a deficit of pure silicon, and due to this its market price has increased in several times. It is estimated that world negative balance of silicon production for solar energy, that was formed after 2003, will be growing over the next 10-15 years.

The enterprises that have been operating in Ukraine during USSR and producing poly-and mono-crystal silicon in sufficient volumes, now require replacement of fixed assets, implementation of new technologies designed for using domestic raw material basis.

Due to the absence of domestic pure silicon, the enterprises that use it for manufacturing elements of solar modules, namely open joint stock companies “Semiconductor works” (300 tons per year) in Zaporizhia, “Pure metals” (200 tons per year) in Svitlovodsk (Kirovograd oblast) and non-state enterprises in Kyiv (about 2800 tons per year) have to use foreign raw materials.

Lack of production of pure and ultrapure silicon in Ukraine hampers further development of enterprises that use silicon as raw material. The problem of meeting the demand in pure silicon of the mentioned enterprises has occurred due to the suspension of its production according to traditional technology which is based on the use of energy-intensive chemical and metallurgical processes.

The Resolution of the Cabinet of Ministers of Ukraine No 1173 of October 28, 2009 approved State target scientific and technical program “Establishment of chemical and metallurgical industry for production of pure silicon for 2009-2012”

The program is aimed at the creation of modern chemical and metallurgical industry of silicon production for the needs of domestic enterprises – manufacturers of high-technology products (solar energy modules), for ensuring the development of nanoelectronics and nanophotonics, for reducing dependence from imported raw materials and eventual creation of a strong export potential.

So that Ukraine could produce new types of solar energy products using modern technologies, there was established a vertically-integrated company on the basis of Zaporizhia “Semiconductors works” with the complete cycle of photovoltaic production (quartzite mining, production of polycrystalline silicon and solar modules, and implementing of solar energy projects). Centrotherm AG company (Germany) was invited for cooperation, it is one of the most famous manufacturers of equipment for the photovoltaic market and the author of technology for production of polycrystalline silicon and products based on it. This will raise the scientific, technical and technological level of production of photovoltaic products in Ukraine to international standards and will ensure its competitiveness.

The total planned output of trichlorosilane production amounts to 22,000 tons per year, of polycrystalline silicon – 5,000 tons per year, of monocrystalline silicon – 500 tons per year.

Restoring of production of pure and ultrapure silicon is supposed to be done by innovation investment way – introduction of modern technologies and equipment on the basis of best international and domestic developments of non-waste technologies with a higher level of environmental safety. The main factors of Program implementation are:

- the use of national scientific and technical potential for development and implementation of new production technologies that meet and exceed the current world level;
- state support of fundamental research on developing chemical and metallurgical technology, on obtaining pure silicon, on growing crystals and melting multicrystal ingots and on production of modern solar energy converters;
- creating favourable conditions to attract investments for industry development.

The implementation of this program will promote the recovery of domestic production of pure silicon and will raise it to a high technological level. It will also allow to take its rightful place among world producers, to meet the demand in raw materials of domestic enterprises that produce solar modules and electronic goods, and to create a powerful export potential.

The property rights on the technologies developed within the program framework will belong to the state. The state transfers technologies to users according to the agreements that specify the rights of the state as the owner of technologies and their users, and also the terms of payment and the remuneration for the transfer and use of these technologies under the Law of Ukraine “On state regulation of activities in the sphere of technology transfer”.

Currently the enterprise is able to manufacture silicon mono-crystals of solar quality (round calibrated or non-calibrated and pseudo-calibrated ingots) up to 3 tons per month.

In June – August 2008 in accordance with the national target scientific and technical program “Development of chemical and metallurgical production of pure silicon for 2009-2012” there have been concluded the agreements for supply of imported equipment for the production of polycrystalline silicon and trichlorosilane with one of the world's leading developers of production technology for polycrystalline silicon and trichlorosilane and with manufacturer of equipment for this production. Now the line with the capacity of 5000 tons is being prepared for putting into operation, and for the future there are plans to expand capacities to 10,000 tons per year.

**Conclusions.** The above analysis shows that Ukraine has great potential for the production of structural steel and metal constructions from it. The facilities for manufacturing rolling titanium products and pure silicon are still at the stage of evolvement and development. This industry requires legislative and financial support from the state, taking into account the fact that both state and private enterprises take part in the establishment of this production.

**3. Issues to be resolved**

3.1. Scientific and industrial potential of Ukraine in the field of new materials and export opportunities allows Ukraine to occupy a certain niche in international high technology production.

The experience of European countries and Russia in implementing the programs for development of certain industries and areas demonstrates how important it is to introduce the measures for supporting development of this industry.

This includes:

- implementing of programs of state-private partnership for development of export-oriented production of new materials,
- introduction of preferential tax incentives for enterprises,
- introduction of concessional credit programs for producers of new materials,
- applying the system of organizational measures, including at the level of state authorities (taking into account the experience of Japan, USA, European countries) in promoting industry products on world markets.

These measures could have related to specific projects that are to be implemented within 4-6 years.


This Law was adopted to overcome crisis phenomena in Ukrainian economy, to provide for a balanced innovation development of all sectors, to renew the funds and to create new jobs, to stimulate domestic demand for industrial products of domestic production and to increase export potential.

In final provisions of this Law there is paragraph 2 “In order to protect the domestic economy from the consequences of the global financial crisis,” temporarily until January 1, 2011, to specify that procurement of
goods and services for state costs has to be carried out only from domestic producers of such goods and services (legal entities and natural persons), except for goods that are not produced in Ukraine.

This paragraph has never been observed which led to drastic consequences for Ukraine. In this regard, the Electric Welding Institute approached (letter N K-31-K-32/924 of 08.05.2009) the Prime Minister of Ukraine, detailing the essence of the problem:

During 1950-1990 all the works on constructing bridges in Ukraine were carried out mainly by Ukrainian organizations and enterprises.

However, in recent years, it became common to attract foreign companies for designing and producing metal linear bridge spans, in particular Russian and Turkish ones. For example, for constructing a rail-road crossing across the Dnipro River in Kyiv, the construction was assigned to Turkish firm “Boen Ltd.” and to Russian CJSC “Kurhanstalmost” and CJSC “Ulan-Udestalmost.” Most of metal constructions for Podyl bridge across the Dnipro River in Kyiv was manufactured by “Voronyezh MCW” (Russia). The reconstruction of road junction on Moscow Square in Kyiv was carried out by OJSC “Transmost” (St. Petersburg, Russia), and metal structures were manufactured by “Kurhanstalmost” (Russia).

In our opinion, this practice is wrong, since the mentioned foreign enterprises instead of using the latest advanced materials and technologies that were created in Ukraine, resort to old-fashioned materials that were development under old standards (steel 10HSND) or the materials that are not envisaged by governmental regulations in force (steel 10HSND-A and 15HSND-A), and even resort to the technology of bolt joints instead of the modern welding technology, which significantly impaired the characteristics of the metal structures.

On the one hand, all the above-mentioned leads to the decay of domestic industry of bridge engineering both in terms of design and manufacturing of metal linear spans, on the other hand – to big economic losses, which is especially apparent at the period of crisis aggravation.

At the same time, Ukraine still has considerable technological and production potential in the field of bridge engineering. The organizations like Ye.O. Paton Electric Welding Institute, CJSC “Kyivsoyuzshliahproekt” State M.P. Shulhin road research institute, JS “Kyiyproekt”, Ukrainian V.M. Shymansovskiy research and design institute of steel structures, “Kyihiprotrans”, OJSC “Ukrstalstruktsia”, JSC “Leninska Kuznia”, etc. have highly skilled staff and technical capacities for design and production of welded bridge metal structures of any complexity on the modern international level.

Proceeding from the above the Cabinet of Ministers was asked to make a decision on protecting the domestic producer. In their verbal response to the letter the Cabinet of Ministers representatives said that this decision had already been made referring to the above mentioned law (paragraph 2). However, it is of no interest for the Cabinet of Ministers that this law does not work.

Recently CJSC “Kyivsoyuzshliahproekt” and Kyiv CJSC “Soyuztransproekt” have successfully completed the feasibility study of construction the bridges at big ring road around Kyiv. The design and manufacture of metal bridge linear spans for the big ring road around Kyiv by foreign companies will be the last straw in the collapse of Ukrainian bridge engineering industry.

Such short-sighted policy becomes systemic even in other industries and leads to emergence of real threats to national security of Ukraine. As a result, the economy gets irresponsible to innovation technologies, and the state turns into a supplier of cheap labour and will become a mere supplier of raw materials, instead of developing and increasing exports with high percentage of added value. Incidentally, the steel that is exported from Ukraine, is also the raw material for production of high-tech products (steel structures, equipment, etc.) Thus, the cost of one ton of metal structure is much higher than that of rolling metal. For these reasons, the search for efficient mechanisms and tools for improving the structure of Ukrainian exports is a primary objective for the state. It is necessary to introduce export duties on raw materials. It is unreasonable to export raw materials at low prices; and the country that is unable to process it is an example of disorder at the state level.

3.3. Concerning the Law of Ukraine “On State Target Programs” (No 1621-15 of 18.03.2004).
Ye.O. Paton Electric Welding Institute and other organizations and enterprises carry out State target scientific and technical program “Development of chemical and metallurgical production of pure silicon for 2009-2012” which is approved by the Cabinet of Ministers (Resolution No 1173 of October 28, 2009). It is envisaged that Program funding is carried out by attracting investments, by using state budget funds and enterprises’ own funds. The total funding required to complete the Program amounts to UAH 2.750 Mio, of which no more than 7% is from budget funds. The second paragraph of the Regulation on approval provides that for the relevant year the costs for implementing the Program are determined based on budget headroom. As a result, the budget financing of this Program for 2010 was about 0.2%. This is done just to prevent the accusations that the state does not execute the Resolution. But the execution like this gives no positive results. While reviewing state programs the mentioned program was completely cancelled (Decree No 1173 of 28.10.2009 lost effect according to the Decree of the Cabinet of Ministers of Ukraine No 704 of 06.22.2011).

In general, the state declarative policy in the sphere of innovation development, which presupposes inappropriate amounts of funding for research and education, leads to an outflow of highly skilled scientific personnel, to reduction of the level of research development, and consequently, to a rapid deterioration of scientific and technical support of production, to further underrun of industrial enterprises in terms of technical and technological renewal of production, to reduction of the share of implementation and production of new science-intensive competitive products. Unfortunately, at present foreign investors are actively funding mainly the intermediary sector – trade, financial services and real estate where the average rate of return is over 200%. These industries concentrate about 36.5% of all foreign direct investment. Thus, the attracted foreign capital is not aimed at structural changes of Ukrainian economy.


Ukrainian patent system is yet to be completed. Unfortunately, at present the activity of the State Patent Agency is aimed at withdrawal of costs only from applicants in the process of applications review, at the registration and issuance of patents and maintaining them in force, but not at the expense of arranging the most efficient and large scale use of science and technology. Neither authors nor state has developed the mechanism and legal framework for receiving remuneration for the use of patented inventions and utility models. The majority of directors and particularly owners of enterprises are not willing to register license agreements for the use of innovation technologies because they are not confident in the future.

Aiming to obtain a significant profit (income) in the short run, the owners are more interested to use cheap labour, even operating energy-intensive equipment, rather than to implement expensive innovations in the manufacturing process. Under the present economic environment in Ukraine the statistics shows the poor state of labour remuneration in the industry, which is due to the model of social and economic development that focuses on cheap technology, equipment, raw materials and labour.

A combination of these three factors – high risk of development and implementation of innovation ideas, favourable environment for using cheap labour, old machinery and production technologies result in rejection of 80-90% of all innovation ideas proposed by scientists at domestic enterprises. While in Poland, for example, the overall percentage of innovation ideas accepted for production is 30%, in Sweden – 45%, in USA – 52%, in Japan – 63%.

On the other hand, low one-time payments upon patent receipt and virtually non-defined royalties for the use of patents in production do not encourage scientists to accelerate innovation activity.
12.1. Issues of legislative regulation for creation of territorial innovation structures (innovation clusters)

1.1. Experience of legislative regulation of innovation clusters in EU and EU Member States

Absence of regulation of the creation of legal forms, mechanisms of state support of innovation clusters at legislative level in Ukraine primarily leads to actual consideration of relevant experience of the EU and other countries.

In 2008 two important working documents were developed at the EU level: the first – Communication from the Commission of the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions “Towards world-class clusters in the European Union: Implementing the broad-based innovation strategy”\(^ {96}\) and the second in addition to the first – “The concept of clusters and cluster policies and their role for competitiveness and innovation: Main statistical results and lessons learned.”\(^ {97}\). These documents were developed for the purpose of studying world experience of creating about 2000 innovation clusters, particularly in USA and use this experience for implementation the most effective of them in European space. Statistical inference and generalization presented in these documents were obtained on results of European Cluster Observatory, works of European Cluster Alliance, INNOVA initiative of EC, INNO-policy Trend Chart, research of clusters role Innobarometer 2006, Survey of cluster initiative (the Green book) and several other publications EC, OECD.

Basic principles and categories of a cluster model

While some of the definitions of innovation clusters of conceptual nature have descriptive, abstract nature in order to cover the most expanded spectrum of elements that characterize clusters, legal definition should be more technical in order to ensure a basis for application of public relief and other form of financial backing, as indicated in these documents. Such term was proposed by “Community Framework for State Aid for Research and Development and Innovation”\(^ {95}\), which defined the innovation cluster as such: innovation cluster are generally identified as a groupings of independent enterprises: innovation start-ups, small, medium and large enterprises as well as research organizations operating in a particular sector and region, and designed to stimulate innovation activity by promoting intensive interactions, sharing objects and exchange of knowledge and experience as well as promoting effective transfer of technology, networking and dissemination of information among enterprises in cluster. In a more general formulation clusters can be defined as groups of companies’ concerned economic subjects and institutions disposed next to each other and reached dimensions for elaboration of expertise, facilities, resources and abilities.

Creating of a cluster and networking can happen if there is a clear mandate and state financing from authority on a regional level or spontaneously started at the universities, incubator and finances triangle for the purpose of overcoming of obstacles for cooperation and confidence statement between partners. Placement of the cluster can be connected with the geography of production, peculiarity of climate, soil, natural resources, minerals, haul way, ports or can be related to historical coincidence (several successful enterprisers and talented scientists got together and decided to organize a cluster).

Following features are signs of cluster:

1. Firstly, clusters are considered as a specific geographical concentration of specialized enterprises, institutions and organizations, progressive knowledge, abilities, human resources consequently of their proximity to each other. Due to joint placement, companies can get the advantage from the effect of agglomeration about advanced manufacturing. Spatial bounds are variable and are not necessary correspond to political bounds. By virtue of new forms of transport and link, same as Internet, spatial dimensions of a cluster are changing. Geography of a cluster is defined within the

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distance and time limits, that staff and owners of the companies consider as appropriate for meetings and networking.

2. Secondly, the clusters have functional intend to provide specialized and individual services for specific group of companies such as conferring modern specialized infrastructure, specific business support. The cluster organizations provide access to objects and services that include specialized research and test centres, consultations, training etc.

3. Thirdly, clusters are defined organizational-institutional aggregate of different correlated subject innovation activity, such as universities, business entities and state authorities, and contribute intensive cooperation and collaboration between them.

4. Fourthly, this correlation occurs in triangle of knowledge (education), research and development (science) and innovations for realization of competitive advantages on the market of new technologies, products and services.

5. The fifth feature is extended in intensification of formal and informal contacts, exchanging of business data, know-how and technical knowledge, that can be realized in new unexpected ideas, new creative projects, products, services, business concepts, that ameliorate the efficiency of innovations.

The effect from innovation activity in the cluster is achieved through cooperation of academic researches (universities), dynamic of enterprise and availability of a venture capital (private sector), as well as making favourable conditions (state administration). Relations of state administration, manpower development, researches and developments, production of knowledge and transfer of technologies, joint marketing and branding are taking place in the cluster.

State participation is reflected in source of financing of cluster initiative: as usual they are sponsored by government (54%), industry (18%) or equally (25%). Common trait of most clusters is a tendency of reduction of state financing backing with the course of time, which is originally essential for debugging clusters infrastructure and networking. Frequently, creations of clusters are initiated by government and industrial companies. Only small number of cluster initiatives was originated by universities.

More often, clusters are creating in a form of public-private partnerships and managing by specialized cluster organization. Cluster organizations can be defined as the legal entities, carrying out engineering, steering, and manager functions concerning clusters, usually including the right of participation and access to the clusters’ premises, favourable conditions and activities.

The main tasks of cluster organization are: market foundation and technical intelligence on purpose of future implementation of developments; adjusting of collaboration, search of partners, identification of contract tasks; development of transnational relations with other clusters; exchange of information between its members and partners through conducting seminars, conferences, creation of websites; improving dialogue between industry, scientific community and state authorities; organization and personnel management; relations with specialized educational institutions; consultations and assistance in projects financing, execution of intellectual property rights. Other kinds of activity of cluster organization can include support methods of commercial collaboration between its members, improvement of joined purchasing, logistics, production export incentives and selling, elaboration of branding in a region and products within the scope of marketing cluster. In conclusion, cluster organizations are responsible for ensuring open admission of cluster members to infrastructure facilities (laboratories, testing centres, educational centres etc.).

Efficient management gives effectiveness to the cluster. Cluster manager should understand specifics of a particular cluster, organization and structure of connections, budget, clear strategy and measurable goals. Professionalism of cluster managers (chiefs) has essential value for clusters success. They also should assume the role of brokers, notably mediator in improving connections between companies, companies and universities governmental agencies and members of cluster initiatives on continuing basis.

Cluster policy
It is necessary to distinguish the clusters, cluster policies and cluster initiatives. Cluster policy can be defined as specific governmental efforts aimed to support clusters. Cluster policies are focused on a particular strategy, determining policy priorities, allocating funding to support innovations, regional development, policy for SMEs, to research on scientific and innovation policy. Cluster Initiative is organized efforts to
increase growth and competitiveness of clusters within a region, involving cluster firms, government and/or the research community in regional and sectoral systems.

Nowadays more than 130 particular national measures in support of clusters were identified in 31 European countries and registered by INNO-Policy Trend Chart in cooperation with ERAWATCH. Almost all EU Member States are applying particular cluster means or cluster programs developed at national and/or regional level, providing that they are one of the key elements of national and regional strategies in support of innovation activity. According to the European Innovation Scoreboard there is a strong connection between the number of national innovation system and innovation efficiency. Cluster policy can be successfully implemented if there is a general favourable “horizontal approach” within the national innovation system. The main risk of the cluster approach is connected with the discrepancy of comparative advantages of the region and competitive conditions in other areas.

Cluster policies can be divided into three categories:

1. First, most horizontal “facilitating policy” is directed towards creating a favourable macroeconomic business environment for growth and innovation, which will indirectly stimulate the emergence and dynamics of clusters;
2. The second includes the “traditional framework policy” with regard to industry, SMEs, scientific research, innovation, regions often use the cluster approach to increase the efficiency of a specific instrument;
3. The third “development policy” introduced for the purpose of creating, mobilizing and strengthening of certain categories of the cluster as a result of initiatives specific sector groups. Strictly speaking, this policy is a “cluster policy”.

Main foreign cluster models

American model. The first cluster concept was implemented in the U.S. Two huge innovation clusters formed near such universities as Massachusetts Institute of Technology and Stanford University. Stanford became a founder of Silicon Valley, gave a part of the territory which belonged of to the university on lease for research centres. First start-up of the Valley – the company Hewlett-Packard, which was created by Stanford graduates at the expense of venture investor – professor of the same university. Today the funds which are invested by companies created in Silicon Valley, form one third of national investments in the U.S. economy and the companies themselves actually own 10% of all patents registered in the U.S. More than 50 years of American experience in creating innovation clusters as a system of technology are the most thorough and widely used as a basic model.

Distinguishing features of American clusters:
- the existence of three main types: science parks, research parks, in which innovations are developed to the stage of technological prototype, and business-incubators;
- the existence of regional agglomeration “Silicon Valley”, which is unique in its planetary value for the development of new technologies;
- close relationship with universities and government research centres, and frequently universities create cluster as its internal organization department (20%), as an independent economic unit (10%), on the basis of contracts with performers of innovation projects (28%), as a partnership (38%);
- based less on state financing, and greater – on the corporate, private and stocks investment.

European model. Although the first European park was created in 1971 in Scotland at Edinburgh University and Cambridge University campus, unusual rapid development they reached in 80s of the last century, and have considerably less experience. Cambridge cluster is one of the leading high-tech clusters in the world; it involved almost 1500 high technology enterprises and created 40000 working places.

Characteristic features of European clusters:
- terminological features: in France clusters are named as competitive policies, in FRG - innovation and technological centres, in UK and Netherlands - scientific parks, in Belgium - research parks, it reflects specific features and regional formation in particular countries;
- the presence of several founders, that complicates the mechanism of control of industrial park, but facilitates access to finance;
- government support at all stages of industrial parks, including centralized financing and tax incentives. An exception to this West European practice is support of innovation activity in the UK, funded mostly from private sources.
Deserve consideration examples of particular policy measures to improve infrastructure of a cluster that were developed under the auspices of the European Cluster Alliance, that was established on the basis of four INNO-Net projects: P1 Baltic Sea Region Innovation Network (BSR InnoNet), in the lead of North Innovation Centre, Norway; P2 Central and Eastern Europe and cluster network (CEE-ClusterNetwork), in the lead of TMG m.b.H., Austria; P3 cluster policy networks and exchange on topics of internationalization and incubation (CLUNET), in the lead of the Northwest Development Agency (NWDA), UK; P4 network of national/regional financing and innovation organizations with the participation of SMEs in technology-based innovation clusters in Europe (INNET), in the lead of OSEO, France. About 55 regional and national participants from 22 Member States, candidates and associated members are working together within this initiative for exchange of competence and experience.

The research shows that innovation cluster has three development stages:

**Stage 1 – start of business incubator** at the initial stage of the first year of operation;

**Stage 2 – development of Science Park**, territorial expansion and acquisition of skills;

**Stage 3 – maturing into the business park**, this provides direct support in the growth of enterprises and closely connected with the research base and extensive infrastructure of technology transfer.

If the activity of the business incubator becomes successful, expands, a need for new premises and technical support appears business incubator is transformed into the Science Park, and then into the Business Park that bring developments to the stage of their introduction into the market. Business Park requires business technology centres, which may include empirical works, demonstrations, special equipment, pilot plants etc. These third-generation science parks include business incubators, small and medium innovation enterprises, research centres, high growth of start-up companies by academic spin-outs, domestic investors, the knowledge bases and effective management system.

The largest centres of innovation clusters are Great Britain, Germany and France.

**In Great Britain**, South West Regional Development Agency (SWRDA) in 2009 prepared guidance the development of collaborative environments. This document is used as best practice guidance on the creation of incubators and Science Parks UK Business Incubation UK Science Park Association. The guidance emphasizes the importance of creating incubators, establishment of incubators management and networking related to the incubator. In practice, most incubators are called “innovation centres” because many businessmen do not like the name of the business incubator, which shows that they are beginners and need support. Currently in UK 300 incubators are functioning that support a wide range of clusters, including increasing the number of “virtual” incubators, which provide a similar package of support and business development.

As an example, the great North-western biomedicine cluster, that includes 356 companies. It includes two incubators: Manchester Bioscience Incubator on the campus of University of Manchester and MerseyBio in Liverpool in Liverpool campus. Both are managed by University of Manchester Incubator Company. The cluster consists of three Science Parks: Manchester Science Park, Liverpool Science Park, and the Daesbury Science and Innovation Campus, located between Manchester and Liverpool. There are several Business Technology Centres: National Biomanufacturing Centre, Northwest Institute for BioHealth Infomatics, Nowgen – Genetic Knowledge Park and the Wolfson Molecular Imaging Centre. In addition the cluster consists of clinical trial facilities, clinics and large pharmaceutical companies, including AstraZeneca, R&D institution which is located at Alderley Edge near Manchester International Airport. Biomedical cluster in England is a perfect cluster model with all components.

**In Germany** in Brandenburg 23 incubators and technological centres are functioning. Some of them are specialized in new sectors. There is a clear connection between the development of the cluster and infrastructure of technology transfer. In Bavaria programs of cluster development are focused on 19 sectors and areas of technology. Some of them have wide circle of use. There are 23 incubators that have 450 high-tech holders, with numbers employed 2700 persons. Large value has the examples of incubators with business support and venture capital. From 2001 in Eastern Germany the Program of support of regional innovation centres of growth which is functioning inside the agency of managing programs (so called

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96 Improving the cluster infrastructure through policy actions PRODUCED BY THE CLUNET - EUROPEAN CLUSTER ALLIANCE CONSORTIUM OF PARTNERS, 2010. – 60 p./ www.proinno-europe.eu/eca

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“Projektträger” in German language), and the Ministry of Education and scientific researches BMBF, that has the right on examination of an application and decision making on financing (grants, credits). The main principles of enterprising approach to the regional development provided by the program are:

1. Orientation on strong sides (potential) of the region;
2. Partnership on a regional level between industrial, scientific, academic and administrative community, based on the strategy of flexibility, creative approach and initiative;
3. Market innovations are based on long-term marketing strategy and planning.
4. Development of regions with clear profile – regional cluster, based on a qualitative technological platform, high standards of financing and assessment.

In France clusters (competitive polices), which number in May, 2010 was 71, directed on mobilization of networks of economic and academic actors in particular geographical area on strategy of development and innovation projects with extra cost. Originality of approach is in effective business cooperation, research centres and educational organizations which are expressed in following activities:

- partnership of business-centres in special training, transfer of skills, management;
- partnership of companies, institutes (incubators, technology transfer centres, research contracts, R&D projects etc.);
- partnership of educational centres and research organizations in scientific researches.

Dynamic and development of innovation clusters are defined by ideas, talents and skills (creative component) and financial resources such as private finance (business-angels, venture capitalists) and address assessment to the government.

Fixation of police on a particular territory carries out within the existing structures (industrial companies, campus, general infrastructure) and must be directed on:

- development of structure projects on strengthening cooperation between its members and other subjects, platforms for innovations and services, campus laboratories, etc.;
- use of the land policy and development of cities that provides agreed development of industrial, scientific potential and governmental institutions of higher education.

One of the most important cluster assets is existence of providers and laboratories of usage near polices where clients can check the objects of innovations before floating on the early stage of decision making. The state assists in creation of general favourable conditions for business and innovations, and supporting scientific researches and developments in the cluster. Financial support is given:

- by giving competitive financial support to the best R&D and propositions concerning creation innovation platforms through State Interagency Fund (FUI) and by the program “future investments”;
- finance of a part of structure of management of clusters with local authorities and companies;
- financial support within the scope of decentralized government services SGAR or regional managing of companies competition and consume, work and employment DIRECCTE of collective decisions on subject programs;
- with the collaboration of different partners: Agency on National Researches (ANR), OSEO financing, companies Caisse des Dépôts and its affiliates;
- by funding of local society.

Total amount build for the financing of the second period of realization of a Program on policy of competivitiveness of the cluster for the period of 2009-2011 is established on the level of EUR 1.5 bln. during the period of 3 years. Future investment program is assuming the financing of EUR 35 bln. in four priority sectors: higher education and manpower development for researches (EUR 19 bln.), industry and SMEs (EUR 6.5 bln.), sustainable growth (EUR 5 bln), digital technologies (EUR 4.5 bln.).

For the French clusters tax incentives are provided for companies that participate in R&D inside of the cluster, which is financed by the government. The Law “On finance” № 2004-1484 of 30.12.2004 defined a number of tax incentives concerning business tax, exemption of profit tax and income tax, reduction social benefits (most are suspended from 2009); exemption from land tax and tax on build-in property (guideline of tax office № 6-C 3-06 of 11.05.2006). R&D policy; 2) company is participating in joint R&D.

1.2. Issues to be resolved

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1. It is reasonable to elaborate and implement in legislation efficient elements of cluster model, which concept is developed at the EU level, notably:
   - cluster policy;
   - legal forms of cluster organizations;
   - financing of cluster creation;
   - cluster projects;
   - ecosystem and connections (networks) within the clusters.

2. It is reasonable to regulate in the Law of Ukraine “On Innovation Activity” the category of innovation cluster and define it as parity form of agglomeration of research and (or) educational institution of small, medium innovation enterprises and (or) large industrial enterprises, by territorial or functional principle, which are organizing unsolicited or by initiative of bodies of state power or local self-government for ensuring technological corridors for advancement of results of scientific researches and developments to the market and ensuring innovation infrastructure.

Definition of mechanisms of promotion of innovation clusters is significant on the central and regional level.

3. In basic Law of Ukraine “On Innovation Activity” is defined, that innovation infrastructure – is a complex of enterprises, organizations, institutions, their integrations, associations of any form of property, that give services in ensuring innovation activity (financial, consulting, marketing, informational communication, legal, educational etc.). Such definition cannot be considered as satisfactory, because it does not reflect features of innovation infrastructure and its place in structure of innovation relations (innovation system). Forms of innovation infrastructure and particular mechanisms of ensuring and activation of innovation activity with its assistance are still not detected in innovation activity law. Such position is inadmissible.

In addition, innovation centre, industrial park, technology town, innovation business-incubator are related to innovation enterprises (association of enterprises), that elaborate, produce and realize innovation products and (or) production or services which volume in monetary measurement exceed 70 per cent of its total volume of output and (or) services. Thereby, legislator referred typical agents of innovation infrastructure to subjects of innovation activity to commercial enterprise that introduce innovations directly (since non-commercial subject, notably, research institution, generally cannot satisfy these requirements). It is unlawful by two main reasons. Firstly, the innovation structures, according to decree of Cabinet of Ministers of Ukraine “On approval of provision for order of creation and function of industrial parks and innovation structures of other types” generally may not be a legal entity (innovation enterprise, association of enterprises). Ditto provides by Ukrainian Law “On Special Regime of Industrial Parks”, so most of industrial parks function on the basis of treaty of collaboration without creating legal entity. Secondly, as it is shown by international, particularly European experience, the creation of mentioned structures, generally, has other tasks. And not to mention that innovation enterprise concept itself does not satisfy the international standards and on practice is not effective in Ukraine.

Thereby the law of innovation activity should be essentially upgraded concerning determination of role and place of innovation infrastructure in performing innovation activity. Determination of general sources of creation and function of innovation infrastructure, notably by territorial principle, can detail some of its mechanisms in special laws, about technical and science parks. Clarification is required if technological and scientific parks are innovation infrastructure and establishment in connection with this innovation cluster term, which will mean agglomeration of subjects and infrastructural elements on innovation activity.
12.2. Means of stimulation of innovation activity on a regional level (by example of Donetsk region)

1. Direct financing of regional innovation programs at the expense of means of regional budgets

According to article 10 of the Law of Ukraine “On innovation activity” regional councils confirm regional innovation programs and evaluate funds of regional budget for finance support of these programs and also delegate authorities to regional state administrations financing regional innovation programs through innovation finance and credit institutions (its regional offices) within the scope of allocated funds.

However, according to the Budget code of Ukraine, the source of financing of regional innovation programs is a budget of development of regional budgets that is limited nowadays and in the first place referred to construction, major repairs and reconstruction of facilities of sociocultural sphere municipal property and housing and communal services.

Lack of consolidated source in regional budget for financing of innovation activity does not ensure compulsory fund allocation for specified objects. Therefore, proposed to make amendments to Budget code of Ukraine and provide in the budget of development of regional budgets fixed source on a regional innovation programs for example part of profit tax (except the profit tax of enterprises and financial institutions of municipal property).

It should be noted that profit tax of enterprises (except the profit tax of enterprises and financial institutions of municipal property), according to ancillary rates of that tax, in assessments, fixed by taxation law before adoption of Tax code (from 08.07.2010 till 02.12.2010) was introduced into the budget of development of single-area budgets and budgets of local self-governments (villages, settlements, cities of regional importance).

Consequently, such distribution of earnings from profit tax of enterprises (except the profit tax of enterprises and financial institutions of municipal property) was presumed: 30 per cents – to the budgets of development of budgets of villages, settlements, cities of regional importance; 70 per cent – to the budgets of development of single-area budgets.

Amount of part of a profit tax (except the profit tax of enterprises and financial institutions of municipal property), that should accumulate in regional budgets and oriented on fulfilment of regional innovation programs determined by Law of Ukraine on State budget of Ukraine for the relevant year individually by each region.

2. Attraction of enterprises funds to financing innovation programs

Each area has its branch and territorial specifics that was formed during a long period of time. Particularly Donetsk region is an old industrial region, where basic branches of industry – coal, metallurgy industry, electric-power industry are dominated. Competitive recovery of economy of the region is possible on terms of structural change and diversification of industrial production on the basis of innovation model of development. The whole industrial complex is in private property that is why structural changes should be made due to the positive environment.

Donetsk region has a positive experience in involving substantial volume of investment resources (above USD 4.0 bln.) upgrade of industrial complex (generally transfer of foreign technologies) with the usage of a special treatment of investment activity that functioned on the territories of priority development within the scope of the Law of Ukraine “On special economic areas and special regime of investment activity in Donetsk region”.


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100 Recommendations prepared taking into consideration the foreign experience concerning regional innovation development, included into Project reports PR3, PR4.
However, Ukraine has not created yet the conditions for stimulating innovations. By the Law of Ukraine “On innovation activity” was provided certain tax and customs preferences concerning innovation activity, that in the course of the year 2003-2004 were suspended by laws of Ukraine on State budget of Ukraine on relevant year and in 2005 were cancelled at all.

Functioning of special treatment of investment activity in Donetsk region confirmed the efficiency of use of favourable treatment for involvement of private investments as well as foreign investments. This gives reason to suggest similar mechanism of stimulation of innovation activity. Particularly, in the Law “On innovation activity” proposed:

1) in article 21 “specifics of taxation of innovation activity” to provide the exemption of payment of profit taxes of enterprise, that implement priority innovation projects with estimated costs of more than 1.0 million dollars US, during the first three years of implementation and payment of this tax in the amount of 50% to current rate during the next three years.

2) In article 22 “specifics of customs regulation of innovation activity” to provide the exemption of payment of value-added tax and custom duties in the course of import into the custom territory of Ukraine of equipment, outfit including scientific and laboratory equipment, and exemption from custom duties in the course of import into the custom territory of Ukraine of components, that are not produced in Ukraine for implementation of priority innovation projects. Customs facilities are applied within five years from the beginning of implementation of priority innovation project.

Alongside with, the priority innovation projects should be considered innovation projects, that meet the requirements of Articles 14 and 15 of the Law of Ukraine “On innovation activity” and implemented within the medium-term priority area of innovation activity of a region, that are approved by the relevant regional council. Status of priority innovation project is given by specially created Council on science and innovations at regional state administration by approval with the specially authorized central executive body in the field of innovation activity. Cabinet of Ministers of Ukraine is controlling Councils activity.

3. Inclusion of “ensuring the scientific and technical and innovation progress” as a priority area of Agreement on regional development of corresponding region between the Cabinet of Ministers of Ukraine and regional council.

If the priority areas of development strategy of a region meet the priority areas of the State strategy of regional development and joint actions of Cabinet of Ministers of Ukraine and corresponding regional council provide implementation of measures within the scope of priority areas of development of science and technology, approved by the applicable law of Ukraine and/or medium-term priority areas of innovation activity of a region, approved by the corresponding regional council, “ensuring the scientific and technical and innovation progress” as a priority area is including into Agreement on regional development of corresponding region between the Cabinet of Ministers of Ukraine and regional council.

It is efficient that formed joined actions of the Cabinet of Ministers and corresponding regional council provided funding of relevant innovation activity at the expense of state and regional budgets.
13. The issue of legislative regulation of public-private partnerships in the research and development and innovation fields

1.1. Acts governing the scope of legal relations

1. Economic Code of Ukraine.


8. Decree of the President of Ukraine “On the Strategy of Economic and Social Development of Ukraine “Through European Integration” for the years 2004-2015”.

1.2. Legislation analysis

1.2.1. General analysis of the legislation in the field of research, development and innovation activity

The active formation of the legal basis of the innovation activity started in 1999 with the adoption of the Scientific Technical and Innovation Development Concept. Then there were adopted the range of laws and regulations, including the special basic Law of Ukraine “On Innovation Activity” of 04.07.2002, which should have formed the basis of activisation of the appropriate relations, but the expected has not occurred.

The research intensity of Ukraine’s GDP during the years 2000–2009 decreased from 1.16 to 0.95%. The level of GDP growth by introducing new technologies in Ukraine is estimated at only 0.7 – 1%. The State Budget of Ukraine for 2011 provides UAH 9.2 bln. for innovation programs funding, representing 0.7% of GDP. According to the European innovation scoreboard, which evaluates the effectiveness of the innovation policy, Ukraine is in the last fourth group – “the countries, moving after” with the innovation index value of 0.23. Thus, the gap between EU and Ukraine in terms of innovation is more than 5 times.

We outline the general efficiency state of the legislation in the area specified:

- In Ukraine, there has been no adopted on the state level strategy of innovation development of the world, namely, European style. Thus, the state legal regulation of the appropriate field is based neither on a strategy based on international experience nor on the appropriate economic basis (structural innovation relations undeveloped in Ukraine), in other words, is based in a scholastic way.

- In the absence of innovation development strategy, focused on the advanced processes of transformations in the sphere of innovations, market innovations category relies on the old paradigm of science and technology policy that relies on the state funding of large-scale programs and projects involving traditional capital. This model of the traditionally-oriented economy in innovation field is based on three pillars: state target programs focused on technical advances involving a small number of participants under the centralized administrative control, budgetary funding and targeted subsidizing R & D and innovations and state purchasing system.

- The existing system, being the basis for the legislation in science, technology and innovation sphere in which the state actively participates in the appropriate relations (in determining the priorities of innovation and scientific and technical activities, funding the sphere specified, examination of innovation projects, determining the mode of innovation activity etc.), in practice shows the lack of the financial and any other assistance from the government for the development of these relations.
• Under the current circumstances, the state loses control levers as the main financier and the customer in science, technology and innovation sphere. In Ukraine, the priorities of innovation and scientific and technological development are not actually implemented. For their implementation it is assigned unacceptably small part of the state budget funds. So far, there is no single approach to the determination of the key priorities for innovation development. Funding amounts set forth in the Law of Ukraine “On Scientific and Scientific and Technical Activity” at a level not below 1.7% of GDP, and the financing costs for the state programs under the Law of Ukraine “On Priority Areas of Science and Technology Development” not below 30% are not implemented systematically. The State Finance Credit Institution does not perform its functions. The mechanism of full or partial interest-free crediting of innovation field and cheapening mechanism of bank loans for innovation at the expense of full or partial compensation of interest do not work, the mechanism of state guarantees on bank loans for innovation projects envisaged by the Law of Ukraine “On Innovation Activity” and “On Special Regime of Investment and Innovation Activity of Technological Parks” is not implemented because of mismatches with the budget legislation.

• Along with the poorness of direct state funding for science and innovation, the support and mechanisms to encourage innovation sphere through indirect forms of state funding are also absent. All provisions of the Law of Ukraine “On Innovation Activity” concerning preferential tax treatment and peculiarities of customs regulation of the innovation activity were suspended first, and then were finally gelded in 2005 due to the changes in tax policy. In connection with the adoption of the Tax Code of Ukraine in 2011 the special regime of innovation activity of technology parks was abolished.

• The current situation demonstrates the instability of innovation activity implementation conditions that cannot contribute to its activation. And this also demonstrates the drawback of state and legal regulation. The main laws in science and innovation sphere are actually declarative documents, because they are not implemented in practice: The Law of Ukraine “On Scientific and Scientific Technical Activity” – except for provisions relating to pension provision of scientists, the Law of Ukraine “On Innovation Activity” – immensely. The legal norms often have no direct action, but shall be implemented through numerous orders, procedures, approved by the subordinate legislation. So far, the legislation does not consolidate the state guarantees regarding the stability of innovation legislation.

• Moreover, the legislation on innovation activity does not have common conceptual approaches to the determining key categories. Thus, the regulations of the Chapter 34 “Legal regulation of innovation activity” of the Economic Code of Ukraine and the provisions of the Law of Ukraine “On Innovation Activity” are inconsistent on its determination. In general, the existing regulatory and legal framework of research and innovation activities is built upon a common concept, including the Concept of scientific technological and innovation development, adopted in 1999, and also remained at the level of declaration.

• In addition to the above mentioned problems in the state legal regulation of innovation sphere in Ukraine the private innovation relations are not formed. This issue is very important because it disrupts entrepreneurial initiatives in the innovation activity, i.e. in the innovation field the processes from “below” do not occur. Meanwhile in the western theory of innovations the latter are identified with the entrepreneurship. In this perspective, the Ukrainian legislation does not meet the international standards, in particular the Oslo Manual. This applies primarily to the orientation of the Oslo Manual to the private entrepreneurial sphere and a more democratic approach to the identifying key categories. According to the legislation of Ukraine to the definition of innovation it is applied the following assessment characteristics as “competitive”, “which considerably improve the structure and quality of production and (or) social sphere”, herewith the innovations for the compliance with these characteristics are assessed by the state conducting the registration of an innovation project within the framework of which the innovation activity shall be necessarily conducted. Meanwhile, the effectiveness of innovations shall be assessed according to the market principles. The innovation activity implementation within the project that is registered shall apply to innovations that occur under specific, designated by the state conditions (for example, on the priorities of the innovation
activity within the special support regime). The definitions of an innovation company, innovation types, the approach to defining innovation, etc do not comply with the Manual.

- The lack of clear, based on international standards approaches to defining innovation as a legal category, innovation types and forms of innovation activity disrupts the normal functioning of innovation relations in private area. It should be noted that the definition of innovation activity in the Law “On Innovation Activity” as the activity “aimed at the use and commercialization of research results and developments, and causes the release to market some new competitive products and services” is generally very felicitous, and needs only minor adjustments and additions to the “release to market of new and improved products, technologies and services”. The definition of innovation activity objects requires substantial changes and adjustments. The list of innovation activity entities taking into account the specific character of the relations shall be more expanded. The law contains no specific provisions for innovation infrastructure and forms of innovation activity implementation (contractual ones, in particular).

- Another direction of state regulation that is not implemented contrary to the Article 6 of the Law of Ukraine “On Innovation Activity”, the implementation guarantees of which are contained in the Article 329 of the Economic Code of Ukraine, is the development and support of innovation infrastructure. In fact, from the entire innovation infrastructure known in the world, especially European practice, in the Ukrainian innovation field it is presented technological parks. But technological parks in Ukraine are rather entities of innovation activity than innovation infrastructure, because they do not comply with the characteristics of modern innovation cluster. More productive in the Ukrainian legislation is a scientific park model, which is, by the way, defined by the Law of Ukraine “On Scientific Parks” as a partner one, but the introduction of which still trial.

Thus, in Ukraine functions an ineffective model of innovation relationships with the significant attraction of a public component, focused on the traditional economy that provides for active state intervention in science and technology and innovation sphere only through public legal means of state regulation and a system of budgetary financing of science. Such a model, which is reflected in modern legislation, is unable to provide sustainable innovation development, and all the more innovation breakthrough of Ukraine.

The state of political and legal maintenance of innovation activity in Ukraine does not meet the today’s worldwide trends of socio-economic and technological development. It was repeatedly noted by specialists at the parliamentary hearings in the Verkhovna Rada of Ukraine: “Protection of Intellectual Property Rights in Ukraine: problems of legislative provision and law enforcement” (March, 21, 2007), “National innovation system of Ukraine: Formation and realization problems” (June, 20, 2007), “The strategy of innovation development for the years 2010 – 2020 in conditions of Globalization Challenges”(June, 17, 2009). The development of innovation sphere of the world sample is possible only in case of active involvement in innovation processes and commercialization of the developments of private sector (industrial enterprises, business, non-state financial institutions).

Nowadays, it is necessary to conduct system transformations in science technology and innovation sphere and to introduce a new model of innovation relations based on the balanced public-private approach. This model shall be based on a market theory of innovations, where the central place will be occupied by business entities (representatives of industry and business), with the determination of a new state's role in innovation processes.

1.2.2. Introducing a model of public-private partnership in the research and development and innovation sphere and the problems of its implementation in the current legislation of Ukraine

The point of the Public Private Partnership (PPP) in the innovation and research and development sphere (R&D) in Ukraine is very urgent as the bulk of scientific R&D is concentrated in the public sector (academic and college study) that is not adapted for the innovation activity implementation because it is the non-commercial sphere of business and it also has no necessary financial and infrastructural resources. The current regulation of the sphere specified that is based on active participation of the state in the innovation processes with the explicit attraction of public component diverges from the real priorities and financial capabilities of the state in practice.

Herewith, within the regulation there are no motivation levers to attract private sector into innovation environment. Even so, Ukrainian companies will inevitably face the necessity of innovations introduction in
terms of ageing basic industries of Ukraine, based on the 3rd and 4th technological way in the new competitive environment. But today only large industrial enterprises can afford innovations, medium and small innovation businesses in Ukraine remains aside of the innovation processes. That is why the government on the one hand, should maintain and implement its scientific and innovation potential, and on the other hand - to provide motivation and activation of innovation relationships in the private sphere. These tasks are implemented in the PPP model.

The direction of domestic scientific and technological capabilities to meet the needs of innovation development through PPP is envisaged as the top priority stage (till the end of 2010) of the Program of economic reforms in 2010 – 2014. PPP is provided among the mechanisms of the Program of investment and innovation activity development for 2011 and for the period till 2015, which was approved by the government on 02.02.2011.

Meanwhile, the PPP model in the innovation and in R&D sphere is not reflected in the legislation in force. There are no draft laws concerning scientific technology and innovation sphere. 01.07.2010 it was adopted the Law of Ukraine “On Public Private Partnership” that regulates general organizational and legal basis for cooperation of public partners with private partners and the main principles of PPP only on a contractual basis. Another feature of this law is that it regulates the PPP relations concerning objects that are exclusively in state or communal ownership or belong to the Autonomous Republic of Crimea.

Specific measures of PPP envisaged by the laws of Ukraine “On State Regulation of Technology Transfer”, “On Scientific Parks”, “On Special Regime of Investment and Innovation Activity of Technological Parks”, but all of them are probably semi-measures which lead to their insufficient effectiveness. In Ukraine the contractual form of PPP (based mainly on the traditional model of the scientific and technical production order and joint activities without the unification of investments), which does not allow to fully implement the scientific, technical and innovation potential and to obtain adequate income.

Public-private partnership is not only a contractual form of interaction between state and private partners and even not only the organizational and institutional basis of this interaction but an effective model of public and private interests harmonization in the innovation strategy, recognized by the world practice. This model, developed at the level of EU and OECD member countries, could be implemented in Ukraine with its proper adaptation to the Ukrainian conditions as the main direction of the innovation policy. To implement the PPP model, it is necessary to take systemic, mutually agreed and consistent changes in the legislation in force.

Problem areas for the introduction of effective PPP forms are academic and college study, which mainly operates in the organizational and legal form of non-profit institutions with property mode of operational management, which does not allow to fully manage intellectual property rights and other intangible assets. Therefore, the introduction of PPP requires reforming property relations in the public science in the direction of autonomation and its adaptation to the market conditions. Specifically it should be demarcated the fields of research that do not involve and involve the possibility of transfer of ownership rights to the results of R&D.

The determination of efficient and inefficient acts or certain provisions of such acts in accordance with the Technical specifications of the project is set forth in the form 1 (is enclosed).

1.3. Issues to be resolved

1.3.1. Issues to be resolved at the level of legislation

1. To develop and implement the models of public-private partnership in the sphere of legal regulation of innovation sphere. The settlement of this issue requires systematic and comprehensive approaches to the reforming innovation legislation and legislation on scientific and technical activity. Therefore it is expedient to accept the Concept of legislation reforming on innovation and scientific and technical activities, which will contain:

- Reasonable necessity to implement in Ukraine the legal model of public-private partnership to ensure the chosen innovation strategy based on the experience of European countries and the United States;
- developed effective mechanisms of interaction of all elements of national innovation system in the PPP model in the “knowledge triangle”: science, education and innovation;
• a rule of “triple helix” to achieve effective interaction within the PPP framework of research and development (universities and academic study), business dynamics and availability of risk capital (private sector) as well as creating favourable conditions of innovation policy (state administration);
• developed organizational and institutional foundations of PPP in the innovation field;
• made specific proposals to implement the conceptual provisions in the legislation of Ukraine.

2. The second issue - on the basis of which legal act it is possible to introduce the regulation of public-private partnership in the sphere of innovations. There are three possible options:
- to include special provisions in the current Law of Ukraine “On Public Private Partnership”;
- to develop and approve the draft Law of Ukraine “On Public Private Partnership in the Innovation Sphere”;
- to develop and approve the new redaction of the Law of Ukraine “On Innovation Activity”, into the structure of which to include a separate chapter “Public Private Partnerships in Innovation Sphere”.

The third option is the most rational, because:
- PPP in R&D and innovation sphere requires separate regulation, that is why it does not fit well into the traditional variant of PPP introduction in the infrastructure sphere that is presented in the Law of Ukraine “On Public Private Partnership”, which does not provide for the mechanism of property right transfer to the PPP objects that are state owned. This is actually the original PPP model, which brings it to the concession relations;
- it is possible to implement the mechanisms of public private partnership in the R&D and innovation sphere within a separate law (though the European practice does not know such examples), but the model proposed in this study requires systemic changes in the interaction of all elements of national innovation system. Thus, it will be still necessary to coordinate a special law with the Law of Ukraine “On Innovation Activity”.

4. The third issue – the issue of legislation coordination in the sphere of R&D and innovations that will allow to carry out system transformations in the regulation of the sphere specified in accordance with the public private partnership model. First of all it concerns such legal acts as:
2. The Law of Ukraine “On Special Regime of Investment and Innovation Activity of Technological Parks” No 991-XIV of July 16, 1999;
3. The Law of Ukraine “On Scientific Parks” No 1563-VI of 25.06.2009;

1.3.2. Issues settled at the legislative level, but not implemented (partially implemented).

Here special attention should be paid to the Law of Ukraine “On State Regulation of Activity in the Sphere of Transfer of Technologies”, which despite the general name is dedicated to the state (vertical) transfer, i.e. transfer of technologies created by means of public funds. This law takes a step forward in commercializing the results of public R&D, however does not contain any PPP mechanisms that would correspond to a modern model. In fact, the law regulates only contractual forms of transfer. In particular, the law does not provide the possibility to set up corporate commercial enterprises in which public research institutions would participate with the property rights to technologies, along with the financial participation of private investors and industrial enterprises interested in implementing technologies. It is not mentioned the possibility of setting up business entities: corporations, consortia, technological alliances involving public institutions. These effective organizational legal forms of PPP entities should be introduced to the Law.

The law does not solve problems of transferring property rights to technologies created by state funds, the Law also does not reveal the mechanisms of non-state or partial state funding of creation and implementation
of such technologies. The infrastructure support to technology transfer from public sector is also lacking. In part, these issues are settled in the Draft Law “On Amendments to the Law of Ukraine On State Regulation of Activity in the Sphere of Transfer of Technologies”, which is mentioned in the clause 1.1. and which needs completion and approval.

2. Comparative Analysis of Regulation Experience

As regards the EU experience, it should be noted that the development of partnership in the innovation sphere is referred to as “Flagship initiatives Union innovations by the year 2020”\(^\text{101}\). This initiative is developed with the purpose to increase the competitiveness of Europe under the conditions of public finance deficit and solving many social problems, climate and energy change, lack of resources, demographic changes. The initiative provides for a strategically consistent and complex framework policy aimed at stimulating innovation activity. Much attention it is paid to the support of innovation entrepreneurship and business investments in the research and development. Herewith, it outlines the important role of the state in:

- funding of the fundamental science, priority including socially important directions;
- public private partnership to mobilize investment from the private sector;
- use of tax instruments for innovation business development.

In the document it is stated that Partnership in the sphere of innovations is a new concept, that is why it will be introduced within the experimental European Innovation Partnership, to check its economic efficiency, the balance calibration of the partners’ interests, ensuring the management effectiveness within the partnerships. The year 2011 will be a "trial phase" for working out the approach to the partnership. The Commission proposes to initiate a pilot project to an active and healthy ageing. Potential partnerships are being prepared in such areas as energetics, “smart cities” steady supply of raw materials, enhancement of water use efficiency, smart mobility, agricultural productivity and sustainable development. By the end of 2011, the Commission will assess the effectiveness of a partnership approach and take a decision on setting up its support on the basis of the next Framework Program for Research.

In the “Overview of the Union Innovation Policy in a Changing World”\(^\text{102}\) of 2009 it is indicated that the community in the scientific research and innovation field was strengthened. In recent years new PPPs have been established in different fields using various tools and legal base. Five Joint Technology Initiatives have been set up as independent legal entities with significant budgetary allocation of the Seventh Framework Program. PPP have been implemented within the European Economic Recovery Plan.

The research of the PPP role in the innovation processes was conducted by the Organization for Economic Cooperation and Development (OECD)\(^\text{103}\). It identified the PPP as any official relations or arrangements for fixed / unlimited period of time between public and private participants, where both parties interact in the decision making process and co-invest the limited resources such as money, personnel, equipment and information to achieve specific objectives in the specific field of science, technology and innovation.

Based on the analysis of the innovation policy of Australia, Austria, France and the Netherlands OECD identified four types of measures used in traditional policy in the innovation field:

- public purchasing policy having the target orientation;
- state implementation of R&D, and the policy of technology transfer from the public sector;
- subsidy assistant of business R&D with the help of direct and indirect methods of financing;
- infrastructural assistance to business R&D from various services (cluster oriented policy).


OECD study clearly demonstrates that under the terms of a new economy the system of traditionally oriented innovation model loses its effectiveness due to the peculiarity of new technologies, shifting global priorities towards social and economic objectives (protection of the environment, health, and security), more tangible social need for material results and expansion of investment areas into the research. To be effective, the new generation programs shall develop a system of technology implementation focused on the market use and consumer demand, i.e., “from the bottom upwards”.

State Partnership with the private sector is becoming a key component of a state policy, characterized by:
- setting priorities with regard to social needs of the society;
- orientation of the research results to the application and economic effect;
- coordination with the main goal – to improve the quality of life with other purposes of the technological policy;
- involvement of all participants of the innovation process regardless of their status, size and place in the innovation system.

Traditionally it was distinguished three strategic directions of the innovation policy:

European policy in the sphere of R&D and innovations (except Great Britain) was traditionally built on the strategy of active intervention of a state in appropriate sphere. When implementing the strategy of active intervention the state recognizes the scope of research and development and innovation activity as the main determining factors of economic growth and plays an active role in organizing and funding many important programs and projects, such as education funding, providing significant benefits to commercial organizations engaged in their own R&D. This strategy is implemented in France, Germany, Austria, Italy, the Netherlands and includes legislative procedures of indicative planning, choosing priorities of national socio-economic development, mechanisms for their implementation through targeted programs, public purchasing, development institutions, specially established organizations, budget planning and public sector. Similar systems operate in some countries of the Southeast Asia, India, Latin America, Middle East, those successfully developing. Complicated, but quite effective planning system functions in China.

Another strategy of decentralized regulation, in which the first place in R&D and innovation field is taken by the private entrepreneurship and business entities and the state tries to create favourable legal, economic and other conditions for this activity. Such a strategy is applied in the policy of the USA and Great Britain.

In these countries the priorities of social and economic development is made in policy documents that usually have the form of reports of the heads of governments. The implementation of priorities is made through targeted programs, the state budget and legislation. Although formally there may be no integral indicative plans, they are replaced by the actual set of planning elements.

The mixed strategy is used in the countries where the economy is a significant part of the public sector. In this case, in relation to state enterprises it is used a strategy of active intervention, while all other business entities - a strategy of decentralized regulation, as, for example, it happens in Sweden.

Now under the conditions of globalization challenges of the resource depletion, environmental and social issues of world importance, increasing competition for innovation leadership in Europe with the USA, Japan, China, a strategic division is losing its actuality. Now the partnership models in the first and second group of countries differ only in sequence of the words "public-private". So in the first group within the partnership the priority is still given to the state, and in the second – to the private sector.

The homeland of the concessionary model of PPP is Great Britain. In the early 90s in Great Britain John Major government filed a private finance initiative (PFI) - the first systematic program aimed at encouraging public private partnership, which appeared as a result of concern over the growing public debt in the standard model of public purchasing of the 80s. In the western practice the use of PPP significantly expanded and became a kind of alternative to privatization of important facilities that are state monopoly in the unattractive from the market position sectors (education, defence, health, social, infrastructure) to attract private investment. The state, which did not have the financial ability to provide extended play in these fields, passed objects for the long-term lease to business, reserving the right to control its activities.
This model is implemented in the Law of Ukraine “On Public Private Partnership”.

Gradually such legal relations began to spread on some major projects from rendering services to the R&D sphere and introduction of innovations. With the help of the PPP model, which is often called semi-privatization and regarded as an intermediate form between the public and private property, in the 80s in the USA and Western European countries it happens technology transfer from the public sector to the market environment, and PPP begins to be seen as an instrument of state innovation policy. Forms of such technology transfer, known practices of developed countries were actively studied in the late 90’s by the Ukrainian specialists and were partially implemented in the Law of Ukraine “On State Regulation of Activity in the Sphere of Transfer of Technologies”.

A new PPP model in technology and innovation policy starts to take shape from the 80s in XX century in the USA, when there appear Spin-off programs that create appropriate conditions to facilitate the commercialization of innovations. The new paradigm involves equalizing of participation of public and private sector in federal programs. Initially PPP was applied to the co-operation in technological programs and to joint ventures that introduced technical knowledge.

In 2003 the National Research Council of the USA gave the definition of PPP as the cooperation of R&D over the industry, government and universities that played an instrumental role in the introduction of new technologies to the market. Partnerships facilitate the national mission in the field of health care, energetics, environment, defence and state R&D capable of commercialization.

The developer of the modern PPP concept “Government as Entrepreneur”\(^\text{104}\) vice-chairman of the UNECE Commission on Innovation and Competition Policy Albert N. Link, whose research is actively used by the National Science Foundation of the USA, the OECD and the World Bank, emphasizes that despite the fact that the definition of “public private partnership” the words "public" and "private" stand in the first place, the main emphasis should be put on “Partnership”\(^\text{105}\). Under the conditions of the current market strategy of the innovation policy the PPP concept is changing. The leading role in it should be played by a private business and entrepreneurial initiative. The role of the state in the innovation relations is also changing. The state stands in the PPP relations not as an authority, but as an equal partner, as an entrepreneur, ready to share the risks of innovation activity.

The Office of the Technical Policy of the USA, classifies the PPP, depending on the nature of the relations with the government according to:

1) relations, where the state is the customer of researches;

2) relations, where the state is an equal partner.

Increasing the state's role in such a commercial country as the USA is associated with the falling market in the early 90s and with the national program of the leader position return in the technological development. Moreover the government does not intervene in the developments that have obvious commercial appeal. National Research Council of the USA identified the government’s participation in such directions as:

- research and development in socially important areas that require major expenditures;
- research without market appeal;
- facilitation to innovations, which are high risk and require quite much time to receive the expected profit.

The state actually reduces the risks of innovation activity through their distribution between the state and entrepreneurs as partners.

Because of the impact of credit crisis on the economy, Great Britain also identified the key directions of state intervention in innovation activity: Green economy, Creative economy; health care and biotechnology spheres. This is stated in the report of the United Kingdom in 2009 INNO-Policy Trend Chart.

\(^{104}\) Albert N. Link. Government as Entrepreneur. – N.-Y.: Oxford University Press, 2009. – 196 c.;

The modern concept of PPP should be considered:

- as an **effective model** of implementation of innovation policy and R&D;
- as formal and informal **relations** among the participants of the R&D processes of the public sector (national and regional governments and local authorities) and private sector (any organizational legal forms, particularly specialized commercial firms);
- as **institutional association** of state and/or private financial, infrastructure and research resources. Moreover, the government participation may be major or not.

The structure of the PPP with the consideration of the EU and EU Member States experience includes:

- the sphere of R&D and innovations;
- production base dealing with the problems of introduction of the food and process innovations;
- financial infrastructure for involving private and public capital;
- Start-app infrastructure and support of small and medium business;
- assistance in the execution of strategic partnerships and alliances.

In a review of the basic tools of the research policy in the EU countries within the ERAWATCH European Research Area the public private partnership is studied as a key factor in achieving competitiveness. Public private cooperation is in any way present in the research policies of all countries - participants of ERA. It is needed to select among them the countries - EU members that used the PPP model as a key one in innovation policy for the past 10 years. These are such countries as France, Austria, Belgium, Denmark, Finland and Sweden. Other countries also adopted a number of documents aimed at strengthening the community between the public and private sector. It should be separately separated the PPP policy instruments in the innovation field of the countries:

**France**

The cooperation of public research institutions and companies began in France from the late 1990s during the reforms of 1997. In 1999 it was adopted the **Law on Innovation Activity and Research** No.99-587 of July, 12, 1999 the purpose of which was to establish economic use of research results, connection with the industrial use and creation of effective partnership relations between the public research institutions and companies.

Four basic ideas of the Law:

1. To implement research mobility from the state to the private sector;
2. Partnership between public research centres and companies;
3. To lay down the financial foundations for the partnership;
4. To develop legal framework for the partnership.

Achieving the goals of the Law was due to the following mechanisms:

a) **research mobility**. Thus a researcher of the state agency may be involved to the setting up companies to use their own research results preserving the state official status for 6 years. After this period, the researcher chooses either return to the public sector, or remain in the company. The status of the researcher in relation to the company is determined by three possible options: 1) he becomes a partner, having a block of shares to 15%, 2) consults the company spending on consulting not more than 20% of his/her time, and 3) becomes the manager of the company;

[106](http://cordis.europa.eu/erawatch/index.cfm?fuseaction=about.collaboration);
b) *creation of incubators* – launching platform for new technology companies (businesses) that may be based by an employee of a scientific research institution and even students. Among such competing companies it was held a competition and the winner received the financial assistance.

c) *setting-up of special services of industrial and commercial activity (SAICs)*. These services assisted the implementation of research results into economic circulation and production. They provided competent assistance in accounting and taxation, patent provision and distribution of intellectual property rights.

In 2003, the new French government continued to reform in the sphere of innovations, adopting **Innovation plan** - an official government document (Wight paper), the developers of which were the Ministry of Research and Ministry of Industry. Innovation plan set objectives to improve the systems of public research administration and simplification of administrative organization for the purpose of effective coordination of different types of institutions, universities and state research laboratories and strengthening of relations between public scientific research organizations and companies based on strategic and strong union.

In 2005 it was adopted the **Pact on research**, which assigned the main tasks of the research system and government actions in the field of scientific research. The Pact was prepared by the Ministry of Education, higher education and scientific research to promote knowledge transfer from the scientific research to innovations, strengthening of public research and competition in this field. The **development of the PPP forms** was included in political priorities of this Pact.

The next step concerning reforming the French research system was the **Law on scientific research** in 2006, according to which strategic approaches were identified by 2010 and with the purpose of its implementation it was created the Higher Council for Science and Technology (NCST) and strengthened the powers of the National Agency for Research (NAR). The Law provided for new tools to support cooperation between universities and research institutions. This Law provided for the creation of Centres of research in education, scientific research field involving scientific research organizations and institutions, universities both public and private, including medical institutions, academic centres of campaign against cancer, cultural institutions that can take decisions on the consolidation of all or part of their activities, resources for implementing projects under the agreement between the participants. As partners, enterprises, local authorities and associations can be involved. Centres are created in the form of non-profit legal entity of private law.

In 2007, there was another reform in the system of higher education that consists in autonomation of universities. According to the **Law on the reform of universities** of 10.8.2007 60% of the higher education institutions got the autonomous status.

In September 2008, it was created the **Strategy of Scientific Research and Innovation Policy for 2008 - 2012**, for the implementation of which it was established the Leading Committee on national research and innovation strategy, which included the representatives of public and private sector.

In 2008 the French government revealed the *“Campus Plan”* aimed at lifting ten university competitive clusters. The project should meet the following conditions:

- include cooperation between public and private sector concerning investment and property management;
- provide for renovation and modernization of property;
- be related to education and academic expectations;
- develop a campus;
- meet the local situation.

In 2005 it was established **OSEO Agency for Innovations** from the National Agency for Innovation Research Attraction (ANVAR), which was established in 1979 for free targeted assistance for small and medium-sized businesses with innovation technologies in partnership with business angels and private investors, and the Bank of Development of Medium and Small Enterprises (BDPME), which in its turn was set up in 1996 resulting from the merge of CEPME (financial institution for crediting small and medium enterprises) and SOFARIS (French association of insurance risks, and guaranteeing of funding of banks and capital and small medium enterprises).
In the beginning the OSEO was established as a public institution with the public status, but according to the Law on banking and financial regulation in 2010, it turned into a private joint stock company, which consisted of the holding and subsidiary companies, 50% of the capital of which belonged to the state. **OSEO is a typical example of public private partnership**, which operates according to three directions:

- **OSEO Innovation** (JSC), former ANVAR (100% owned by OSEO);
- **OSEO Funding** (JSC), former BDPME (53.35% owned by OSEO);
- **OSEO Guarantee** (JSC) former SOFARIS (60% owned by OSEO, 40% by banks and insurance companies).

**Austria**

In 1990s, lack of connection between science and industry was identified as the main problem of the Austrian innovation system. Strengthening connections within the CNE was the main focus of innovation policy and the PPP - the main instrument of the policy. The issues of public private community were repeatedly included in strategic government documents and political programs. The most influential and visible in terms of budget financing were the programs on setting up so-called Competence Centres, which contributed to long-term strategic partnership in the R&D field between companies and research institutes.

Among them it should be noted the **K-plus and K-ind/K-net programs**. K-Plus program provided for the establishment and promotion of competence centres in order to improve interaction between business groups and research field for the transfer of the business experience of competition at the international level. K-ind/K-net program was aimed at creating industrial competence centres and network of facilities for research and technology transfer under the management of industrial companies and consortia. This program provided for the rapid economic measures of the R&D commercialization results into products and services. K-ind supported the establishment of joint centres based on enterprises and scientific research institutions. K-net supported the creation of industrial clusters, i.e. the geographical centres of research on common general subjects.

In 2007 the relay of predecessors’ programs was taken by the **COMET program** (Competence centres on advanced technologies), which became the most influential in the history of public private partnership of Austria. This program is jointly financed by the Federal Ministry of Transport, Innovations and Technology (BMVIT) and Federal Ministry of Economics, Family and Youth (BMWFW) through the Agency of research facilitation (FFG), Austrian provinces and the private sector and academic partners. The program provides for the establishment of the PPP in the form of large (K2) and medium and small joint ventures (K1) and without institutionalization (K) that is partially funded (K2 60% financing for 10 years, K1 – 55% for 7 years, K – 50 % for 3–5 years).

As an example of the PPP can be given the program of the Association of Christian Doppler’s research, which supports setting up of temporary CD laboratories in universities, working to focus on the applicability of basic research. The program has the following conditions:

- the laboratory is set up provided support of at least one field partner;
- the industrial partner invests 50% of the laboratory budget in monetary form, the remaining 50% are financed by the state mainly the Federal Ministry of Economics, Family and Youth through the Association;
- the laboratory operation period is limited to 7 years;
- industry takes an active part in the management of the laboratory;
- the selection process gives much attention to scientific competence and perspective of the laboratory chiefs.

The Support Scheme was introduced in 1989, since that time it has been set up about 65 laboratories, more than 50 ones are working until today.

Similarly acts the PPP mechanism of the Ludwig Boltzmann Society, which finances scientific research in medicine, the field of social, cultural and human studies, uniting researchers and partners in practice. The Society functions as a registered association, which performs essentially two functions: 1) coordination of
the strategy, budgets and joint management, 2) the creation of organizations that operate on the basis of separate institutions as limited liability companies.

**Belgium**

According to the survey of innovations of the Community in 2006 for the period (2004 - 2006 biennium.) 35% of all enterprises engaged in innovation activity are one or another form of partnership in the innovation activity (this is more than on average in EU – 25.5%). Basically these are partnerships with the private sector participation, less frequently – universities and colleges (13.7%), as well as governmental and public research institutes (9.1%).

In all three regions of Belgium there is a diverse set of PPP measures. It includes funding to ensure services on the transfer in universities, funding of incubators, research centres with the participation of universities and business groups; poles of competence and various support programs online. Thus, the Decree on R&D and innovation activity of Wallonia in 2008 facilitates partnership relations between the research participants and companies carried out in the community (competitive pole) and offers in this case the possibility of choice between subsidization or reimbursement of activity expenditures on the development works.

A typical example of PPP implementation is the START program, which was launched in 2008 in Wallonia, which is funded by one-third from the funds available to universities, by one-third - from the private sector (enterprises, individuals, foundations), by one-third from Wallonia regional budget.

**Sweden**

In the White Paper of 2004 “The strategy of growth through renewal” it was raised the issue of establishing relations between science and industry as the key to the effectiveness of the innovation system. The government bill “Research for a better life” of 2005 provided a number of initiatives aimed at improving knowledge transfer between research institutions and industry. The tools offered included the establishment of holding companies at universities, joint R&D programs and funding of sectoral research institutes develop in a new draft law “Support for research and innovations” in 2008. In addition, the draft law provides for funding of developments commercialization infrastructure and establishing of “innovation offices” similar to the centres of competence.

The Program of setting up VINN Excellence competence centres was created in 2005 the Swedish Government Agency for Innovation Systems (VINNOVA) as a community support program between the private and public sectors, universities, scientific research institutes and other organizations involved in research.

The participation of private companies means that research directed at problem areas, in which both science and industry are interested, and the results of which will benefit business. This will allow to create on the basis of new knowledge and technologies new products, processes and services. Competence centres provide for two main objectives:

- increasing the productivity of academic research through active involvement of private companies and research groups in joint research;
- promoting the implementation and introduction of new technologies in Swedish industry.

3. **Mechanisms of public legal partnership in conducting research, development and innovation activity**

Based on the analysis of European and international experience in implementing PPP in the innovation sphere it is possible to make such general conclusions:

1. Public private partnership can be regarded as:
   - the model of strategy and policy implementation in the R&D and innovation spheres;
   - relations between the state and the private sector that are based on equality of parties and risk distribution according to the results of R&D and innovations;
   - organizational and institutional framework of cooperation of the state and private actors in the field of R&D and innovations.
2. Depending on the PPP level the public legal partnership is divided into partnership:
   - **at the strategic level** (partnerships to develop a strategy and policy in the R&D and innovation field with the consideration of private and public interests) like the French Steering Committee for national research and innovation strategy composed of the representatives of public and private sector;
   - **at the level of science** – non-profit partnerships *special services* that will assess the innovation capacity (market orientation) of the research results, classify innovation objects, provide assistance in accounting and taxation, patent cover and registration of intellectual property rights (such as French SAICs and Research Centres, VINNOVA Swedish competence centres);
   - **at the level of manufacturing application** – commercial partnerships based on universities, scientific research institutions aiming at innovation activity, i.e. the commercialization of the developments to which the public scientific institutions refer through intellectual property rights, and private investors through financial contributions. These partnerships were established by Austrian K-ind/K-net and SOMET programs (Competence centres on advanced technologies), the Belgian START program.
   - **at the level of funding**: venture and other funds of joint public private (as an example, French OSEO, which is established in the organizational and legal form of private joint stock company and consists of the holding company and subsidiaries, 50% of the capital of which belongs to the state) and the co-financing programs (Austrian co-financing programs of the Association for research of Christian Doppler according to which an industrial partner invests 50%, the remaining 50% are financed by the state mainly the Federal Ministry of Economics, Family and Youth through the Association and the similar one of the Ludwig Boltzmann Society);
   - **at the level of cluster** (the creation of innovation policies, parks, centres) is actively introduced in France, Austria, Germany, Great Britain, Italy, Belgium, Scandinavian countries based on universities and other scientific and educational centres;
   - **at the level of start-up support**: business incubators, venture mechanisms (actively introduced in France, Great Britain);
   - **at international level** – strategic and international partnerships (European Innovation Partnership Initiative).
3. On the initiative of creation:
   - **on the initiative of business** in commercially attractive fields;
   - **on the initiative of the state** in the field of basic research and strategic, critical directions of development.
4. Depending on the functioning form:
   - **institutional partnerships** (partnerships in the form of associations of enterprises, holdings, corporate partnerships (business entities));
   - **contractual partnerships** without institutionalization.
5. Depending on the purpose they are divided into **commercial** and **non-commercial**;
6. Depending on the direction – into **functional** and **territorial**.
### Proposals for Amendments and Changes to the Legislation on Research, Development and Innovations

1. **Direct budget funding of science, technology and innovation**

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<th>Proposals</th>
<th>Title of the Act proposed for amendment</th>
<th>Information on the use of experience</th>
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<tr>
<td>1.</td>
<td>Introduce the Regulation on the codification of expenditures of the program-based budget classification, providing single, unified distribution of expenditure codes by the type of works to be financed (regardless to the list of expenditures of specific fund distributing agencies)</td>
<td>The Budget Code of Ukraine, the Law #2456-VI, 08.07.2010, drafting a Resolution of the Cabinet of Ministers of Ukraine</td>
<td>Experience of France and Finland</td>
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<td>2.</td>
<td>Review the quantitative directions for budgetary financing of scientific and technical activities having firstly identified and formalized their calculation procedure</td>
<td>The Law of Ukraine &quot;On research and scientific and technical activity&quot; #1977-XII, 13.12.1991</td>
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<td>3.</td>
<td>Improve the classification of budget financing of scientific and technical activities by complementing the existing system of budget support channels in the aspects of the areas (objects) of support and implementation mechanisms for the latter</td>
<td>The Law of Ukraine &quot;On research and scientific and technical activity&quot; #1977-XII, 13.12.1991</td>
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<td>4.</td>
<td>Improve the provision on tools of budgetary financing through formalizing the content and objectives of seed and pre-competition funding of scientific and technological activities (e.g. instead of ineffective Article on the State Innovation Fund)</td>
<td>The Law of Ukraine &quot;On research and scientific and technical activity&quot; #1977-XII, 13.12.1991</td>
<td>Experience of France and Finland</td>
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107 In “Information on the use of experience” it is about which countries have the corresponding innovations support experience. In case of no references to foreign countries experience the given proposals concern practices and conditions of Ukraine.
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<td>5.</td>
<td>Introduce the Regulation on the institutional, grant-based and target financing of scientific and technical activities</td>
<td>New Act of the Cabinet of Ministers of Ukraine</td>
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<td>6.</td>
<td>Create a fund to promote small enterprises in the sphere of innovations to finance innovative projects in their initial stages</td>
<td>New Law of Ukraine</td>
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<td>7.</td>
<td>Introduce provisions for the use of budget funds in the programs and projects of private-public partnership for the &quot;start-up&quot; companies (after giving them definition)</td>
<td>The Law of Ukraine &quot;On innovation activity&quot;, #40-IV, 04.07.2002</td>
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<td>8.</td>
<td>Develop the Regulation for public-private co-financing and co-implementation of research, technical and innovation projects</td>
<td>New Act of the Cabinet of Ministers of Ukraine</td>
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<td>9.</td>
<td>Introduce science and technology and innovation activities into the wording of Article 4 &quot;Application Areas of Public-Private Partnership&quot;</td>
<td>The Law of Ukraine &quot;On public-private partnership&quot; #2404-VI, 01.07.2010</td>
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<td>10.</td>
<td>Remove the contradictions in the Regulation on the Procedure for development and implementation of the state target programs, where the client and the contractor of the program may be the same executive authority, and taking into account this change in the method of program accounting.</td>
<td>The Resolution of the Cabinet of Ministers of Ukraine &quot;On approval of the development and implementation of state target programs&quot; #106, 31.01.2007, the Order of the Ministry of Economy of Ukraine &quot;On approval of the auditing procedure for the state target programs&quot; #250,</td>
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11. Review the issue of the reduction of fees for actions related to the protection of the rights for inventions and utility models that are paid by the legal entities

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<td>The Resolution of the Cabinet of Ministers of Ukraine &quot;On changes to the Procedure of payment of fees for actions related to protection of intellectual property&quot; #1148, 19.09.2007</td>
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12. Improve statistical display of the Payment and technological balance of the country to take account of the number of transactions and their volumes by countries of the world through the introduction of regular statistical monitoring

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<td>New Act of the State Statistical Service of Ukraine</td>
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13. Improve statistical display of scientific and technical work and innovative projects financed by the state budget, including, with the identification, those carried out under co-funding procedure with private investors

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<td>New Act of the State Statistical Service of Ukraine</td>
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2. Defining and implementing the priorities of innovation and technological development, R&D, forecasting scientific, technological and innovation development

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<th>Information on the use of experience</th>
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<tr>
<td>1</td>
<td>Establish hierarchy of priorities, similar to the Law of Ukraine &quot;On the priorities of innovation activity in Ukraine.&quot; Specify priorities for development of science and technology on the basis of forecasting and analytical studies</td>
<td>The Law of Ukraine &quot;On the priority areas of science and technology&quot; #2623-III, 11.07.2001</td>
<td>Experience of the UK, France, Germany and others</td>
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</table>
2. Provide for legislative confirmation of the formation of national innovative programs as the main mechanism for implementing innovative priorities with the state funding of the share of costs for implementing such programs

| The Law of Ukraine "On innovation activity" #40-IV 04.07.2002, |
| The Law of Ukraine "On the priorities of innovation activity in Ukraine" # 433-IV, 16.01.2003 |

3. Specify priority directions of innovation activities on the basis of forecasting and analytical studies and global technology trends.

| The Law of Ukraine "On the priorities of innovation activity in Ukraine" # 433-IV, 16.01.2003 |

4. Develop amendments to the Law of Ukraine "On innovation activity" to unify the mechanisms of government incentives for innovation activities related to innovation priorities

| The Law of Ukraine "On innovation activity" # 40-IV, 07/04/2002 |
| Ukraine's experience, the experience of Spain, the Czech Republic and Poland |

5. Develop amendments to the Law of Ukraine "On state forecasting and elaboration of programs of economic and social development of Ukraine" dealing with forecasts for linking socio-economic and scientific and technological development and innovation development and expected development of science and technology, as well as mechanisms and procedures of engaging research community to conducting foresight research


6. Increase public funding of scientific and technical programs aimed at implementing the priority fields of science and technology (up to 5% in 2012, 15% in 2013)

| The Law of Ukraine on the State Budget of Ukraine |
| Experience of Poland, the Czech Republic, Hungary, Spain and Germany |
7. Provide for earmarking, in the Law of Ukraine on the state budget, of the sums of money allocated for the implementation of each approved state priority directions of science and technology and innovation priorities

The Budget Code of Ukraine, the Law #2456-VI, 08.07.2010, the Law of Ukraine on the State Budget of Ukraine

8. Introduce the practice of professional development for the staff of ministries and agencies on basic principles of strategic management, innovation management, as well as possibilities of program and target-based approach

Drafting of the Resolution of the Cabinet of Ministers of Ukraine

### 3. Legal status of the subjects of innovation system

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<th>Information on the use of experience</th>
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<tbody>
<tr>
<td>1.</td>
<td>Provide a clearer definition of &quot;national innovation system&quot;, its structural elements and determine types and features of innovation relationships, clarify the subjects of NIS (participants of innovation relations) and their legal status.</td>
<td>The Law of Ukraine &quot;On innovation activity&quot; #40-IV, 04.07.2002, the Resolution of the Cabinet of Ministers of Ukraine &quot;On approval of the Concept of national innovation system&quot; # 680-r, 17.06.2009</td>
<td>Experience of France, Finland, the Netherlands, the experience of Ukraine</td>
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<td>2.</td>
<td>Clearly define the nature of organizational and legal form, status, the purpose of establishing technology parks, research parks, business incubators, technology transfer centers, and other types of innovative structures, thus breaking the inconsistencies and contradictions contained in the current legislation. Ukrainian legislators have not paid enough attention to such institutions as business</td>
<td>The Civil Code of Ukraine, The Laws &quot;On innovation activity&quot;, &quot;On special regime of innovation activity of technology parks&quot;, &quot;On free economic zone&quot;, &quot;On</td>
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incubators, technology transfer centers, "technopolises". Organization of technology parks on the territorial basis is not developed (when technology park is an area with a special mode of activity rather than a legal person or association of such persons).

Legislatively formalize the mechanisms of state incentives of business incubators, technology parks, science parks, "technopolises", etc.

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<td>3. <strong>Provide clear definitions of such terms as &quot;innovation&quot;, &quot;innovative product&quot;, &quot;innovative produce&quot;, determine their qualification criteria, classify them, determine how they compare with IPR</strong></td>
<td><strong>The Law of Ukraine &quot;On innovation activity&quot; #40-IV, 04.07.2002</strong></td>
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<td>4. <strong>If the legislators conclude that the form of functioning of the technology park as a group of persons acting under a contract of joint activity is feasible, the following gaps should be eliminated: clearly establish the legal grounds for possible termination or liquidation of the technology park, and its liquidation procedure; determine legal consequences of termination of the contract on joint activities, if such a legal fact comes before the expiry of the registered technical park project; issues related to liability of technological park participants for the obligations to implement the technology park project should be identified; determine the issue of distribution of IPR rights and innovative products among its participants</strong></td>
<td><strong>The Law of Ukraine &quot;On special regime of innovation activity of technology parks&quot; #991-XIV, 16.07.1999, the Resolution of the Cabinet of Ministers of Ukraine &quot;On approval of the TORs on establishment and operation of technology parks and innovation structures of other types&quot; #549, 22.05.1996, the Resolution of the Cabinet of Ministers of Ukraine &quot;On approval of the concept of the national innovation system&quot; #680-r, 17.06.2009</strong></td>
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<td>5.</td>
<td>Determine the legal capacity that the parks are endowed with, is it the technology park or technology park project who was granted a special regime of innovation activity</td>
<td>The Law of Ukraine &quot;On special regime of innovation activity of technology parks&quot; #991-XIV, 16.07.1999, the Resolution of the Cabinet of Ministers of Ukraine &quot;On approval of the TORs on establishment and operation of technology parks and innovation structures of other types&quot; #549, 22.05.1996, the Resolution of the Cabinet of Ministers of Ukraine &quot;On normative legal acts to ensure implementation of the Law of Ukraine &quot;On special regime of innovation of technology parks&quot; #2311, December 17, 1999</td>
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<td>6.</td>
<td>Eliminate inconsistencies of technology park registration procedures (regarding the fact that the grounds for state registration of technology park is its inclusion in the list of technology parks, listed in the preamble to the Law, on the other hand, relevant laws and the CMU Resolution note that the registration is made by a central executive body for research issues (it’s the Ministry of Education, as defined by the Resolution of the Cabinet of Ministers of Ukraine) after submission of the Commission on organization of the technology parks, which examines the relevant documents of the technology park)</td>
<td>The Law of Ukraine &quot;On special regime of innovation of technology parks&quot; #549, 22.05.1996, the Resolution of the Cabinet of Ministers of Ukraine &quot;On approval of the TORs on establishment and operation of technology parks and innovation structures of other types&quot; #549, 22.05.1996, the Resolution of the Cabinet of Ministers of Ukraine &quot;On normative legal acts to ensure implementation of the Law of Ukraine &quot;On special regime of innovation of technology parks&quot; #2311, December 17, 1999</td>
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7. It is necessary to eliminate inconsistencies, which are as follows: using special regime conditions during implementation of the innovation projects is limited to a 15-year term for a technology park. However, the certificate of registration of technological park project, which is the reason for the introduction of a special regime, remains in effect during the term of the technology park project, but no more than 5 years. It should be noted that the above-mentioned Law of Ukraine does not provide an extension or a new certificate if the actual period of the project is over five years and the term of the technology park has not yet exhausted.

8. It is necessary to define the legal status of entities involved in the technology park project, such as co-producers and product manufacturers.

It is necessary to define the legal basis of their participation in the technology park project.

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<td>establishment and operation of technology parks and innovation structures of other types” #549, 22.05.1996</td>
<td>The Law of Ukraine &quot;On special regime of innovation of technology parks&quot; #549, 22.05.1996, the Resolution of the Cabinet of Ministers of Ukraine &quot;On normative legal acts to ensure implementation of the Law of Ukraine &quot;On special regime of innovation of technology parks” #231, December 17, 1999</td>
<td>The Law of Ukraine &quot;On special regime of innovation of technology parks&quot; #549, 22.05.1996</td>
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4. The formation and implementation of national target research and scientific and technical programs
| Amendment of experience | 2. The Law needs to include articles specific to the fundamental laws, in particular, "Definitions", "Basic principles of forming and implementing state programs."
| - 1 - | 2. The definition of the STP (p. 1) should strengthen the strategic aspects of this document and its focus on achieving specific final objectives
| 3. The classification of STP, by the area, should introduce innovative programs provided by the Law of Ukraine "On innovation activity."
| 4. It is necessary to introduce articles on competitive selection of executing agents for tasks and measures of STP to the Law, including purpose, content and mechanism for mandatory comprehensive peer review of draft STP.
| 5. The group of STP initiators (Article 6) should include sectoral Academies of Science, enterprises, associations, research organizations, and individuals, because the current wording of Art. 6 violates their constitutional rights.
| 6. The Law shall be amended with the following articles: "The state statistical reporting on STP" and "The powers of the central executive body on statistics in the field of STP."
| 7. To strengthen the role and responsibility of state customers for the implementation of STP and improved speed of program adjustment, the customers should be instructed to make partial changes to the programs for the refinement of individual indicators and activities, their timing and the list of executing agents (Article 12).
| 9. The "Procedure for elaboration and implementation of state programs" must display clear mechanisms of expertise, competitive selection of tasks and agents, organizing
| of experience | The Law of Ukraine "On the State Target Programs» #1621-IV, 18.03.2004
| amendment | The Resolution of the Cabinet of Ministers of Ukraine "On approval of the

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| 10. | and monitoring the implementation and financing of STP and STNTP [2].

A special paragraph shall provide for the organizational structure of STP, which should operate according to basic principles of the program- and target-based management. Besides the Program Manager and the Coordinating Council (which is somehow formed only "if necessary"), the said organization structure should include the main developer of STP (the main research organization) and the working group at the Coordination Council (or program management in case of major innovative programs). Program management bodies should be appointed immediately after the decision on its development. This will significantly improve the organizational level and control over the formation of STP.

The "Procedure" should include the frequency, timing and procedure of state statistical reporting on the implementation of STP, which would ensure effective monitoring and analysis of program performance and efficiency of public funding for their implementation.

| 11. | It is necessary to explain the mechanism of inclusion of STP tasks, which execution is provided for in the budget year, to the budget program passports, which according to the Budget Code should include STP tasks.

The mechanism for public review of draft STP should be specified, including comprehensive public examination.

| 12. | The list of Annexes to the "Procedure" should include:

1. "Proposals for inclusion of STP tasks to the draft State Program of Economic and Social Development of Ukraine."

2. "The application for allocations from the state budget to finance the implementation of STP and inclusion of its objectives to the budget program passport in the budget year."

Annex 2 to the "Procedure" shall provide for executing agents of tasks and activities

<p>| 13. |  | TORs of the state research and scientific and technical program&quot; # 796, 10.10.1995. |</p>
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<td>15.</td>
<td>of STP in order to enhance and specify control over implementation of STP.</td>
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<td>16.</td>
<td>Bring the provisions of the state scientific and technical program in line with the adjusted law of Ukraine &quot;On the state target programs&quot; and the Procedure of development and implementation of state programs</td>
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<td>17.</td>
<td>The Law of Ukraine &quot;On the state target programs&quot; shall be amended with an Article &quot;Program management bodies&quot;, which shall provide for basic functions, powers and rights of the program manager, the Science and Technology Council and the main scientific organization of the program</td>
<td>The Law of Ukraine &quot;On the state target programs&quot; #1621-IV, 18.03.2004.</td>
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<td>18.</td>
<td>To amend Article 15 &quot;Sources of financing of the state programs&quot; of the Law of Ukraine &quot;On the state target programs&quot; with provisions for opening of public financing for the program only after the conclusion of the memoranda of intent by the state customer with the contractors and private investors to co-finance program tasks and activities</td>
<td>The Law of Ukraine &quot;On the state target programs&quot; #1621-IV, 18.03.2004.</td>
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In the EU, program management is a key criterion for deciding on its public funding.

RF Government Decree "On approval of the Regulation for development, approval and implementation of departmental target programs", #239, 19.04.2005.

In many countries of the EU, private sector co-financing is often a prerequisite for receiving funding from the state budget.

The Procedure for designing and implementation of the federal target programs and inter-governmental target programs...
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<td>This publication has been produced with the assistance of the European Union. The contents of this publication are the sole responsibility of the Innopolicy Project and can in no way be taken to reflect the views of the European Union.</td>
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<td>19</td>
<td>Amend the Procedure of development and implementation of state target programs with the provisions on allocating the state budget funds amounting to 3-4% of total funding for the objectives and activities of research and development in the program framework to finance the organization of program management [3]</td>
<td>The Resolution of the Cabinet of Ministers of Ukraine #106, &quot;On approval of the Procedure for development and implementation of the state target programs&quot;, 31/01/2007.</td>
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<td>20</td>
<td>Supplement the &quot;Procedure&quot; with provisions on monitoring, peer review and evaluation of programs [4]</td>
<td>Experience of the European Commission regarding program financing at the cost of the structural funds, the experience of Denmark, the UK, France, Sweden and others.</td>
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### 5. National innovation system and the issues of legal support for its functioning

#### 1.1. Proposed changes to the legislation with regard to the experience of Ukraine

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<td>- 1 -</td>
<td>2. Amend the Economic Code of Ukraine p. 328-1 and the Law of Ukraine “On innovation activity” Art. 1-3 “The National Innovation System” as follows: &lt;br&gt;“National innovation system is a system of economic, organizational and legal entities engaging in scientific, technical and innovative activity, other enterprises, institutions, organizations that provide and/or facilitate research, development, commercialization and practical application (in the real sector of economy) of the results of intellectual activities and innovative objects within the national borders. The national innovation system combines regional innovation systems that were formed or created within one or more administrative units and which operation aims to stimulate scientific research, use of scientific potential and expertise primarily in the real economy, strengthening of innovative activities of economic entities in the corresponding territory and ensuring economic development of corresponding administrative and territorial unit (units) based on implementation of results of intellectual activities and innovative objects. National innovation system consists of: 1) subsystem of science, within which a generation of new ideas and development of innovations takes place and which is formed by the subjects of scientific research; 2) subsystems of technical support (production) of innovative products, formed by the subjects of innovation and aimed at bringing the results of scientific and technical activities to a usable state of innovative products - ready for introduction and commercialization; 3) innovation and the implementing (production) subsystem, formed by the entities of economy that implement (realize) innovative products in their own production and/or economic activity and produce new and/or innovative products (labor, services); 4) subsystem of the national innovation system’s infrastructure (innovations infrastructure), formed by the entities of economy and other persons whose activities are aimed at ensuring or facilitating the implementation of innovative projects, ensuring effective implementation of innovative activity and innovation.</td>
<td>The Economic Code of Ukraine, the Law # 435-IV, 16.01.2003</td>
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</table>
The purpose of functioning of infrastructure of the national innovation system is to create conditions for effective interaction between science and industry, combine real demand for new, substantially improved products, processes (technologies), new / significantly improved labor (services), new / significantly improved production with appropriate offers.

One of the components of the innovations infrastructure is the subsystem of innovative mediation, formed by the entities of economy whose activities are directed to a combination of demand and supply for new developments, innovative products, to move the products from their developers to businesses that implement (realize) innovative products in their own work or in their own economic activities.

During the functioning of the national innovation system, there arise relationships between the entities - its members and between them and other entities, including individuals regarding different objects in connection with the development, design, implementation and sales of innovative products to ensure the implementation of the latter as innovation.

6. Legal status of public institutions working in research and innovation sectors

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<th>Proposals</th>
<th>Title of the Act proposed for amendment</th>
<th>Information on the use of experience</th>
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<tbody>
<tr>
<td>1</td>
<td>Create an effective mechanism to provide a real opportunity to state research institutions and universities to form the authorized capital of legal entities / their associations not only due to property rights / intangible assets (property rights for IPR), but also other property. In this context it is appropriate to use the experience of Sweden, where the government provides public research organizations and universities with funds to form a statutory capital of holding companies. Thus, we can provide for a variety of procedures, when universities or state research institutions could apply to the relevant spending centers or to the specially created for that purpose government funds, etc., to obtain financing or other property to form a statutory capital of legal entities / their associations. Or allow directing extra-budgetary funds of universities and public research institutions</td>
<td>The Law of Ukraine &quot;On higher education&quot;, # 2984-III, 17.01.2002, the Law of Ukraine &quot;On the state property management&quot; # 185-V, 21.09.2006, the Law of Ukraine &quot;On details of the legal regime of operations of the National Academy of Science of Ukraine, sectoral Academies of Science and the status of</td>
<td>Experience of Sweden, Germany, Great Britain, Denmark, etc.</td>
</tr>
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</table>
for the above objectives.

If the state considers the most economical option – specifically introducing proprietary rights of the IP to the IPR, all the gaps and conflicts that currently hinder the inclusion of these rights to the share capital of legal entities / their associations should be eliminated.

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<tr>
<th>2.</th>
<th>To solve the issue of distribution of intellectual property rights to IPR / innovation product (innovative produce), created by public funds.</th>
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<tr>
<td></td>
<td>As the European experience shows, the most effective way is to leave these rights with the executing organization of the appropriate R&amp;D.</td>
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<td></td>
<td>Besides, the payment of the remuneration should be provided to the author of the IPR.</td>
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<td></td>
<td>Also for the interests of the state, the IPR rights may remain in certain areas (military IPR, etc.).</td>
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<tr>
<td></td>
<td>In any case, during the resolution of this issue, the balance of interests of the state, executing organization and the author of the IPR should be ensured.</td>
</tr>
</tbody>
</table>
3. It is necessary to consider the possibility of imposing the duty for commercialization of intellectual property objects created within the budget funds for the subject of property rights. However, the actual mechanisms of such commercialization and legislatively formalized various incentives for commercialization of intellectual property rights must be determined.

4. Review feasibility of existence of provisions that the research institutions and universities may form the authorized capital of enterprises / research park only by contributing property rights or intangible assets (property rights to intellectual property objects), accordingly.

Experience of Ireland, Germany, France and the Netherlands

Ukraine's experience, experience of Sweden and Germany
<p>| 5. | To solve the issue regarding the relationship between the concept of &quot;IPR&quot;, &quot;innovative product&quot; and &quot;innovative produce&quot; | The Law of Ukraine &quot;On innovation activity&quot;, #40-IV, 04.07.2002, the status of their property complex&quot; #3065-III, 07.02.2002 |
| 7. | Solve the issue of payment of remuneration to the subjects of intellectual property rights under special legislation in this area | Special IPR laws, the Budget Code of Ukraine, the Law #2456-VI, 08.07.2010, the Tax Code of Ukraine, the Law #2755-VI of 02.12.2010, EU Acts, the experience of UK, Germany and France |</p>
<table>
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<th>Proposals</th>
<th>Title of the Act proposed for amendment</th>
<th>Information on the use of experience</th>
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<tbody>
<tr>
<td>1.</td>
<td>Bring the legislation on tendering for R &amp; D in line with the standards of the EU member</td>
<td>The Law of Ukraine &quot;On public procurement&quot; #2289-V</td>
<td>Experience in financing the</td>
</tr>
</tbody>
</table>

7. **Competition-based financing of research and development and government contract for research**
states, providing that:
- In the case when the projects compete in specific areas of research and development - financing of projects is carried out using the results of competitive selection;
- In the case when the main spending centers announce tenders for specific projects, the preferred selection criteria should be the quality of the project and the level of the research team of the project’s executing agent

<table>
<thead>
<tr>
<th>1.</th>
<th>VI, 01.06.2010, the Law of Ukraine &quot;On research and scientific and technical activity&quot; #285-XIV, 12.01.1998</th>
<th>projects of the EU research framework programs, the experience of Denmark, Sweden, France, Germany, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>To provide that in determining the winner of the public procurement process for certain research, the share of the price criterion may not be higher than 30 percent</td>
<td>The Law of Ukraine &quot;On public procurement&quot;</td>
</tr>
<tr>
<td></td>
<td>Thus, the criteria of quality characteristics of a Participant should be: experience with the implementation of similar research, availability of experts holding scientific degrees and titles in their respective fields of research, availability of the proper material and technical base and so on.</td>
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<tr>
<td>3.</td>
<td>It is advisable to introduce a system of competitive selection and funding of scientific research without tender-based procurement, where the determining criteria should be qualitative characteristics of the participant and the proposed project, rather than the contract price (as is the case today).</td>
<td>The Law of Ukraine &quot;On research and scientific and technical activity&quot; #285-XIV, 12.01.1998</td>
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<tr>
<td>4.</td>
<td>Develop a typical TORs of grant-based funding</td>
<td>A new legal act</td>
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<tr>
<td>5.</td>
<td>Improve the provisions governing the conclusion of public contracts in the area of research on a competitive basis</td>
<td>The Law &quot;On public procurement&quot; #2289-VI of 01.06.2010, the Law of Ukraine &quot;On public procurement&quot;</td>
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</table>
### 8. Financial and loan support of innovation

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<th>Proposals</th>
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<th>Information on the use of experience</th>
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</table>
| 1. | Amend the legislation providing for concessional lending mechanisms of innovation activity:  
- Interest compensation (full or partial) on loans paid by companies to the banks and other financial and credit institutions for lending to innovative projects  
- Interest-free lending (with inflationary indexation) to innovative projects in the priority areas  
- Providing government assurances to the banks that provide loans to innovative projects in the priority areas | The Law of Ukraine "On innovation activity" #40-IV, 04.07.2002, the Law on the State Budget of Ukraine | Experience of Germany, Italy, Austria, France, Luxembourg, etc. |
| 2. | Amend the law on the creation of a national venture capital company as a fund of funds and the regulation of its activity | The Economic Code, the Law #435-IV of 16.01.2003, the Law of Ukraine "On innovation activity" #40-IV, 04.07.2002 | Experience of Austria (ERP Fund), Germany (ERP Start-up Fund), France (OSEO), Russia (Russian Venture |
3. Introduce amendments to the legislation on the establishment and operation of innovation funds and funds for innovative development to ensure:
   - fund-raising from businesses and individuals to invest in research and development and innovation projects;
   - fund-raising from businesses and individuals to create new innovative enterprises

   The Economic Code, the Law #435-IV of 16.01.2003, the Law of Ukraine "On innovation activity" #40-IV, 04.07.2002

   Experience of funds in support of technology-oriented enterprises, implementation of innovative projects, equipment procurement in Austria, Germany, Great Britain, France and Russia

4. Legislatively provide for the formation of insurance guarantee funds to provide insurance liabilities related to the implementation of innovative projects, in accordance with Article 32 of the Law of Ukraine "On Insurance"

   The Law of Ukraine "On innovation activity” #40-IV, 04.07.2002

5. Develop a draft Law of Ukraine on the National Program of financial support to direct and venture funding

   A new regulation

   Experience of government funding programs for R&D and innovations in Hungary, the Czech Republic, Poland, Germany etc.

<p>| 9. Tax incentives for innovation activity | Company), etc. |</p>
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<th>Proposals</th>
<th>Title of the Act proposed for amendment</th>
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<td>- 1 -</td>
<td><strong>Depreciation-based regulation of innovation</strong></td>
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<td>------------------------------------------------------------------------------------------------------</td>
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<tr>
<td>1.</td>
<td>The system of <em>tax depreciation</em> should be introduced with differentiated depreciation allocations depending on the objects of fixed assets and intangible assets subject to depreciation term, adopted in leading foreign countries to accumulate cash that is <em>accumulated in a special account to form real monetary recovery fund</em> which will be the <em>capital investment fund</em> in order to use it for innovation upgrade of fixed and intangible assets. In this connection, each company shall be allowed, through an accounting policy, to establish its depreciation policy with regard to the real depreciation of fixed and intangible assets, with the <em>tax restrictions</em> removed on the fixed minimum term of useful application of fixed and other capital assets with simultaneous agreement of the relevant <em>individual scales of depreciation rules</em> with tax administrations, as well as preserving the order of depreciation calculation for new acquired or created fixed assets and other capital assets under the TCU.</td>
<td>The Presidential Decree &quot;On the Concept of depreciation policy&quot; #169/2001, 07.03.2001, The Tax Code of Ukraine, the Law #2755-VI, 12.02.2010, Experience of the UK and Germany</td>
<td></td>
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<td>2.</td>
<td>Waive the validity term for right of use during calculating depreciation of intangible assets identified in paragraph 145.1.1 TCU, equaling to at least 5 years for industrial property objects and at least 2 years for copyright and related rights, and do not include the innovative factor of enterprise development under rapid modernization conditions and efficiency of intangible assets, of which the enterprise should know more. Replace the term &quot;under the title document,&quot; which does not allow most companies to set up a validity term of the right of use, as the title documents (patents, certificates) include the terms that are usually longer than the period of reasonable efficiency of the right of use, and for some objects there is even no procedure for issuing protective documents (e.g., trade name, commercial secret, know-how, etc.).</td>
<td>The Tax Code of Ukraine, the Law # 2755-VI, 12.02.2010, - &quot;-&quot;-</td>
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**Promotion of enterprise’s research and development work**

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<tr>
<th>3.</th>
<th>Provide, given the experience of the EU Member States, for tax incentives for enterprises dealing with scientific research and development activities through:</th>
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<td>-</td>
<td>increasing costs taken into account in determining taxable income by a certain percentage of the volume of the accomplished work (125-200 in the EU Member States) or</td>
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<td>-</td>
<td>reduce the volume of profit by a certain percentage of funds spent on carrying out R&amp;D (20-35% in the EU member states)</td>
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<td>The Tax Code of Ukraine. Law #2755-VI, 12.02.2010</td>
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<td>Experience of France, Spain, Britain, Sweden, the Czech Republic and other EU countries, Russia, Japan, Australia and Thailand</td>
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</table>

**Tax incentives for scientific institutions and universities**

| 4. | To provide for exemption from import duty, value added tax and other obligatory payments for research instruments, equipment, spare parts and consumables, reagents, samples, materials for research, scientific, technical and academic books imported to Ukraine to ensure own scientific and technological activities of scientific institutions and organizations of the state academies of science and universities in Ukraine |
| | The Tax Code of Ukraine. the Law #2755-VI, 12.02.2010 |

| 5. | Create conditions for the possibility of accumulation of foreign currency earnings coming to budget institutions and organizations and their use for equipment and other purposes of scientific institutions. To provide the special fund of the scientific institution that will roll over to the next year with exemption from taxation. |
| | - "-" |

**Tax incentives for innovation activity for newly created businesses and small and medium enterprises**

<p>| 6. | For a certain period of time, provide for preferential taxation of start-ups’ income, in the case of realization of high-tech products, export of high technology products, the acquisition of new technologies, receiving revenue as a result of application of |
| | The Tax Code of Ukraine. Law #2755-VI, 12.02.2010 |
| | The Law of Ukraine &quot;On |
| | Experience of Belgium, Hungary, |</p>
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<th>Incentives for enterprises’ innovation activities</th>
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<td>7.</td>
<td>Provide tax relief for investment in acquisition and implementation of new technologies as a reduction in income tax in the amount equal to a certain percentage of these costs but no more than 75% of the total tax in case of purchase of domestic technology and equipment</td>
<td>The Tax Code of Ukraine. The Law #2755-VI, 12.02.2010</td>
<td>Experience of Hungary, the Great Britain, Belgium and Poland</td>
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<td>(Experience of Korea: Tax holidays for up to 7 years for businesses working in certain areas of high technology)</td>
<td>The Law of Ukraine &quot;On innovation activity&quot; # 40-IV, 04.07.2002.</td>
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<tr>
<td>8.</td>
<td>Introduce lower tax rates for companies that work exclusively in certain priority areas of high technology</td>
<td></td>
<td>Experience of Korea</td>
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<td></td>
<td>(Experience of Korea: Tax holidays for up to 7 years for businesses working in certain areas of high technology)</td>
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<th>Tax incentives of innovation projects</th>
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<td>10.</td>
<td>Introduce tax incentives of innovation projects and technology transfer projects in priority areas over certain period with unpaid tax amounts credited to special accounts of enterprises and their subsequent use in scientific and technical activity, development of science and technology and research and experimental base (tax credit for</td>
<td>The Tax Code of Ukraine. Law #2755-VI, 12.02.2010</td>
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</tbody>
</table>
innovations) for:
- Projects in priority areas, which selection and implementation monitoring is provided by a competent central executive authority;
- Projects that are realized through technological and scientific parks, "research towns";
- Projects implemented through free economic zones

| 04.07.2002, | The Law of Ukraine "On state regulation of activities in the area of technology transfer" #143-V of 14.09.2006, |
| 04.07.2002 | The Law of Ukraine "On state regulation of activities in the area of technology transfer" #143-V of 14.09.2006, |
| The Law of Ukraine "On research parks" #1563-VI, 25.06.2009, | The Law of Ukraine "On research parks" #1563-VI, 25.06.2009, |

**Stimulating the use of the objects of intellectual property rights**

| 11. | To provide for the introduction of preferential taxation of income from the use of inventions by the enterprises of Ukraine | Experience of Belgium |
| To provide for the introduction of preferential taxation of income from the use of inventions by the enterprises of Ukraine | Experience of Belgium |

**Stimulating of venture activity and lending to innovation**

| 12. | To provide for tax relief for dividends of venture innovation funds for some time of their development | Experience of France, UK, USA |
| To provide for tax relief for dividends of venture innovation funds for some time of their development | Experience of France, UK, USA |

| 13. | Provide for reduction of tax liabilities to the banks, which finance innovation, their preferential refinancing or transferring them a share of profits in the financed innovative project to enhance innovation activity of perspective institutional investors, investment funds, companies and commercial banks. Besides, to allow the banks securitization | U.S. experience |
| Provide for reduction of tax liabilities to the banks, which finance innovation, their preferential refinancing or transferring them a share of profits in the financed innovative project to enhance innovation activity of perspective institutional investors, investment funds, companies and commercial banks. Besides, to allow the banks securitization | U.S. experience |

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transactions, i.e., issuing own securities of the investor investing in R&D. Realization of the research project is an informal collateral on the securities

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<th>Proposals</th>
<th>Title of the Act proposed for amendment</th>
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10. Innovative Development of SMEs

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<th>Proposals</th>
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<th>Information on the use of experience</th>
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<tbody>
<tr>
<td>1</td>
<td>Improve the current Law &quot;On innovation activity&quot;, providing it the mechanisms to encourage innovation of small businesses and start-ups aimed at implementing the priorities identified by the state</td>
<td>The Law of Ukraine &quot;On innovation activity&quot; #40-IV, 07.04.2002</td>
<td>Experience of Germany, Austria, France, Czech Republic, Spain and</td>
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| 2. | Legislatively formalize the mechanisms of state support of innovative activity for SMEs and start-ups.  
Introduction of tax incentives for innovative activity of SMEs, holding research and development  
Introduction of venture capital financing for small start-ups.  
Establishment of a mechanism to promote cooperation between small enterprises and research institutions through innovation vouchers for joint research, development and innovation; or for enterprises’ staff training and consultancy services that help increase the level of technical expertise of entrepreneurs.  
Experience of Germany, Austria, France, the Czech Republic, Spain, Estonia, other EU Member States |
| 4. | Provide public financial support to innovation activities of small and emerging businesses by implementing the budget program | The Law of Ukraine on the State Budget of Ukraine for 2012 and subsequent years |   |
| 5. | Amend Article III.3 of the Law "Increased financial, credit and investment support for small business" with the following provisions  
"Development and implementation of effective loan assurance mechanisms to promote innovation of small businesses" | The Law of Ukraine "On the National program to promote small business in Ukraine" #2157-III, 21.12.2000 | Experience of Hungary, France |
| 6. | Improve the current Law "On innovation activity", by providing the mechanisms of state support for SMEs and large enterprises in Ukraine producing innovative products of the sixth technological arrangement (nanotechnology, biotechnology, information and telecommunications technology), including the following areas: microelectronics, | The Law of Ukraine "On innovation activity" # 40-IV, 07.04.2002 | Experience of the UK, Germany, Austria |
transport vehicles with hybrid engines, highly efficient agricultural production, computerized health care, alternative energy sources and energy saving technology, intelligent mobile robotics

7. During drafting of the State Budget of Ukraine for 2011 and subsequent years, ensure implementation of the Law of Ukraine "On research and scientific and technical activity", "On state regulation of activities in technology transfer", "On innovation activity", "On special regime of innovation activity of technological parks "and the Resolution of the Cabinet of Ministers of Ukraine #439 of May 7, 2008 "On approval of the State target program of development of the system of information and analytical support of implantation of the state innovation policy and monitoring of innovation development of economy", #1118 of 11 September 2007 "On approval of the State program of forecasting scientific and technological development for 2008-2012", May 14, 2008 #447 "On approval of the State target economic program 2009-2013" "Building innovation infrastructure in Ukraine".

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<th>Proposals</th>
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<th>Information on the use of experience</th>
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<tbody>
<tr>
<td>1.</td>
<td>Introduce a state program to support public-private partnership for development of export-oriented production of new materials. The introduction of programs of preferential loans to production of new materials. Introduction of preferential taxation for the revenue of new materials for export The use of the system of organizational measures to promote industry products to world</td>
<td>Development of the State Program, the Law of Ukraine &quot;On innovation activity&quot; #40-IV, 07.04.2002</td>
<td>Experience of government support for research and innovation activities in the priority areas of the UK, Germany, Austria, the Czech</td>
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108 Using the example of Material Science area.

203
2. Adopt amendments to legislation on the size and the order of payment of remuneration to authors of inventions and utility models

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| 1. | As part of implementation of the State target economic program 2009-2013 "Creation of innovation infrastructure in Ukraine", develop and implement effective elements of the cluster model into the legislation, which concept was developed at the EU level, including:  
   • cluster policy;  
   • definition of legal forms of cluster organizations;  
   • definition of financial mechanisms of cluster formations;  
   • determine the order of preparation and implementation of cluster projects;  
   • introducing mechanisms of development of communication (networks) inside | The Resolution of the Cabinet of Ministers of Ukraine "On approval of the State Target Economic Program " Creation of innovation infrastructure in Ukraine" for 2009-2013", May 14, 2008, #447 | EU experience: European Commission communication "Towards world-class clusters in the European Union: Implementing the broad-based innovation strategy" COM (two thousand and eight) six hundred |

Experience of Germany and France

The Law of Ukraine "On protection of rights for inventions and utility models" #3687-XII of 05.12.1993

12.1. Creating regional innovation structures (innovation clusters)
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THE CONCEPT OF CLASTERS AND CLASTER POLICIES AND THEIR ROLE FOR COMPETITIVENESS AND INNOVATION: MAIN STATISTICAL RESALTS AND LESSONS LEARNED

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<tr>
<td>3.</td>
<td>Identify mechanisms for state participation in innovative clusters as a public participant (through direct and indirect financial support, other preferences), as a partner (through corporate and venture arrangements).</td>
<td>The Law of Ukraine “On innovation activity”, #40-IV, 04.07.2002</td>
<td>Experience of France, Germany</td>
</tr>
</tbody>
</table>
| 4. | Build an effective infrastructure of business incubators as one of the central elements of innovation clusters. The strategic role of the incubation environment is to increase business growth, create enterprises - more resistant to changes and strengthen regional economies. Implement such incubators as business parks, innovation centers, science and technology parks, early-stage incubators, virtual incubators. Develop infrastructure support and target oriented incubators, including the creation of innovative small and medium innovative enterprises (start-ups), spin-off infrastructure for companies that can stand as a separate business based on intellectual property, particularly for people from the university, the financial infrastructure (private investors, venture funds), professional competence infrastructure, infrastructure of access to knowledge bases. | The Law of Ukraine "On innovation activity" #40-IV, 04.07.2002  
The Law of Ukraine "On special regime of innovation activity of technology parks" # 991-XIV, July 16, 1999  
The Law of Ukraine "On research parks", #1563-VI, 25.06.2009 | Experience in the UK, France, Germany |
| 5. | Determine the concept of innovation infrastructure at the level of legislation | The Law of Ukraine "On innovation activity", # 40-IV, 04.07.2002 | Review of national practices |

### 12.2. Measures to promote innovation at the regional level

109 Using the example of Donetsk region.
<table>
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<th>Proposals</th>
<th>Title of the Act proposed for amendment</th>
<th>Information on the use of experience</th>
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<tbody>
<tr>
<td>1</td>
<td>In the development budgets of the regional budgets, legislatively provide for a fixed source of financing of regional innovation programs, such as a part of the income tax. The size of the income tax that has to accumulated in the regional budgets and directed to implement regional innovation programs is determined by the Law of Ukraine on the State Budget of Ukraine for the relevant year for each region in accordance with the features of the programs.</td>
<td>The Budget Code of Ukraine, the Law #2456-VI, 08.07.2010</td>
<td>The Law of Ukraine on the State Budget of Ukraine for each year</td>
</tr>
<tr>
<td>2</td>
<td>For priority innovation projects, provide for a special regime of innovation activity (such as the one applied in the territories of priority development in Donetsk region before March 25, 2005, pursuant to the Law of Ukraine &quot;On special economic zones and a special regime of investment activity in Donetsk Region&quot;). Herewith, innovative projects that meet the requirements of Articles 14 and 15 of the Law of Ukraine &quot;On innovation activity&quot; and implemented within the medium-term priorities for innovation activity of a specific region, approved by the Oblast Council should be considered the priority innovation projects. The status of priority innovation project is specially provided to the Council on Science and Innovation, created at the Oblast State Administration under approval of a specially authorized central executive authority in the field of innovation. Monitoring of the Council should be carried out by the Cabinet of Ministers of Ukraine.</td>
<td>The Law of Ukraine &quot;On innovation activity&quot; #40-IV, 04.07.2002</td>
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13. Public-private partnerships in research and development and innovation

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<th>Proposals</th>
<th>Title of the Act proposed for amendment</th>
<th>Information on the experience of EU Member States, other</th>
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</thead>
</table>
1. Provide definition of features, types, forms and instruments of public-private partnership in science and technology and innovation sector, the mechanisms of government involvement, particularly at the level of:
   - conducting scientific research (non-profit partnership);
   - introduction of production (innovation and technology transfer centers, co-funding of technology transfer and innovation projects).
   - territorial innovation infrastructure (technological and research parks and other forms of territorial structures, business incubators);
   - creation of innovative enterprises;
   - activity of innovation funds (venture capital organizations) engaged in financing the formation of innovative enterprises and innovation activities of enterprises;
   - international level.

Identify the features of commercial and non-commercial partnership, industry and regional partnerships

<table>
<thead>
<tr>
<th>1. Provide definition of features, types, forms and instruments of public-private partnership in science and technology and innovation sector, the mechanisms of government involvement, particularly at the level of:</th>
<th>2. Legislatively formalize the mechanisms of public-private partnership in technology transfer</th>
<th>3. Experience of France, Belgium and Sweden</th>
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<tr>
<td>- introduction of production (innovation and technology transfer centers, co-funding of technology transfer and innovation projects).</td>
<td>The Law of Ukraine &quot;On the state regulation of activities in the area of technology transfer&quot; #143-V, 14.09.2006</td>
<td>Experience of France and Belgium, Sweden, Britain and other EU member states</td>
</tr>
</tbody>
</table>
Information in the "use of experience" column means countries that have adequate experience of innovation activity. The experience of the EU Member States and other countries in the field of innovation listed in more detail in Appendix 19, "Government regulation of direct financing of research, technical and innovation activities."

In the absence of references to the experience of foreign countries – the above proposals concern practical experience and conditions of Ukraine.

Following the adoption of amendments to the Law of Ukraine "On the state target programs", the Resolution of the Cabinet of Ministers of Ukraine on the Procedure for the development and implementation of the state target programs

Following the adoption of amendments to the Law of Ukraine "On the state target programs".

Following the adoption of amendments to the Law of Ukraine "On the state target programs".
### Evaluation of legislation in the field of research and development and innovation

<table>
<thead>
<tr>
<th>#</th>
<th>Legal Act</th>
<th>Evaluating the effectiveness of application</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>The Law of Ukraine &quot;On research and scientific and technical activity&quot; #1977-XII, 13.12.1991</strong></td>
<td>The law is partially effective. The norms of the Law are not widely used due to lack of financial and credit and tax levers of state regulation in the field of research, scientific and technical activity, and failure to provide budget financing in the amount not less than 1.7 percent of Ukraine’s GDP and ensuring performance of the State Innovation Fund. It was expected that under this Law budget financing of research, scientific and technical activities will be implemented in stages from 1999 to 2001 by an annual increase of expenditures on science, starting from one percent of gross domestic product, although not executed.</td>
</tr>
</tbody>
</table>

**Local Innovation Funds unavailable.**  
**Paragraph four and five of Part one:**  
"create innovative local funds under the legislation of Ukraine";  
**Article 30.** The powers of the Parliament of the Autonomous Republic of Crimea, local councils, the Council of Ministers of the Autonomous Republic of Crimea, local authorities  
**Article 34.** State funding of research and scientific and technical activities  
**Parts two and three:**  

---

According to the InnoPolicy Project’s Terms of Reference, the laws adopted in the area of research and development and innovation must be assessed as effective or ineffective. The corresponding analysis is made in the "Analysis of current legislation on research and development and innovation activities and proposals for amendments to the legislation " (Attachment 19-20-22).  

This table provides short generalized conclusions about the effectiveness (ineffectiveness) of the regulations.
"The state budget provides funding of research and scientific and technical activities (excluding defense spending) of not less than 1.7 percent of gross domestic product of Ukraine.

Expenditures for scientific and technical activity are protected items of the State Budget of Ukraine."

<table>
<thead>
<tr>
<th>Article 36 on the formation of national target scientific and technical programs (DTSNTP) of the priority directions of science and technology (PN RNT) only by the central executive authority in the field of research and scientific and technical and innovation activities</th>
<th>The implementation of this Article is inefficient.</th>
</tr>
</thead>
</table>

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<tr>
<th>Article 38. The State Innovation Fund</th>
<th>The Fund was eliminated.</th>
</tr>
</thead>
</table>

2. **The Economic Code of Ukraine "Chapter 34. Legal regulation of innovation", Article 325**

The definition of "innovation activities" is not conducive to the development of innovative business and does not correspond to the true purpose of innovation - commercialization of developments and making profit.


The law is ineffective.

There are no mechanisms for tax incentives to encourage innovation.

Due to lack of funding, state and municipal innovation financial and credit institutions, specified in Art. 19 and 20 of the Law cannot provide funding to the agents of innovation to implement their innovative projects at the expense of the State Budget of Ukraine and other budgets, which types are detailed under Article
The Law contains a complicated mechanism of public aid to innovators.

The Law mistakenly attributes typical representatives of innovation infrastructure (innovation centers, technology parks, "Technopolises", business incubators) to innovative companies that directly develop, produce and sell innovative products and (or) innovative produce or services, the amount of which in monetary terms should not exceed 70 percent of the total output and (or) services.

The Law reflects the model of innovation relations of a traditionally-oriented economy that is solely based on the mechanisms of direct and indirect government funding that does not actually work.

This Law pretends to be a comprehensive legal act regulating private and public relations in the sphere of innovations, but it has prevailing public, i.e. vertical relationship between the state and the subjects of innovation activity.

The Law also contains no modern forms and mechanisms of PPP in the innovation sphere.

There is lack of clarity in the definitions of such concepts as "innovative activity", "innovative enterprise" innovation infrastructure ","agents of innovation". These definitions are not consistent with the definitions provided in other regulations.

There is no definition of "the national innovation system."

<table>
<thead>
<tr>
<th>Article 7. The powers of the Verkhovna Rada of Ukraine, the Parliament of the</th>
<th>Ineffective.</th>
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<tbody>
<tr>
<td>17 of this Law.</td>
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</table>

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<table>
<thead>
<tr>
<th></th>
<th>Autonomous Republic of Crimea and local authorities in the field of innovation</th>
<th>Only one municipal organization was formed.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><em>Paragraph four of Part three:</em></td>
<td></td>
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<tr>
<td></td>
<td>&quot;3. Representative bodies of local government - village, town and city councils according to their competence:</td>
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<td></td>
<td>... ... ... ...</td>
<td></td>
</tr>
<tr>
<td></td>
<td>create communal innovative financial and credit institutions for financial support for local innovative programs funded by local budgets, approve their statutes or TORs, subordinate them to their executive bodies; &quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot;Chapter V. FEATURES OF TAXATION AND CUSTOMS REGULATION OF INNOVATION</td>
<td>The rules for tax support to innovation activities are withdrawn from the Law (Article 21, 22).</td>
</tr>
<tr>
<td></td>
<td>4. Draft Law of Ukraine &quot;On amendments to certain legislative acts of Ukraine on promotion of innovation&quot; (submitted for public discussion by DKNP) <a href="http://www.dknii.gov.ua/images/stories/20101110_proekt_zu.doc">http://www.dknii.gov.ua/images/stories/20101110_proekt_zu.doc</a></td>
<td>The draft Law is effective. If passed, this Law can make drastic changes in stimulating innovation, and provide much more effectiveness to a number of existing laws.</td>
</tr>
<tr>
<td></td>
<td>6. The Law of Ukraine &quot;On the priority areas of science and technology&quot; #2623-III of 11.07.2001</td>
<td>The Law is partially effective due to underdeveloped mechanism of creation and implementation of programs that realize priorities.</td>
</tr>
<tr>
<td></td>
<td>Article 6 concerning the amounts of funding of DTSNTP from the State budget according to the priorities of science and technology provided that it shall not be less than 30% of total budgetary expenditure on science financing</td>
<td>The provisions are effective, although have not been applied. The Law of Ukraine &quot;On Amendments to the Law of Ukraine&quot; On the priority areas of science and technology&quot;, # 2519-VI of 9.09.2010,</td>
</tr>
<tr>
<td></td>
<td>The Law of Ukraine &quot;On the priorities of innovation activity in Ukraine&quot;, #433-IV of 16.01.2003</td>
<td>does not provide for the above norm.</td>
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<td>7.</td>
<td>The Law of Ukraine &quot;On the priorities of innovation activity in Ukraine&quot;, #433-IV of 16.01.2003</td>
<td>The Law is partially effective due to underdeveloped mechanism of creation and implementation of programs that realize priorities.</td>
</tr>
<tr>
<td>8.</td>
<td>Article 8. Medium-term priorities of innovation</td>
<td>The implementation of this Article is ineffective. As of 5/1/2011, the medium-term priorities have not been adopted.</td>
</tr>
<tr>
<td></td>
<td>The Verkhovna Rada of Ukraine identifies the following medium term priorities of national-level innovation for the period before 2007 under strategic priorities for innovation in Ukraine 2003-2013: ... &quot;</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Draft Law of Ukraine &quot;On amending some laws of Ukraine on the priorities for innovation&quot; #7333 of 04.11.2010</td>
<td>Can be effective, subject to certain amendments.</td>
</tr>
<tr>
<td></td>
<td>The norms of the Law on target subsidies to technology transfer are not applied. The Law does not provide for tax incentives for technology transfer.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Article 1. Definitions</td>
<td>Norm does not apply.</td>
</tr>
<tr>
<td></td>
<td>Paragraph 15 of Part one: &quot;targeted subsidy for technology transfer is a subsidy or financial assistance provided by the state to implement technology transfer.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Article 21. Features of lending for technology transfer</td>
<td>The norms of the Article are not applied.</td>
</tr>
</tbody>
</table>

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### 11. The Law of Ukraine "On the state target programs" #1621-IV of 18.03.2004

<table>
<thead>
<tr>
<th>Article</th>
<th>Regulations</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Article 6.1. Initiation of development of the state target program (STP) and development of its concept</td>
<td>Regulations are ineffective.</td>
<td></td>
</tr>
<tr>
<td>Article 8. The public customer appoints the head of STP</td>
<td>Regulations are ineffective.</td>
<td></td>
</tr>
<tr>
<td>Articles 9, 10, 11, 13, 14 on drafting the STP, its approval, implementation and amendments to the STP</td>
<td>Regulations are effective.</td>
<td></td>
</tr>
<tr>
<td>Article 12. Amendments to STP</td>
<td>Regulations are ineffective.</td>
<td></td>
</tr>
<tr>
<td>Article 15. Sources of STP funding</td>
<td>Regulations are effective.</td>
<td></td>
</tr>
<tr>
<td>Articles 16-20. The powers of public authorities in the development and implementation of STP</td>
<td>Regulations are effective.</td>
<td></td>
</tr>
<tr>
<td>Article 21. The powers of the central executive authority on education and science in the development and implementation of STP</td>
<td>Ineffective.</td>
<td></td>
</tr>
</tbody>
</table>

### 12. The Law of Ukraine "On higher education" of January 17, 2002, #2984-III (with subsequent amendments and additions)

The law is effective. However, the provisions of other regulations limit the positive provisions of the Law.

This includes:

- Provisions that the property given to higher education institutions belongs in them under the right of operative management (which imposes significant restrictions on the order of disposition - alienation, lease, free transfer into another property are carried out only with the permission of the authorities, etc.); ability to spend budget funds, provided for their
<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Status</th>
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<tbody>
<tr>
<td>14.</td>
<td>The Law of Ukraine &quot;On scientific and technical information&quot; # 3322-XI of 25.06.1993</td>
<td>The Law is effective.</td>
</tr>
<tr>
<td>15.</td>
<td>The Law of Ukraine &quot;On research and scientific and technical examination&quot; # 51/95-VR of 10.02.1995</td>
<td>The Law is effective.</td>
</tr>
<tr>
<td>16.</td>
<td>The Law of Ukraine &quot;On special regime of innovation of technology parks&quot; #991-XIV of 16.07.1999 (edition of 12.01.2006, latest changes made on 2/12/2010)</td>
<td>The Law as amended by the Law of Ukraine #3333-XIV of 12.01.06 is ineffective. The Law may become effective under condition of return of preferential taxation of technology parks (listed benefits have been identified by the Law #991-XIV of 16.07.99), and also clarification of certain issues of technology parks’ activity. The following needs clarification: definition of the technology parks’ nature, their legal form, a special regime of innovation activity of technology parks and so on.</td>
</tr>
<tr>
<td>17.</td>
<td>The Law of Ukraine &quot;On scientific parks&quot;, #1563-VI of 25.06.2009 (latest changes made on 22.12.2010)</td>
<td>The Law is partially effective. The definition of “science park” is imperfect, the nature of science</td>
</tr>
</tbody>
</table>
park is unclear (including whether it is an innovation infrastructure agent or an agent of innovation activity, etc.), besides, there are difficulties in the implementation of several provisions:
- regarding the fact that the contribution to the share capital of scientific park is intangible assets (IPR property rights);
- regarding the distribution of rights to IPR and technologies created by the science park projects;
- regarding the possibility of creating corporations by a university and a research institution - the founders of science park, for organization and realization of science park projects, etc.).

The Law does not provide tax incentives to encourage innovation.


The Law is partially effective.

Poor definition of "science park".

It was identified as "a contractual association of business entities, created to organize, coordinate and control the process of science park projects' implementation". Thus, taking into account the said Law and Chapter 12 of the ECU, one may say that this definition has not reinforced a new type of association of enterprises, and did not use the existing conceptual apparatus. As a result, in practice, the "Kyiv polytechnic" science park was founded as a corporation and its founders had many difficulties during the state registration process because of lack of clear definition of the status of the science park).

The Law does not provide tax incentives to stimulate innovation.

19. The Law of Ukraine "On the National program to promote small business in

The law is ineffective in the part of "Financial support measures"
| 20. | The Tax Code of Ukraine of 02.12.2010, # 2755 VI | for the implementation of regional business development programs. |

- Partially effective in respect of tax incentives for innovation.

- The TCU has conditions for creating a favorable institutional tax environment; changes have been made to the structure of the tax system including the reform of the system and methods of administration of taxes and duties (mandatory payments).

- Effective stimulation of innovation activities using tax regulators remains beyond the scope of TCU.

- TCU has no such terms as “innovation”, “innovative activity”, “innovative produce/product”, “commercialization of intellectual property rights,” “innovation-active enterprise,” etc., which does not allow the real innovators find their place in the tax relationship.

- For tax depreciation policy – TCU has minimum acceptable terms of useful life of fixed assets and other capital assets excluding their actual wear. However, tax depreciation is not related to the assets, even more so to the timing of their useful life.

- TCU has no criteria of qualified expenditures for research and development. Herewith, isolation of the cost of R&D should be considered, accounted for after their conclusion in a scientific institution, and the cost of putting the innovation project into production, which includes the costs of creating technical specifications of the project (development of stands, equipment, appropriate material resources) and costs for direct implementation of an innovation project (development of design documentation, research facility, adaptation to the technological
The use of investment tax credit is not provided for. Unclear rules of structure of expenses, which are formed both in tax and in accounting procedures using the different methods, hinder its implementation.

The expense-free mechanism of the structure of expenses is not stimulated when calculating income tax that hinders the implementation of innovative tax regulators.

Particular conditions of recognition of revenue associated with the provision of services are not specified, namely the transfer of rights under the agreements on the disposal of intellectual property rights (copyright, licensing and more).

### 21. The Law of Ukraine "On public-private partnership", #2404-VI of 01.07.2010

Effective in terms of laying the general legal framework of public-private partnership, although the Law has no specific rules regarding the types and mechanisms of PPPs in research and development and innovation.

### 22. The Law of Ukraine "On the co-financing institutions (mutual and corporate investment funds)" #2299-III of 15.03.2001 (latest changes made on 01.07.2010)

The Law is partially effective.

The Law does not provide for participation in the venture funds of such institutional investors as insurance companies and pension funds and others.

### 23. The Law of Ukraine "On public procurement" of 01.06.2010, #2289-VI (amended, latest changes made on 02/03/2011)

The Law is ineffective and does not meet the EU experience in funding R&D activities, design projects, selected for funding after the national competitions of scientific and technical programs, the programs of the Fundamental Research Fund and more.

### 24. The Resolution of the Verkhovna Rada of Ukraine On compliance with current legislation to develop scientific and technological capabilities and

The Resolution is effective, although currently it is not fully
In particular, the Resolution stipulated that the Cabinet of Ministers of Ukraine in two weeks will make proposals to the current legislation regarding the following exemptions:

a) from taxation of revenue (income) of research institutions, universities, research, design and technological organizations, enterprises and research plants in the part that is directed to improving their own materiel and conducting independent R&D;

b) from paying import duty, value added tax and other obligatory payments for research instruments, equipment, spare parts and consumables, reagents, samples, materials for research, scientific, technical and academic books, imported to Ukraine for ensuring own scientific and technological activities of scientific institutions and organizations of the National Academy of Science, industry academies and universities in Ukraine;

c) from the mandatory sale of 50 percent of foreign exchange funds at the interbank currency market received by science and education institutions and organizations from exporting their own scientific and technical production, developments, scientific and technical and educational services, as well as foreign businesses and individuals and international organizations to support non-profit scientific and technical activities.

Recommended by the Cabinet of Ministers of Ukraine while drafting the laws on State Budget of Ukraine for 2005 and subsequent years to achieve the parameters of expenditures for financing of DTSNTP and PN RNT at 30% of science expenditures

The provisions are effective, but not executed.
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<tr>
<td>25.</td>
<td><strong>The Decree of the President of Ukraine &quot;On the decision of the National Security and Defense Council of Ukraine of July 3, 2001 &quot;On urgent measures for overcoming the crisis in scientific and technological sphere in Ukraine and creation of concrete conditions targeted at economy transition to innovation model of development&quot;, #640/2001 of 20 August 2001</strong></td>
<td>The Presidential Decree is effective, but does not apply in the absence of the following proposals developed by the Cabinet of Ministers of Ukraine: differentiated mechanism of preferential taxation depending on their level of innovation activity, stimulation of R&amp;D and design institutions and organizations prior to entering intangible assets into economic circulation, formation of sectoral innovation funds and so on.</td>
</tr>
<tr>
<td></td>
<td>The Task of the Cabinet of Ministers of Ukraine to prepare and submit to the Verkhovna Rada the draft State Program of research and technological development of Ukraine</td>
<td>The provisions are effective, but not executed.</td>
</tr>
<tr>
<td>26.</td>
<td><strong>The Decree of the President of Ukraine &quot;On the decision of the National Security and Defense Council of Ukraine of April 6, 2006, &quot;On the status of scientific and technological areas and measures to support innovative development of Ukraine&quot; #606/2006 of 11 July 2006</strong></td>
<td>The provisions are effective, but not executed</td>
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<tr>
<td></td>
<td>The Task of the Cabinet of Ministers of Ukraine to develop proposals for increasing program-based funding for applied research, scientific and technical (experimental) developments</td>
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<td></td>
<td>The Task of the Cabinet of Ministers of Ukraine to develop and adopt normative legal acts to regulate the procedure of development and implementation of state programs</td>
<td>The Task is effective.</td>
</tr>
<tr>
<td>27.</td>
<td><strong>The Resolution of Cabinet of Ministers of Ukraine of 10.10.1995, #796 &quot;On approval of the state scientific and technical program&quot;</strong></td>
<td></td>
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<tr>
<td>Provision</td>
<td>Status</td>
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<tr>
<td>P. 3. Program development may be initiated by public authorities, local governments, the Academy of Science, institutions, organizations and citizens.</td>
<td>The provision is effective, but not executed</td>
<td></td>
</tr>
<tr>
<td>P. 3. Program management authority may be a central executive body, the Academy of Science (by agreement), the National Research Center, and in some cases - a leading national scientific and design organization</td>
<td>The provision is ineffective.</td>
<td></td>
</tr>
<tr>
<td>P.5. The Government of Ukraine.... makes decisions about formation of the program, identifying the customer, the management agency and the program manager</td>
<td>The provision is effective.</td>
<td></td>
</tr>
<tr>
<td>P. 12 provides for a program management body to create the scientific and technical council, its powers and status</td>
<td>The provision is effective, but not used during realization of all DTSNTP</td>
<td></td>
</tr>
<tr>
<td>P.p.15-18 on the responsibility of public customers for implementation of the results of DTSNTP</td>
<td>The provision is effective, but not executed</td>
<td></td>
</tr>
<tr>
<td>P.19 provides for statistical reporting for organizations and enterprises on the use of scientific and technical products delivered to them for scientific and production activities</td>
<td>The provision is effective, but not executed</td>
<td></td>
</tr>
<tr>
<td>The Cabinet of Ministers of Ukraine of 31/01/2007, #106, &quot;On approval of development and implementation of the state programs&quot;</td>
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<tr>
<td>P.p.3-18. Initiating program development, development and public discussion of the STP concept</td>
<td>The provision is effective.</td>
<td></td>
</tr>
<tr>
<td>P.p.23-33. Drafting of the Program</td>
<td>The provision is effective.</td>
<td></td>
</tr>
<tr>
<td>P.41. Public customer creates coordination (technical and scientific) council only if necessary</td>
<td>The provision is ineffective</td>
<td></td>
</tr>
<tr>
<td>P.p.43-50. Monitoring and reporting on implementation of STP</td>
<td>The provision is effective.</td>
<td></td>
</tr>
<tr>
<td>Annex 2 to the Procedure - a form of accomplishment of tasks and activities</td>
<td>The provision is ineffective.</td>
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</table>
LEGAL REGULATION OF INNOVATION ACTIVITY IN FRANCE

In France the innovation policy was traditionally characterized by a relatively strong influence by public authorities. This conception of innovation policy underwent changes, particularly under the influence of economic theory. The report on National Policies of Research and Higher Education of 2010 explains that the freedoms, which universities enjoy concerning the organisation of research, and the support schemes available for the private economy in research aimed at the strengthening of the innovative powers of the French industry: the new measures announced in 2008 permit the improvement of support mechanisms, which are complex and differentiated, and they support R&D in the private economy at an unprecedented level at a moment when the socio-economic and environmental context imposes even higher demands at research and innovation. For this reason the Council of Ministers launched a plan on the elaboration of a national strategy for research and innovation - Stratégie nationale de recherche et d’innovation (SNRI). This strategy aims at creating a framework, which is favourable to creativity and innovation and to position the discussion about research and innovation at the centre of the public interest.

1. The French Political Structure
The French governance system is centralized. The local administrations, departments and regions enjoy only limited competences. However, in recent politics the French regions have assumed a more important place, which is also due to EU policies. This tendency seems to be evident in the establishment of important competitiveness clusters, which the French government provides with considerable financial support and which seem a particular success of the French innovation policy.

The creation of the National Research Agency - Agence Nationale de la Recherche (ANR) and the National Agency for the Evaluation of Research and Higher Education - Agence d'Évaluation de la Recherche et de l'Enseignement Supérieur (AERES) as well as universities' autonomy enable the Ministry for Higher Education and Research to centre its role on strategic policy. The signing of contracts with public research organisations gives them greater autonomy, while the state control takes place subsequently. It also sets a clearer boundary between planning and research functions. These changes and the instruments contained in the latest laws must enable universities to define and implement their own strategy more freely.

2. Legislation on Innovation
Legal analysis must differentiate between the subject of the innovation itself (e.g. a patented invention) and the conditions, which favour or boost it (e.g. research, industrial application, commercialization). For example, the number of patents, which a national patent office grants within one year, can be indicators of inventive activity, but they are not indicative of the capacity to innovate. Four different levels may be identified, for which the subsistence of creativity is essential:

- R&D;
- the invention;
- the marketing;
- the design.

116 ibid., p. 50.
Recent French legislation focused particularly on R&D tax credits, competitiveness clusters, public support for the establishment of enterprises and clusters of research and higher education (Pôles de recherche et d'enseignement supérieur - PRES).\footnote{ibid., p. 70.}

### 2.1. Evaluating the Necessity of Public Intervention

Political measures favouring innovation often focus on inventions or know-how itself, but it is recommended to view this issue in a broader manner. French policy takes particularly in account the interest to promote innovation with regard to the global market.\footnote{ibid., p. 51.} When considering appropriate measures to be taken, five indicators, which reflect the short time capacity of innovation should be taken into account:\footnote{ibid., p. 62.}

- the share of the turnover achieved by companies with regard to new products placed on the market;
- the share of the turnover achieved by products or services marketed in the recent two years and in the recent five years by enterprises with more than 250 employees;
- the share of enterprises, which place new products or services on the market;
- the number of patent applications and exploited within the recent five years;
- the number of French trademarks within the leading hundred trademarks worldwide.

If these indicators prove insufficient results, public intervention may be recommended.

### 2.2. Fields for Political Action

In a general manner the French report "Pour une nouvelle vision de l'innovation" - For a New View of Innovation of 2009\footnote{Morand, P., and Manceau, D. (2009): Pour une nouvelle vision de l'innovation, pp. 67 et seq.} suggested ten fields of action:

(1) the stimulation of a public discussion concerning innovation in order to attract more attention for this subject (politics and media should increasingly view a broad concept of innovation; the role of particular innovators should be highlighted; the image of public services providing support for innovation should be improved);

(2) the creation of a label for the innovative enterprise (essentially based on self-evaluation by companies);

(3) the public procurement should develop procedures to favour innovative enterprises;

(4) intellectual property capable of innovation should be more favourably evaluated in an attachment to balances of companies (presently, intellectual property developed within a company is not evaluated in balances unless in case of sale according to International Financial Reporting Standards - IFRS- 3 and International Accounting Standards - IAS- 38, Intangible Assets; it is proposed that an attachment should be made to a balance in order to permit the testing of an innovation);

(5) particularly French qualities of innovations should be stressed ("made in France" should develop a particular meaning, taking account of recent tastes; the design should closely be related to the production; France should be understood as a place for innovation and creativity in all fields; a label for exploitation within the concept of trademarks);

(6) European standards should be pushed on a global level;

(7) the educational policy should have more regard to creativity, the taking of risks, project development and cross-disciplinary (teaching should include innovation as a broader concept; university teaching should regard innovation as motor of competition; teaching must aim at creativity, originality, the taking of risks and initiative, teamwork and project work);

\footnote{ibid., p. 70.}
\footnote{ibid., p. 51.}
\footnote{ibid., p. 62.}
(8) the establishment of the EU-patent;
(9) the simplification of procedures by means of which enterprises may collaborate with public institutions and public research laboratories (legal support concerning contracts relating to the cooperation between enterprises and public research institutions and the subsequent exploitation of results; the establishment of an institution, providing information on and coordinating regional innovation centres);

(10) the establishment of an Institute for Competition and Innovation (promoting a broader view of innovation, including economic and management aspects).

The report of the Assemblée Nationale on Science, Society and Parliaments of 2008 identified the need for the scientific and technological dimension of public policies to be better taken into account. It was felt that parliaments should establish autonomous expertise. In particular, the conditions were analysed in which parliaments, which must remain heedful of the concerns of citizens but also be able to create confidence with scientists, can organize an interface between the scientific world and society.

2.3. Law on Innovation and Research, 1999 (Loi Allègre)

The Law aimed at an efficient technology transfer from public research to private companies and the fostering of innovating firms. The Law dealt with:
- mobility of researchers employed by public authorities towards private companies;
- collaboration in public-private research;
- fiscal measures such as the Crédit d'Impôt Recherche or the Fonds Communs de Placement dans l'Innovation;
- a legal framework for innovating companies through the introduction of a simplified status of the joint stock company for innovative companies (Société par Actions Simplifiée) to all innovative firms.


The French innovation plan, which aims particularly at the facilitation of results of publicly funded research and its use for innovation, was established by the French Ministry of Research and the former Ministry of Industry. The Plan envisaged the following measures:
- the status of business angels;
- favourable conditions for projects such as "new innovative enterprises";
- new measures for favouring innovations such as tax reductions;
- a simplified access to public funding by means of ANVAR (now OSEO Anvar)
- an improved exploitation of research results in enterprises;
- an improved role of innovation in the national and European perspective;
- the support of industrial strategic research.

Convention for Research

The Convention for Research was a project issued by the French government, which was implemented in the following Law on the Program for Research. The concept is based on the idea that the necessity of research should be deeply rooted in society, taking into account of global challenges and the need to adapt to a changing environment. The motives of the Convention indicate: "The French system of research and innovation arrived at a turning point in its history." Three pillars will support this concept, namely basic research, research of public interest and research of economic interest. In France public research involves traditionally a multitude of actors, and this heritage has to be further developed. Finally, public research must develop with a view of a long term global strategy in order to strengthen the confidence of society in its research.

122 Pacte de la Nation avec sa recherche, Part I of the Law on a Program for Research.
123 See http://www.inovasyon.org/pdf/France.La.loi.de.prog.pour.la.recherche.pdf, download on 03/05/2011.
Amongst other five objectives the motives recall that it is the Convention’s aim to intensify the dynamism of innovation and to enforce very close connections between public and private research. This shall be achieved by supporting new innovative enterprises by a reduction of taxation, by establishing large technological programs in key sectors for the French economy, by strengthening the support for SMEs through traditional means in order to stimulate R&D, and by developing interfaces between public and private research.

**Law on the Program for Research**

The Law on the Program for Research, 18/04/2006 implemented the Convention for Research of 2005. Its aim is to modify existing national research and innovation systems by:
- developing three essential elements of the research system, namely basic research, research of relevance for society and research with economic implications;
- developing interfaces and cooperation between institutions and players involved in research;
- introducing a comprehensive and long-term strategy in order to establish confidence between research and society.

The Law established the Haut conseil de la science et de la technologie (HCST) - High Council for Science and Technology, which takes over the task of choosing and financing particular research projects. This institution assists the French president and the government with the development of a scientific research policy, transfer of economy and innovation. This is particularly achieved on the basis of inter-ministerial activities. Projects are also evaluated by the Agence d’Evaluation de la Recherche et de l’Enseignement Supérieur (AERES).

The Law envisages a closer collaboration within public research institutions (in Pôles de Recherche et d’Enseignement Supérieur and Réseaux Thématiques de Recherche Avancée - Clusters for Research and Higher Education and Networks of Thematic Advanced Research) and between public and private players (Pôles de Compétitivité - Competitiveness Clusters). The Law focuses also on better links between science and society, on young researchers and their career opportunities and on new professional perspectives of researchers.

The Law established the National Agency for Research (ANR), which grants support on the basis of calls for projects in specific themes.

**2.5. Law Concerning Freedoms and Obligations of Universities of 2007**

Loi relative aux libertés et responsabilités de universités - the Law concerning Freedoms and Duties of Universities of 2007 established the independence of universities with regard to research, promoting the creation of companies exploiting intellectual property created with publicly funded means.

**2.6. Code on Research and National Strategy of Research and Innovation**

The Code de la recherche - the Code on Research - takes into consideration the project of the Law on the Program for Research of 2006. The structure of the Code is explained in the Annex. It covers in a comprehensive manner different legal aspects relating to research.

**National Strategy of Research and Innovation**

On 03/09/2008 the Council of Ministers released the "plan d'élaboration de la stratégie nationale de recherche et d'innovation" (SNRI) - the National Strategy of Research and Innovation. This document should be conceived of as a first stage of a continuing process, which depends upon the input and ideas of participants and practice, which develops in the application of the programs concerned.

Concerning the support of innovation by institutions of higher education the following practice will be applied:
- communication of aims by the state (governmental authorities);
- external evaluation of the plan and budget by AERES;

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- start of dialogue between relevant ministers and the institution concerned;
- presentation of the project to the Direction Générale pour l'enseignement supérieur et l'insertion professionnelle (DGESIP) - General Office for higher education and professional activity;
- finalisation of the contract.

On the level of public support of research and innovation for public institutions the contractual practice permits a permanent control of the work and its results.

2.7. Loi de modernisation de l'économie, 04/08/2008 - Law on the Modernisation of the Economy of 04/08/2008)

The legislation has an indirect impact upon innovation, insofar as it is part of the French government's policy to increase the economy's growth, the creativity of employees and the purchase power. The Law comprises some 30 different measures, which are essentially directed towards the facilitation of economic activity by liberalizing administrative requirements so that enterprises can concentrate their efforts in advancing their competitive position. So-called "micro-companies", that is to say companies with a very small annual turnover such as € 80,000 may benefit from a liberalization of administrative burdens concerning social payments and tax.

2.8. Intellectual Property Code (Patents)

France has a comprehensive code, which covers comprehensively the subjects of intellectual property. Concerning innovations the legislation regulates particularly the patenting of inventions. However, the law covers in Book V also Designs and Models and in Book VI the Protection of Inventions and Technical Knowledge. The law covers also the rights of employee-inventors, Article L611-7. Special rules may be applicable in the case of inventions made by public research institutions.

2.9. Loi organique relative à la loi des finances (LOLF) - Institutional Act of the Finance Law and Budget Laws

The Law aims at improving the transparency of public sector accounts, including for public financing of research programs.

Budget Laws
Each year the French government publishes finance laws respectively their drafts in support of an annual budget.127 These laws provide an overview concerning the development of state financed programs and projects.

3 Administration Institutions

3.1. Ministry of Higher Education and Research
The Ministry of Higher Education and Research ("Ministère de l'Enseignement supérieur et de la Recherche") is responsible for coordinating the French research policy.128

3.2. Ministry for Economic Affairs, Finance and Employment
The Ministry for Economic Affairs, Finance and Employment deals inter alia with issues of the economic development, companies, MSEs, SMEs and information technology.129

3.3. CSRT, EPST and HCST
The Conseil supérieur de la recherche et de la technologie (CSRT) - Higher Council for Research and Technology (CSRT) was established in 1982 as a consultative body for research issues. To its tasks belongs the oversight of scientific and technological public institutes (Etablissements publics à caractère scientifique et technologique, EPST).

127 See e.g. the Project for a Finance Law of 2011, http://www.senat.fr/rap/l10-111-312/l10-111-3123.html, download 05/05/2011.
128 See http://www.enseignementsup-recherche.gouv.fr/pid20002/ministere.html, download 05/05/2011.
129 See http://www.economie.gouv.fr/themes/industrie/innovation/index.htm, download 05/05/2011.

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According to the Law on the Program for Research, 2006, the Higher Council for Research and Technology and the new High Council for Science and Technology (Haut Conseil de la Science et la Technologie, HCST) are responsible for scientific advice, with the CSRT working on research questions, and the HCST on national research and innovation strategies. The HCST advises the President of the Republic and the government with regard to science and technology matters, in particular with the development of a national policy concerning scientific research, technology transfer and innovation. The CSRT works on the coordination between research institutions and society.

3.4. EPIC, CRITT and CNRT

Technology transfer focuses on the validation and transfer of research results, which are generated in universities, public scientific or technological research organizations (Etablissements publics à caractère scientifique et technologique, EPST), and public industrial and commercial research organizations (Etablissements publics à caractère industriel et commercial, EPIC).

The law envisages interlinking and technology transfer between publicly funded research and the industry by means of competitiveness clusters, thematic advanced research networks or research and higher education clusters. Regional technology transfer centers CRITT (Centres régionaux d'innovation et de transfert de technologie, Regional Innovation and Technology Transfer Centers) appertain to the interface structure between public research and regional firms.

CRITT service (prestataire) focus on the technological needs of SMEs. CRITT connection mission (interface's mission) is to raise firms' awareness through specific advice by Conseillers en développement technologique. Both types of CRITT aim to support innovation and technological development in SMEs at the regional level.

Centres nationaux de recherché technologique (CNRT) - National Centers for Technological Research) favor collaborations between public research laboratories and research centers of large industrial groups, whereas Equipes de recherche technologique are medium-term research teams established for specific technological questions.

Besides the region-specific organizations such as CRITT that interlink research and industry, knowledge transfer in France is organized through national institutions and/or – in some cases – their regional offices.

3.5. ANR, ANRT, ADEME, ADIT

Organizations of this intermediary structure are, for instance, the Agence Nationale de la Recherche (ANR) - National Agency for Research -, the Association Nationale de la Recherche Technique (ANRT), the Agence de l'Environnement et de la Maîtrise de l'Energie (ADEME), or the Agence pour la Diffusion de l'Information Technologique (ADIT). The creation of the Agence Nationale de la Recherche (ANR) at the beginning of 2005 was the first major change that affected the French institutional innovation system. Founded with the mission to allocate financial support for research projects, the ANR is in charge of supporting basic and applied research efforts. Financial support is allocated after a competitive procedure and evaluation; support can be granted to research institutes and to firms, but aims at projects managed by specific groups within the organization. The goal of the ANR is to stimulate the emergence and performance of research projects by participation in competitive projects for funding. As such, its philosophy is close to the National Science Foundation (NSF) practice in the US which reveals a shift in the way research will be funded in the future in France. Since both public and private laboratories can apply for funding, the actions of the ANR are expected to strengthen public-private partnerships in the French research landscape. In 2006 the budget was € 800 million for research projects over 4 years, divided among response mode projects across all disciplines, specific programs, industry-academic collaboration and non-project funding. Together with the Ministry in charge of research and OSEO, ANR organizes a national competition for the creation of technology-based companies. In this context, technological projects of public research organizations or of the private business sector eligible for funding are identified in France. Particular tasks of the ANR within the field of support of innovation are:

130 See http://www.kooperation-international.de/frankreich/themes/international/fub/laender/forschungs- bildungslandschaft/forschungslandschaft/ download on 04/05/2011.
- support of R&D projects of the competitiveness clusters (Pôles de compétitivité);
- support for the establishment of innovative enterprises;
- transfer of technology;
- support of regional research structures.

The ANR is charged with introducing a particular dynamism into French publicly funded research and innovation by:

- favouring the creation of new concepts ("white programs", the content of which will only be established by the scientific community;
- increasing the efforts of research of particular relevance for the economy of society;
- increasing the collaboration between public research and the industry (incitation of partnership projects);
- development of international partnerships.

3.6. AERES

AERES, the Agence d'évaluation de la recherche et de l'enseignement supérieur - Agency for the Evaluation of Research and Higher Education - is charged with ensuring the systematic and objective evaluation of research institutes, programs, groups and scientists. AERES is an independent administrative authority, which evaluates scientific, cultural and professional public establishments and organisations for scientific cooperation just as the National Research Agency (NRA). AERES publishes the annual report on the situation of research in France.

3.7. OSEO

OSEO was established in 2005 by merging the innovation agency ANVAR with the SME development bank Banque du développement des petites et moyennes entreprises (BDPME). OSEO, which is a holding with public status, is related to the Ministries for Economy, Finance and Employment, and to Higher Education and Research. Its task is to provide assistance and financial support to SMEs at different critical phases, including innovation. OSEO innovation provides innovation support and funding in the fields of technology transfer and innovative technology-based projects. It shall improve public support for SMEs and support the development of innovative firms. OSEO's regional networks are present in all French regions. They support entrepreneurs and SMEs, and they foster their activities, especially in risky phases of development. OSEO organizes also technological platforms (Plate-formes technologiques), which connect with education organisations in support of SMEs. Networks of technological development (Réseaux de développement technologique) coordinate the different players in the innovation sectors at the regional level.

According to its website OSEO, is a public-sector institution dedicated to economic development — and a key source of financing and other support for SMEs. Its mission is to back innovation and growth of SMEs at decisive phases in their development: start-up, innovation, growth and business transfer via buyouts or other structures. By sharing risks, OSEO makes it easier for SMEs to access bank and private-equity financing. OSEO offers institutions and banks involved in SME financing both consultancy services and technical support, drawing on its long and varied experience in the field.

Investing for the Future a Program with a Budget of € 35 bn

Based on political decisions on the highest level the OSEO is charged with the implementation of a program, which is called "Programme d'investissements d'avenir" - a program for investing for the future. The program will be developed within the framework of an inter-ministry co-ordination under the guidance of the French Prime Minister.

The program aims at the modernisation and the strengthening of competitiveness the of France by favouring investments and innovation within five primary fields. These five fields, which are considered as generators of growth and employment, are the following:

- Higher education and training;

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132 http://www.oseo.fr/international/international_services2/our_mission, download 05/05/2011.
OSEO will undertake the following actions:
Within the program for investing for the future OSEO has to administer € 2.44 billion within the field "sectors of industry and SMEs". OSEO will administer the financing of SMEs and enterprises of medium size, according to the following principles:
- Loans for SMEs and MSEs to increase stockholders' equity on the basis of participation contracts (€ 1 bn.);
- Financing of innovating enterprises (€ 500 million);
- Support for the re-industrialisation (€ 200 million);
- Calls for tender of structural R&D of competitiveness clusters (€ 300 million);
- Strengthening the competitiveness of SMEs and of strategical sectors of the industry, calls for tender (€ 300 million);
- Increase of OSEO's funds in order to improve its capacity to assist companies (€ 140 million).

3.8. DRRT
The Délégation régionale à la recherche et à la technologie (DRRT) is the regional delegation for research and technology. It is an administrative department mission in charge of the decentralized work of the French government in research, technology and innovation, disseminating scientific and technical culture to the socio-economic world and the general public. The regional delegation for research and technology (DRRT) reports to the regional director for industry, research and the environment (DRIRE). Under the authority of the Prefect for the Region and adviser to the Vice-chancellor for Research, the DRRT works in close cooperation with the secretariat-general for regional affairs and has an interdepartmental role in connection with all the decentralized services of the Government and the vice-chancellorship.
The DRRTs report to the Ministry for Education, Research and Technology and have the following principal tasks:
- to inform the regional partners of national policy guidelines and the action plans set up by the ministry in charge of research;
- to inform the ministry of regional initiatives;
- to coordinate in the region the work of publicly-owned establishments and organisations under the supervision of the ministry in charge of research;
- to strengthen the regional technology centres and to bring research closer to the business and social world;
- to develop and organize technology transfer;
- to encourage the dissemination of scientific and technical culture;
- to provide informed reports about the policy of the ministry in charge of research in the region.

3.9. Support Organisations: ANR, OSEO, Pôles de Competitivité, Instituts Carnot
Larger organisations, which are providing project support, are the ANR and OSÉO. Institutions, which support also the collaboration between public and private institutions are the Pôles de Compétitivité (competitiveness clusters) and the Instituts Carnot.
Presently, the ANR named some 33 Instituts Carnots, which aim at the development of research in public-private partnership. The Instituts Carnots cooperate also with foreign institutions, for example with those of the Fraunhofer Institutes. Support organisations are involved in the implementation of large national programs, for example the program "Investissements pour l'avenir" - Investing for the Future, which has a budget of some € 35 bn.

4. Large Research Infrastructures

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134 Rapport sur les politiques nationales de recherche et de formations supérieures, Annex to the Project of a Law on Finances for 2010, p. 32.

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The French government supports also so-called "Très grands infrastructures de recherche" (TGIR) - large research infrastructures, for example in the fields of spatial or atomic research. Of the bigger French institutions involved in research the most important is the Centre National de la Recherche Scientifique (CNRS). Concerning innovation it is a particular task of these infrastructures to favour technology transfers and innovation of the participating industry concerned.

4.1. Centre National de la Recherche Scientifique (CNRS)

The CNRS - National Centre for Scientific Research - has the general task to engage in knowledge creation and knowledge transfer for the economic benefit of society. In doing so it applies and promotes the results of research, it develops scientific information, and supports the formation of the national research policy. The laboratories of the CNRS are spread all over France. The laboratories undergo a permanent evaluation. Generally, CNRS researchers are civil servants.

4.2. INRA, INRIA, INSERM

The Institut National de la Recherche Agronomique (INRA) - the French National Institute for Agricultural Research provides research in the agricultural field. The Institut National de Recherche en Informatique et en Automatique (INRIA) is the French National Institute for Research in Computer Science and Control. The Institut National de la Santé et de la Recherche Médicale (INSERM) is the French National Institute for Health and Medical Research.

5. Organisation of Higher Education

In France higher education is done by universities, but there is a large number of institutions at the supra-university level, which aim at the rationalisation of higher education. In order to pool resources groupings were established, often in the legal form of a "groupement d'interêt public", or GIP, which may themselves be called universities or university centers. The Law on the Program for Research of 18/04/2006 permitted the creation of tighter groupings called Pôles de recherche et d’enseignement supérieur (PRES). A cluster of research and education combines independent institutions. It may concern a structure of research or teaching, private or public, French or European. Legally binding is only the requirement that it must have at least one public scientific, cultural and professional institution (i.e. a university). Also an association or an enterprise may become an associate member of a PRES. A PRES may have different legal status: a Public Institution for Scientific Cooperation, a Grouping in the Public Interest, or a Foundation for Scientific Cooperation. Most PRES are organised as Établissements public de coopération scientifique (EPCS), because such organisations may employ civil servants and they may grant national diploma.

5.1. Universities

In France reforms of the higher education around 1970 split large public universities into smaller autonomous successor universities (e.g. Paris I, Paris II, Paris III, to Paris XIII). Presently, there are some 83 universities in France. A recent analysis achieves the result that the evolution at French universities towards an industrial friendly education. This could be based on the negligence of academic circles to adapt the teaching to social and technical conditions of life or on the indifference with regard to necessities demanding a change. According to tests much depends on initiatives by leading persons.

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135 Rapport sur les politiques nationales de recherche et de formations supérieures, Annex to the Project of a Law on Finances for 2010, p. 34.
137 Law of 12/12/2010, LOI n° 2010-1536 du 13 décembre 2010 relative aux activités immobilières des établissements d'enseignement supérieur, aux structures interuniversitaires de coopération et aux conditions de recrutement et d'emploi du personnel enseignant et universitaire (1)
Recent initiatives by the French government cleared tasks and competencies of personnel involved in teaching and research. \(^{139}\) Universities and institutes of the CNRS establish mixed units ("unites mixtes"). Research is basically the task of professors ("enseignants-chercheurs"). On 25/09/2009 a decree modified the status of "enseignants-chercheurs". The decree fixes the annual working hours at 1607, and it introduces the possibility of modeling, which means that activities, which fall out of the field of teaching and research such as pedagogical tasks, distance learning or international cooperations with other universities) may be set off with the working hours. Additionally, an "enseignant-chercheur" has the possibility to collaborate with a research team, which does not belong to his institute. The evaluation of "enseignant-chercheurs" is done by the "Conseil National des Universités" (CNU) within four-year periods.

5.2. Specialized Schools and Out-of-University Research

France has a variety of mixed forms of more or less public research institutions:\(^{140}\)
- 9 Établissements Publics à Caractère Scientifique et Technologique (EPCST) - public law institutions with financial autonomy;
- 15 Établissements Publics à Caractère Industriel et Commercial (EPIC) - in general privately organized public institutions of an industrial and commercial nature;
- 9 Établissements Publics à Caractère Administratif (EPA) - public law institutions with a limited administrative and financial autonomy;
- 125 Établissements Publics à Caractère Scientifique, Culturel et Professionnel (EPSCP) - public institutions charged with scientific, cultural and professional tasks (which includes French universities, but also the Collège de France, museums etc.);
- Établissements Publics de Coopération Scientifique (EPCS) - with numerous cooperating partners;
- Fondations - foundations;
- Groupements d’Intérêt Public (GIP) - groupings of a public interest;
- Instituts fédératifs - federal institutions.

5.3. Different Types of Collaboration of Public Research Institutions, Universities and the Industry

There is a large number of different types of collaboration between public research institutions, universities and the industry:\(^{141}\)
- Unité mixte de recherche (UMR) - mixed research groups between public research institutions (e.g. CNRS) and/or universities;
- Institut fédérale de recherche (IFR) - mixed project groups established by different scientific collaborators from different research institutions at the site of a partner with additional financial means and staff of the other partners; own responsibility of the IFR with regard to research and use of finances;
- Groupement de recherche (GDR) - cooperation in research between different units of a research institution or with partners of other research institutions;
- Réseau national de recherche et d’innovation technologique (RRIT) - national research and technological innovation network, which is particularly financed within the framework of the Loi sur l’innovation - Law on Innovation of July 1999;
- Action concertée incitative (ACI) - special research with special public funding based on a recommendation by the Comité interministeriel de la recherche scientifique et technique (CIRST) - Inter-ministerial Committee for Scientific and Technical Research;
- Groupement d’intérêt publique (GIP) - association of public of private institutionisn with scientific, technical, cultural or educational interests;
- Très grands équipements (TGE) - large public or private initiatives for research with a big equipment;\(^{142}\)

\(^{139}\) See http://www.kooperation-internationale.de/frankreich/themes/international/laender/forschungs- bildungslandschaft/forschungslandschaft/ download on 04/05/2011.

\(^{140}\) See http://www.kooperation-internationale.de/frankreich/themes/international/laender/forschungs- bildungslandschaft/forschungslandschaft/ download on 04/05/2011.

\(^{141}\) See http://www.kooperation-internationale.de/frankreich/themes/international/laender/forschungs- bildungslandschaft/forschungslandschaft/ download on 04/05/2011.

\(^{142}\) See e.g. "Le Rôle des très grands équipements dans la recherche publique ou privée, en France et en Europe", Assemblée Nationale, Rapport de l’Office parlementaire d'évaluation des choix scientifiques et technologiques, Cuivilliez, C. and Trégouet, R.: Rapport sur les
6. Applied Innovation Policy

6.1. Jeune Entreprise Innovante (JEI) - Young Innovating Entreprise and Jeune Entreprise Universitaire (JEU) - Young University Enterprise

**Jeune Entreprise Innovante (JEI) - Young Innovating Entreprise**

The Finance law of 2004 established the institution of the **Jeune Entreprise Innovante (JEI)** - Young Innovating Company. This status is granted to SMEs or MSEs with a business life of less than 8 years and which have expenditures for R&D of at least 15% according to their balance provided the following 5 conditions are fulfilled:

- **To be an SME within the concept of EU law (e.g. less than 250 employees)**
  - A company can request the statute of JEI until its eighth birthday but at the end of its 8th year the company will lose this status.
  - A **minimum expenditure for research must amount to at least 15% of the company's annual expenditure**, see Article 244 quarter B of the Basic Tax Code.
  - The company must be independent. The condition of detention of the capital must be observed throughout the exercise with the title of which the company concerned wishes to profit from the special statute. At least half of the capital of the JEI must be held by the following shareholders:
    - physical people;
    - an SME;
    - recognized public scientific institutions;
    - institutions of research and teaching and their subsidiaries;
    - particular investment institutions, provided that there is no dependency between these institutions and the company claiming the status of a JEI, namely:
      - companies of venture capital;
      - investment funds with a risk such as the investment funds in innovation (FCPI);
      - regional development companies;
      - finance companies of innovation;
      - unipersonal companies of investments at the risk (SUIR).

**Nature of the granted advantages**

A JEI will benefit from tax reductions. For example, no profit tax will be payable for a duration of 3 years and during the following 2 years the tax rate will be only 50%. Also other taxes such as the tax on land and buildings may be waived for a period of up to seven years.

The JEI is exonerated from the obligation to pay the employer's shares of social security. This concerns payments for researchers, technicians, managers of project of R&D, lawyers employed to safeguard interests in industrial property or agreements related to the project and the personnel in charge of pre-competing tests. The total exemption of the employer's shares of payments for social security cannot be cumulated with other subsidies such as the state's aid for employment. However, the JEI may accumulate advantages from the exemption from profit tax with tax credit schemes.

**Jeune Entreprise Universitaire (JEU) - Young University Enterprise**

Conditions for obtaining the status of a JEU

The concept of the Jeune Entreprise Universitaire was introduced in 2008. Its aim is to encourage the creation of companies by those who participate in the research within institutions of higher education.

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143 See http://www2.enseignementsup-recherche.gouv.fr/technologie/mesur/jei.htm, download 05/05/2011.

The JEU constitutes a variety of JEI. Apart from the requirement concerning the minimum expenditure for research all other requirements applicable to a JEI are also relevant for the JEU. The JEU must answer two cumulative conditions:

1. it must be managed or at least 10% of its shares must be hold by students or graduates who received their degree or who performed teaching activities no more than 5 years ago;
2. it must have as principal activity the valorization of research tasks in which the managers or shareholders participated during their education within an institution of higher education entitled to deliver a diploma conferring at least a master degree.

The terms of a JEU are established in a convention agreed upon between the institution of higher education and the company. A Decree of the Conseil d'Etat defines the nature of the research tasks, which must be regulated by the convention, and it defines the kind of services beneficial to the company or the methods of remuneration of the institute of higher education.

**Advantages related to the status of a JEU**

The companies, which enjoy the status of a JEU will benefit from the same tax and social payment reliefs, which are currently applicable to the JEI.

**6.2. Crédit d’Impôt Recherche (CIR) - Tax Credits on R&D**

The CIR program gives claimants cash refunds and/or tax credits for their expenditures on eligible research. Since 2008 the applicant may receive a tax credit of 30% of R&D expenditure up to € 100 million, respectively 5% of R&D expenditure in excess of this sum. In the case of startups the tax credit may even amount to 50% of expenses for R&D

Eligible expenses are:
- expenditure for goods with depreciation assigned to operations of R&D;
- staff costs concerning researchers and technicians;
- administrative expenditures fixed at 75% of the staff costs;
- the expenditure of R&D entrusted to approved organizations by the ministry for Research both in France and in a EU Member State.

Other expenditures may qualify for eligibility:
- expenses for the deposit, maintenance and defence of a patent;
- expenses arising from standardization in relation to products of the company;
- expenses arising from the costs of a technological survey up to € 60,000.

To be sure that the expenditure of R&D can be taken into account within the framework of the CIR, the applicant may deposit a preliminary request for an opinion with its tax authorities, with the OSEO or the ANR. In the absence of response of the administration or an organization within 3 month, a positive opinion is deemed to be given.

In general the tax credit for R&D will be charged to the tax, which the applicant has to pay, provided that his taxable profits were sufficient. Failing this, and for companies of more than 250 employees, the tax credit can either be refunded by the State after three years, or it may be liquidated with the Banque National de Paris Paribas, the Société generale or OSEO. An immediate refunding by the state will be made in the case of new companies and SMEs. By immediate refunding applied in 2009 and 2010 the state suffered considerable tax losses evaluated at nearly € 5 billion per year.

**6.3. Fonds de Capital-Armorçage - Funds of Start-up Capital**

Fonds de Capital-Armorçage are funds for start-up capital. Launched in 1999 the French government decided to devote some € 22 million to funds which invest in companies related to public research. The plan for 2011

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145 See e.g. http://www.oseo.fr/votre_projet/creation/guides_de_la_creation/credit_d_impot_recherche_cir;
   http://www.industrie.gouv.fr/enjeux/innovation/credit-impot-recherche.php, downloads on 05/05/2011.
146 See http://www.enseignementsup-recherche.gouv.fr/cid5734/les-fonds-capital-armorce.html, download 05/05/2011.
envisages the payment of € 399.8 million. The funds of start-up capital are privately organised funds, which are specialised in the contribution of capital in innovating companies. They participate in these companies from their start-up phase onwards when R&D are not completed and the companies cannot offer products or services. Research organisations or universities are natural partners of these funds, insofar as projects for the establishment of companies exploiting technologies, which result from laboratory work seem promising. Start-up financing thus represents a specific stage of the financing of the company. It is very different from venture capital, taking into account that much time and expertise is necessary and investments will still be relatively low.

Subsequent stages of financing may be organised by more traditional venture capital funds. Contributions of these funds will enable a company to complete the industrial development of its product and to cover expenditure for manufacture and marketing. The financing of start-up capital was not widespread in France, taking into account of the absence of business angels schemes and a lack of financing of companies, for which prospects of profitability appeared dubious. Therefore, it was considered necessary that the State gave an impulse in this field. Public start-up capital is provided for institutions of research and higher education, refundable at the end of a maximum of 12 years.

6.4. Fonds Communs de Placement à Risque (FCPR) + Fonds Communs de Placement dans l'Innovation (FCPI) + Fonds de Fonds Technologiques (FFT)

A venture capital company (FCPR, or Fonds Commun de Placement à Risques) is an entity whose purpose is to invest in, promote and develop other corporations (provided those corporations are not involved in the provision of financial services). This is usually achieved through the venture capital company taking a participating shareholding in the target company. The law is set out in article 34 of the General Tax Code.

The FCPR legislation was initially enacted in 1983 at a time when the venture capital industry in France was in its infancy. Since then, given the considerable changes in the French venture capital environment, the legislation has been significantly modified to encourage private equity financings. The FCPR can now be used as a master feeder fund, can be a fund divided into different series and can also be a fund of funds.

Recent regulations now confirm an FCPR to be an easy and tax efficient structure for the carried interest for the managers. Furthermore, not only is the FCPR itself not subject to any taxation in France, but also, French investors pay tax when the gains are distributed and not when the FCPR realizes capital gains. This makes the FCPR a very specific, unique and attractive investment vehicle and explains the big increase in the number of FCPRs formed in France over the past few years. As of January 1, 2006, corporations subject to corporate income tax benefited from the newly-introduced progressive capital gains tax exemption on the sale of their shares in FCPR and/or related to the capital gains made by the FCPR on the sale of their own shares.

In order to qualify in France as an FCPR and therefore obtain the favorable fiscal advantages available a company must meet the following criteria:

- 50% of the FCPR assets must consist of shares, convertible bonds or participating interests in target companies.
- The target companies must be resident in a member state of the EU. The FCPR investment in a target company must not exceed more than 40% of the voting capital of the target company and its total investment in any target company must not exceed 25% of the share capital of the FCPR. If it exceeds these figures the target company may be considered a subsidiary and different tax rules will apply.
- The target company must not be quoted on the French or any foreign stock exchange.
- The target company must be involved in industrial or commercial activities and not in banking or insurance services (as defined in article 34 of the General Tax Code).
- Not more than 30% of the FCPR's shares can be held by any one individual.

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147 See http://www.senat.fr/rap/l10-111-312/l10-111-3123.html, download 05/05/2011; see also Projet de loi de finances rectificative pour 2010, présenté au nom de M. François FILLON, Premier ministre, et par M. Éric WOERTH, Ministre du budget et comptes publics de la fonction publique et de la réforme de l'État, p. 61.


Fiscal Incentives

- No corporate income tax is payable by an FCPR on any dividend income remitted by a target company in which the FCPR has a participating interest.
- No capital gains tax is payable by the FCPR on any profitable sales of its shareholding in a target company. In France capital gains are normally taxed as corporate income.
- Dividends remitted by the FCPR to individual shareholders which represent income are subject to a flat tax rate of 16% (at the time of writing) in the hands of the individual shareholders instead of the progressive tax rates that apply in France. Dividend income remitted to FCPR shareholders on the profitable disposal of assets held for a minimum of 2 years is subject to the lower rate of capital gains tax (In France there are 2 rates of capital gains tax - a long term rate which is lower and a short term rate which is higher.)

Legislation in 2004 introduced Local Investment Funds. Such Funds have to use at least 60% of their capital to buy shares of enterprises or give current account advances, and at least 10% must be given to new enterprises created less than five years ago. Qualifying enterprises must be small or medium enterprises principally situated in a region or two or three adjoining regions, or otherwise have its registered office there. These enterprises should not be finance companies nor holding companies of finance companies but can be other risk capital mutual funds or risk capital companies, as well as companies giving guarantees in that region. No individual can hold over 20% of the fund, no enterprise can hold more than 10% of the fund, and all enterprises together cannot hold more than 30% of the fund. Tax benefits are similar to those for the FCPR.

A number of other changes were made to individual taxation in 2004 in order to improve the position of people investing in FCPRs and Local Investment Funds. These include the SUIR (Individual Risk Capital Company). Such a company invests in non-quoted shares at the time of an initial issue or an increase in capital of a taxable EU company, holding from 5% to 20% of the shares. The SUIR is exempt from corporate income tax for ten years. Dividends paid by the SUIR to its owner exempt from Personal Income Tax and from Withholding Tax.

The Fonds Communs de Placement dans l'Innovation (FCPI) is a special type of an FCPR available to individuals. Individuals are entitled to a tax deduction equal to 25% of the amount invested in the FCPI up to EUR12,000 (about USD14,525) per person. To qualify for favourable tax treatment, at least 60% of the assets of the FCPI must be invested in securities of non-listed companies that are:

- innovative;
- established in the European Economic Area (EEA);
- subject to corporate income tax;
- held predominantly (directly or indirectly) by individuals; and
- staffed by fewer than 2,000 employees.

However, determined to rein in fiscal expenditure, the government firmly set its sights in 2009 on addressing the issue of tax breaks. Provisions granting exemptions or reductions in taxation (niches fiscales) are set to cost the government an estimated € 70.7 bn in 2009 (€ 75.5 bn including stimulus measures), much more than previously anticipated. According to the 2010 finance bill, this figure is set to rise again in 2010 to € 72.2bn (€ 74.8bn).

Regarding exemptions or reductions in social contributions, this figure was set to reach € 42bn in 2008. Although a global ceiling on tax breaks for individual taxpayers was imposed in France in November 2008, limiting the total amount that can be claimed by any one individual to € 25,000, plus 10% of gross taxable income, the system -- offering reductions, exemptions and tax credits -- is still proving too costly for the state. The Financial Bill 2011, presented in October 2010, announced that the government aimed to implement 10% cuts in tax breaks.

The Finance Law for 2011\textsuperscript{150} envisages investments of some € 10 million for the Fonds de co-investissement pour les jeunes entreprises (FCJE) - Funds of joint investments for new enterprises, which organizes investment in technological SMEs, the Fonds de promotion pour le capital risque 2000 (FPCR 2000) - Fund for the Promotion of Capital Risk 2000, and the Fonds de fonds technologique 3 (FFT 3) - Funds of Funds Technology 3: these funds, established within the concept of the FCPR, invest in Capital Risk Funds, which participate in the financing and establishment of innovating enterprises.

\textsuperscript{150} See http://www.senat.fr/rap/l10-111-312/l10-111-3123.html.
6.5. Société Unipersonnelle d'Investissement à Risque (SUIR)

The SUIR or the unipersonal investment company with risks is a device created by the finance law 2004 in order to encourage the personal investment in start-ups. The SUIR is a simplified joint stock company (SAS) composed of only one shareholder. The sole purpose of the company is the subscription in cash for the capital of a company under certain conditions, which are explained in Article 208 D of the Basic Tax Code.

According to the legislation of 2004 the conditions were as follows:

− to hold at least 5% and not more than 20% of the capital of the company which is the object of the investment;
− no administrative duty could be exercised by the single associate or a member of his family;
− the single associate of the SUIR or his family members should not hold together directly or indirectly more than 25% of the shares and voting rights of a company in which the SUIR invests.

Subject to the fulfillment of these conditions the SUIR is exempted from the obligation to pay corporation tax during 10 years. The single associate is exonerated from income tax with regard to dividends perceived from the SUIR under certain conditions.

The Finance Law 2006 softened these regulations:

− the SUIR should hold a minimum of 20% and a maximum of 30% of the shares in the company in which it invests;
− the percentage of shares and voting rights by the single associate of the SUIR (or its family circle) in those companies in which the SUIR invests, should not exceed more than 30%.

6.6. Pôles de Compétitivité - Competitiveness Clusters

Based upon considerable analyses the French considered that the the process of innovation could particularly be favoured by the establishment of clusters. The French government describes the roles and tasks of competitiveness clusters as follows:

Their tasks are: to strengthen the competitiveness of the French economy and develop both growth and jobs in key markets:

− Through increased innovation
− By encouraging high-value-added technological and creative activities, principally industrial, at a regional level
− By attracting businesses to France thanks to a higher international profile

Competitiveness clusters' strategy:

Each competitive cluster draws up a five-year plan, based on a vision shared by the various stakeholders. With the plan, the competitiveness cluster can:

− Develop partnerships between the various stakeholders, based on their complementary skills
− Construct shared strategic R&D projects that can benefit from public funding, particularly the Interministerial Fund (FUI)
− Promote an overall environment favourable to innovation and the competitiveness cluster's stakeholders via presentations, knowledge-sharing and mutual support among cluster members on topics such as training and human resources, intellectual property, private-sector financing, international development, and so on.

Public support for clusters:

The French Government is particularly interested in promoting an overall environment favourable to enterprise and innovation, and in supporting R&D efforts within competitive clusters. It accompanies cluster development at both local and national levels in the following ways:

By allocating, through the Single Interministerial Fund, financial support for the best R&D and innovation platform initiatives via calls for projects

Partial financing for cluster governance structures, alongside local authorities and companies

Financial support for theme-based collective actions initiated by clusters in a wide range of areas, via the various Regional Directorates for Industry, Research and the Environment (DRIRE)

By carrying out and publishing studies such as "Les bonnes pratiques de gouvernance pour les pôles de compétitivité" ("Good governance practices for competitiveness clusters") and "Le guide pratique de la propriété intellectuelle dans les pôles" ("A practical guide to intellectual property in clusters")

By involving various partners, such as the Caisse des Dépôts, or the French National Research Agency (ANR) and OSEO both of which finance R&D projects led by cluster stakeholders

By bringing new means from public research centres

Finally, by seeking assistance from local authorities, who can also provide financial support for cluster projects (R&D, innovation platforms)

Taking into account of the huge investments made for competitiveness clusters an inter-ministerial fond was established, the Fonds Unique Interministériel (FUI), which finances projects of R&D undertaken by a competitiveness cluster. Additionally, the ANR finances certain project, particularly those of a partnership nature, that is to say projects of public institutions with industrial partners. Also the Agence pour l'Innovation Industrielle (AII), and, subsequently, the program "Innovation Stratégique Industrielle" - Stratégical Industrial Innovation (ISI) of the OSEO financed some projects with some € 35 million each. But OSEO financed also smaller schemes within the framework of competitiveness clusters, for example some 1,300 projects of SMEs.

Beyond the financial support of partnership projects the competitiveness clusters achieve a great success by combining the worlds of the university and industry, which had been encouraged by the Convention for/on Research.

There are some special advantages of competitiveness clusters, which appeared only after first experiences were made:

- the experience with competitiveness clusters brought about a closer collaboration between regional parties, which up to then did not have the need to collaborate with each other and to develop common aims in order to improve the regional economy, in particular industrials, researchers, teachers, regional authorities and representatives of the state;
- public services were mobilized on the local and on the state level with the support of some 120 experts in any subjects relating to innovation;
- local authorities and organizations participated in their efforts for the financing of projects and carrying out collective actions.

A study, which was carried out in 2008, and which analysed the then operative competitiveness clusters, envisaged that already from 2009 onwards the financial support of clusters could be reduced in many cases, in particular where partnership projects developed successfully, where new products were developed and new employments.

With a view to the successful implementation of the first phase of the competitiveness clusters the French government decided to spend some € 1.5 billion on competitiveness clusters during a second phase from 2009 to 2011.

The public interest in spending this large amount of taxpayer's money will be safeguarded particularly by:
- enforcing the strategic aims of competitiveness clusters, namely by drafting "agreements on performance";
- new methods of financing, particularly for plates-formes d'innovation - innovation platforms;
- the development of an ecosystem of innovation and growth, with special ways for private financing and the use of an optimum of regional synergies.

153 Rapport sur les politiques nationales de recherche et de formations supérieures, Annex to the Project of a Law on Finances for 2010, p. 50.

The sum of € 1.5 billion will essentially originate from the Inter-Ministerial Fund (some € 600 million) and from the three organisations ANR, OSEO and CDC (some € 850 million).\textsuperscript{155}

\textbf{6.7. Réseaux Thématiques de Recherche Avancée (RTRA)}

The Réseaux Thématiques de Recherche Avancée (RTRA) - Thematic Networks of Advanced Research are based on scientific collaboration.\textsuperscript{156} The establishment of RTRA was envisaged by the Convention of Research of 2006 with the aim to promote advanced research on the internationally highest level. Some 13 projects were chosen for financial support by the state,\textsuperscript{157} taking into account their excellence, their value and their originality of the project within a procedure.

\textbf{6.8. Pôles de Recherche et d’Enseignement Supérieur (PRES) - Clusters of Research and Higher Education}

The clusters of research and higher education constitute the French response to the necessity to compete with highly ranking research institutions of other nations on a global level.\textsuperscript{158} The ensuing collaboration between universities and institutions of highest education (grands écoles) will unleash a movement towards a intensification of research. In fact, a PRES will often combine different universities within a new organization. For example, the universities of Borgogne and the Franche-Comté established a PRES with the name "Bourgogne-Franche-Comté Universities".\textsuperscript{159}

Alongside changes in legislation governing the focus and organisation of research programs, due to take effect from 2005 and conforming to directives previously defined at the Conference of University Presidents, French universities are undergoing a restructuring process. The aim is to improve their competitive status in the European and international arena, making them major players in the future of French education, research and innovation.\textsuperscript{160} Various groupings of higher education establishments are assigned to PRES. The existence of PRES has led to various cooperation and management strategies between the various units. These strategies, selected and adopted by the establishments concerned, direct university activities to sectors of variable size, but which are nevertheless important: the definition of a common teaching strategy; determination of a common management policy for human resources; establishment of real communal services; individual doctoral schools, a common committee for strategic directives, a common research strategy, etc. Putting these policies into effect require the delegation of the establishments’ competencies and will be achieved through collaborations between the partners and by their surveillance.

\textbf{Example: UniverSud Paris}\textsuperscript{161}

Administrative advisors from the three founding establishments had voted for the inaugural convention of UniverSud Paris with a large majority. The convention details the competencies delegated to PRES, the themes concerned and the Etablissement Public de Coopération Scientifique (EPCS) - public establishment for scientific collaboration - statute. The UniverSud Paris establishment and statute proposals were put forward to the Direction Generale de L’Enseignement Supérieur - National Board of Higher Education - in October 2006 and 15th December 2006, respectively. UniverSud Paris was officially created by decree on 21 March 2007, conforming to ESPC structure.\textsuperscript{162}

\textbf{6.9. Conventions Industrielles de Formation par la Recherche (CIFRE) - Industrial Agreements on Training by Research and Conventions de recherche pour les techniciens supérieurs (CORTECHS) - Agreements on Research for Highly Qualified Technicians}

\textsuperscript{155} See http://competitive.gouv.fr/les-financements-des-poles-356.html, download 05/05/2011.-
\textsuperscript{156} Ministry of Higher Education and Research: Présentation du concept de réseau thématique de recherche avancée (RTRA), 23/05/2006.
\textsuperscript{158} Cytermann, J.-R., refers in his report of 2007, La mise en place des pôles de recherche et d'enseignement supérieur (PRES), p. 3, to the universities of Oxford, Munich and Barcelone, and he draws a parallel to the German concept of universities of excellence.
\textsuperscript{159} Cytermann, ibid., p. 12.
\textsuperscript{160} See http://www.u-psud.fr/en/research/pres.html, download 05/05/2011.
\textsuperscript{161} See note above.
\textsuperscript{162} See Article L. 344-1 of the Code of Research and the Regulations to Articles L. 344-4 to L. 344-10 of the same Code.

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The Association Nationale de la Recherche et de la Technologie (ANRT) - National Association of Research and Technology - explains:

Since nearly 30 years, the Conventions Industrielles de Formation par la Recherche (CIFRE) - Industrial Agreements of Training by Research - brought together some 6,000 companies, 4,000 laboratories and 12,000 PhD students grouped around innovation and research projects. The companies, half of which are SMEs, declare in 70% of the cases, that they obtained results usable for their products or processes. Some 15% of the conventions resulted in the deposit of at least one patent. Some 12,000 conventions were carried out in the long term and in 90% of the cases they led to the defence of a PhD thesis, constituting a sound basis for a professional career.

Since its origin CIFRE, which is entirely financed by the Ministry charged with research, is a continuing success. Its vocation is to contribute to the process of innovation at companies and their competitiveness. It supports exchanges between government research laboratories and private, large or small companies. The Ministry in charge of research entrusted to the ANRT the implementation of device CIFRE. Its objective is to support the development of public-private partnership research and to place PhD students under condition of uses. It rests on the association of four actors:

**The company** employs a post-graduate to whom it entrusts a mission of strategic research for its socio-economic development. His annual gross salary must not be lower than € 23,484. His work must correspond with his PhD thesis. The employment is registered with the post-graduate's academic institution. The post-graduate has to devote all of his working time, which can be shared with the work at the laboratory or the company, to the research tasks. By doing this the post-graduate receives also a vocational training.

**The ANRT** concludes with the company an agreement on industrial training by research (CIFRE), on the basis of which the company receives a subsidy. For example, in 2010 the annual subsidy amounted to € 14,000. This subsidy is increased by the tax credit (CIR), which is calculated on the not subsidized share of the employee's costs. The company may thus receive annually at least € 14,294.

**Within the six months, which follow the conclusion of the CIFRE the company and the laboratory** establish a contract on collaboration in research, which stipulates for example the conditions of the partnership and in particular the methodology of research, the places of work of the post-graduate, issues of confidentiality, intellectual property. An annual progress report, signed by the company, the research laboratory and the post-graduate, is submitted to the ANRT.

Conditions for the application of the scheme are:

**The company** must be established according to French law.

**The candidate** must be a post-graduate (no matter of which nationality) with a diploma of level M. The postgraduate must not have worked for more than 12 months on his thesis at the beginning of the collaboration under the CIFRE and the request for a CIFRE has to be made no more than 9 months after the date of recruiting of the post-graduate and after the first inscription in the doctoral education.

**To be recognizable the academic research laboratory** may be that of a university, a higher school or of a public organization of research. It may also be a foreign laboratory. In this case, the **joint supervision** by a recognized French laboratory is required.

The decision on the acceptance of a CIFRE be made throughout the year. In general, the decision will be communicated within two months after the deposit of the complete file. No data transmitted to the ANRT must be of confidential quality.

A Committee of evaluation and follow-up which is supported by two experts will prepare the decision:

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163 See [http://www.anrt.asso.fr/fr/espace_cifre/mode_emploi.jsp](http://www.anrt.asso.fr/fr/espace_cifre/mode_emploi.jsp)
A socio-economic expertise will be carried out by the relevant regional delegation for research and technology (DRRT). This expertise will take into account the company's financial strength, its market position and its capacity to provide a "professionalising" education to the post-graduate.

A scientific expertise will appreciate the adequacy and relevance of the partnership and the doctoral education.

Criteria of evaluation are:
- the correspondence with a general strategy of the company: the subject of the research must correspond with the intended development of the company;
- the effective training in company: at the end of the agreement the doctor must be able to present a professional experience of research;
- the proposal of a subject of interest to the business world: at the end of the doctoral education, the graduate must be able to develop and apply his methodological and scientific knowledge;
- the presentation of a complete file: the experts in charge with the scientific expertise and the socio-economic expertise must be able to base their findings on the file: documents presenting the company, cv of the candidate, the developed subject of research.

The opinion relating to the scientific expertise will focus on:
- the interest and the scientific quality of the subject of research like its technico-economic interest;
- the engagement of the company with respect to the candidate and the research project;
- the coherence and relevance of the company's activity in relation to the research project;
- the coherence and adequacy of the candidate's training relating to the research project;
- the relevance and competence of the laboratory to provide the research results;
- the preparedness of the laboratory to collaborate with the company.

Conventions de recherche pour les techniciens supérieurs (CORTECHS) - Agreements on Research for Highly Qualified Technicians

Public support is given to young technicians and Ph.D students by conventions de recherche pour les techniciens supérieurs (CORTECHS), agreements on research for highly qualified technicians.

The aim of this program is to incite SMEs and MSEs to entrust a young technician with a higher education of project of the development of technology within one year in collaboration with a centre of competence. The agreement CORTECHS has three partners: the SME or MSE, a graduated technician and a centre of competence. The centre of competence may be a research institution, a university, a school of engineers, a technical and professional school, an institution for the transfer of technology (CRITT, CRT, PFT), preferably in the proximity of the company. the working contract between the company and the graduate technician must have a minimum duration of one year. During the agreement the technician receives a complementary training in order to manage the innovation project with a duration of at least 80 hours.

The agreement between the company and the ANVAR is of a duration of one year. It envisages a subsidy of the company of € 13,000, which covers a maximum of 50% of eligible costs (salary and expenses, contribution to the centre of competence). Such agreements are financed by the Ministry charged with research and new technologies. The ANVAR manages the CORTECHS on behalf of the Ministry.

7. Observing Regional Interests

Reduction of policy measures to set the formal framework, ensuring that decision making can happen supported by a "facilitating state" ("etat facilitateur"). Accordingly, the efficiency of the research system and the maximization of economic returns in the investment of R&D is ensured by a strengthening of the regional level.

7.1. Délégué régional à la recherche et à la technologie (DRRT) - Regional Delegate of Research and Technology

The délégué régional à la recherche et à la technologie (DRRT) - the Regional Delegate of Research and Technology acts as the public authority for regional affairs in the fields of research, technology, innovation and the

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scientific and technical culture. The Regional Delegate has the task of supervising regional initiatives with regard to national policy concerning programs relating to research and innovation. In particular, the Regional Delegate co-ordinates activities relating to clusters of research and technology, and he develops activities concerning the evaluation and transfer of technologies resulting from public research to businesses and he encourages the distribution of new technologies towards SMEs and MSEs. Additionally, the Regional Delegate makes proposals concerning the grant of subventions in his fields of activity, which shall be considered by regional administrations.

According to Article 3 of the Decree the Regional Delegate is responsible for the regional delegation of research and technology and with this regard the Regional Delegate may avail himself of financial means and of the staff of the Minister charged with research or of other relevant ministries, or public institutions and offices in the fields of higher education and research. Regional Delegates will be employed after a vacancy note has been made by the Minister charged with research and the candidates for the post are communicated to the Commissioner or the relevant region, Article 4 of the Decree. Candidates for the post must have a high position in the civil service.

The Decree thus ensures that the interests of the French regions are reconciled with the policy of the central government. Since French innovation policy focuses on particular French qualities with a view of the global market, the position of the Regional Delegate will ensure that regional concerns can adequately be taken into consideration when developing the national innovation strategy.

7.2. Contrat de Projet Etat-Régions (CPER) - Contracts on Regional State Projects

During the period between 2007 and 2013 the French government will invest some € 639 million for particular research programs of institutions of higher education in the regions.

7.3. Regional Chambers of Commerce

Regional chambers of commerce received particular powers in order to support creative and innovative activities of companies. A Decree no. 2010-1463 of 01/12/2010 - Article 24 - modified the Commercial Code with this aim. A regional chamber of commerce and industry issues an opinion upon the request of the regional council on issues concerning the support of those who establish businesses and of businesses of which the region wishes that they would be created. According to Article R711-33 II clause 6 of the Commercial Code the chambers of commerce and industry support regional clusters specialised in economic activities, economic intelligence, innovation, the environment and the international development.

8. New Initiatives

Chamber of Commerce and Industry of Paris (CCIP): Methods for Ways to Recover Growth for Medium Sized Enterprises (MSEs)

MSEs are undertakings with 250 to 5,000 employees with a turnover below € 1.5 billion and a balance, which does not exceed € 2 billion, as defined in the Law on the modernization of the economy of 04/08/2008. MSEs represent only 0.2% of the companies in France, but they employ some 25% of the workforce. Important: some 40% of the MSEs are industrial companies, whereas in the case of SMEs this percentage is much lower.

The CCIP arrives at the result that three strategic aims should be pursued.

- **Stimulating the ability to innovate in order to strengthen competitiveness**;

1.2) Promoting the development on the international level;

165 Article 1 of the Décret no. 2009-589 du 25 mai 2009 relatif au délégué régional à la recherche et à la technologie - Decree no. 2009-589 of 25/05/2009 concerning the Regional Delegate of Research and Technology.


1.3) Encouraging external growth through mergers and acquisitions (M&A).

Question: Should public support available to SMEs also be made available for MSEs?

**Protection and Promotion of Innovation by Patents**

Different from anglo-saxon companies, French MSEs and SMEs make little or insufficient use of the patent system and, in general, of intellectual property. Several factors explain this situation:

- insufficient information about the importance of intellectual property for the management of businesses;
- high costs related to the obtaining and the defense of intellectual property rights;
- the idea according to which the intellectual property system is too restrictive and requires too much time.

For the CCIP it is essential that the EU should establish a true intellectual property policy, which improves particularly the patent system. (e.g. establishment of a EU patent and a pan-European jurisdiction). The CCIP would appreciate if the method for the calculation of employee-inventors would be improved so that employees would be encouraged. According to the French Intellectual Code employee inventors should receive a particular remuneration, even if they are employed to invent; the law should define the amount of the remuneration.

The CCIP suggests also an improved financing of the JEI (Jeune Entreprise Innovante) - Young Innovative Enterprise - and the Europeanisation of its status.

**9. Efficiency of Implementation of legislation in innovation field**

The French Industrial Innovation Agency (Agence de l’Innovation Industrielle, “AII”), established in 2005, was particularly charged with the measuring of the efficiency of innovation projects. However, the traditional French policy of supporting exceptional R&D efforts of large French companies was reviewed after the election of President Sarkozy in 2007. There was a marked shift in the national innovation policy. In 2008 the AII was abolished, and the new policy favours particularly regional support and support of SMEs. In its report “France: Innovation System and Innovation Policy” the Fraunhofer Institute (Emmanuel Muller, Andrea Zenker, Jaen-Alain Heraud, Fraunhofer Institute for Systems and Innovation Research, 2009, at 24) indicates:

New forms of public intervention, budgetary constraints, particularly in relation to university infrastructure, and the importance of the European project have coincided to strengthen the regional dimension of science and research. The reinforced importance given to the regional level is also driven by the need to increase the efficiency of the research system and to maximize economic returns from investments in R&D through spatial clustering and geographic proximity. New forms of public intervention have become dominant, with policy looking less substantial and more procedural. While the state still defines the rules of the game, it does not specify implementation mechanisms, leaving a vacuum between strategic direction and necessary and available policy instruments.

Public intervention may be characterized as the model of the “facilitating state”:

In the French context, key examples include the pôles de compétitivité and the réseaux thématiques de recherche avancée (RTRA). The pôles de recherche et d'enseignement supérieur (PRES) represent a slightly different initiative, insofar as these are bottom-up developments, not subject to national competition and with no initial dedicated funding attached. The PRES are largely academic collaborations and poorly connected to local actors, although regional/local authorities express their interest in the design of such initiatives and are ready to support them by their own means and policies.

Despite significant differences in the scale, scope, funding and governance of these initiatives, they all represent varying attempts to bring combinations of academic, industry and local economic actors together within geographical proximity. The emphasis on clusters and networks as tools for economic and scientific development builds on existing regional scientific competencies and innovation infrastructures.

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168 Ibid., p. 95.
169 Ibid., p. 105.
Efficiency is a pre-condition for selection within the public support programs. Rani Jeanne DANG (“Economics and Management of Innovation, Technology and Organizational Change”, paper for the DRUID-DIME Academy Winter 2009 PhD Conference, at 8 and 9 explains):

However, the efficiency of French Competitiveness Clusters in the definition of the R&D projects will certainly determine the cluster that will be ultimately selected. This is clearly a “hidden” incentive of the strategy that the French Competitiveness Clusters will have to internalise soon. Again the label is not an end; it is the beginning of the process.

Concerning Competitiveness Clusters it was observed (Rani Jeanne DANG: “Economics and Management of Innovation, Technology and Organizational Change”, paper for the DRUID-DIME Academy Winter 2009 PhD Conference, at 8) that the very low number of R&D projects submitted for financing support by most of French Competitiveness Clusters shows “that they have not necessarily understood the basic process at stake in the new industrial policy. Or, that the pre-existing configuration of the interactions in the French Competitiveness Clusters, shaped by years of centralization, implies some time to invent and implement new efficient local governance”.

Taking into account of the fact that the French Competitiveness Cluster represents the essential element of innovation policy, it appears surprising that “very few papers explain how they work and the difficulties they are confronted with, particularly concerning SMEs integration” (DANG, as above, at 27). The author indicates (ibid.):

The question of SME’s involvement into the French Competitiveness Clusters does not only come from technological capabilities, but from the nature of the interaction systems in which they evolve and how they get inserted in territorial networks. In order to foster SMEs integration into collaborative projects of Competitiveness Clusters it is necessary to understand the sector specific nature of the relations between SMEs and different local actors rather than simply focusing on the weaknesses of SME management or on the complexities of existing support programmes, as it is usually claimed. A knowledge exchange between firms and institutions are the main drivers of spatial agglomeration of the nature of knowledge - i.e. codified-tacit/architectural-specific/ as well as the way knowledge is managed, structured, diffused and with what degree of formality play a key role in our analysis of territorial cluster dynamics.

Accordingly, the efficiency of the implementation of French innovation policy seems to depend largely on factors, which are difficult to measure and which depend to a considerable degree on the ability of leading or responsible persons within a Competitiveness Cluster to establish a team spirit amongst its different collaborators.

10. Conclusions

The report shows that French policy concerning innovation is a highly dynamic process. The French government understands the regulation of research and higher education as decisive for the future role of the French industry in a global market. Accordingly, the measures, which are taken, reflect the search for the optimum rule in the public interest which is understood with a view to the performance of the French industry. This understanding of the public interest is determined by economic success.

An interesting factor: There seems to be little opposition against this quickly changing framework for innovation in France. Whereas in the last century French students were particularly known for their often critical position towards governments there is hardly any serious critique from academic circles, which would oppose these adaptations of research and innovation policies.

A third observation: the French national policy supports strongly regional interests. The development of a network of competitiveness clusters within the national territory takes into account historically grown particularities of the French industrial landscape and of France’s research institutions, which developed in the regions. It appears that a centralized government could be in a better position to balance regional interests than a government, which has handed over relevant powers to regional authorities. The efficiency of measures taken by a centralized government could be an advantage in comparison to the unavoidable process of negotiation between different regional authorities if the latter had more competencies for the regulation of innovation policy.
Particular implications of the report for Ukrainian policies could lie in aspects of educational and regional policies. The support of JEI - Young Innovative Enterprises - and JEU - Young University Enterprises - does not only have an impact on those enterprises, which receive such a support. The public interest in these new instruments is likely to have a general impact upon students and their approach towards their academic education and vocational training. It will broaden the next generation’s view towards their professional activity by strengthening the social-economic element. The regional support measures taken by the French government are susceptible to create confidence in the ability of a centralized government to appropriately reflect regional interests. Therefore, a close analysis of the operation and success of competitiveness clusters in France could be of interest for Ukrainian innovation policy.
Literature
Assemblée Nationale Sénat, rapport sur Science, Société et Parlements, 2008


Rapport sur les politiques nationales de recherche et de formations supérieures, Annex to the project of the Law of Finances of 2010 (Annexe au projet de loi de finances pour 2010)

**Legislation online available at the LEGIFRANCE search machine - www.legifrance.fr**

**Code général des impôts** (CGI) - Basic Tax Code

**Code de la propriété intellectuelle** (CPI) - Intellectual Property Code

**Code de la recherche** (CR) - Code of Research

**Loi de programme pour la recherche no. 2006-450 of 17/04/2006**

**Loi relative aux activités immobilières des établissements d'enseignement supérieur**, aux structures interuniversitaires de coopération et aux conditions de recrutement et d'empei du personnel enseignant et universitaire (1) no. 2010-1536 du 13 décembre 2010
Projet de Loi de finances pour 2011: Engagements financiers de l'État - compte d'affectation spécial: participations financières de l'État (Draft Budget for the Year 2011)
http://www.senat.fr/rap/l10-111-312/l10-111-3123.html

Décret no. 2009-589 du 25 mai 2009 relatif au délégué régional à la recherche et à la technologie (Decree Concerning the Regional Delegate for Research and Technology)

1 Annex

Code of Research

Book I: General organisation of research and technological development
Title I: Orientation of research and technological development
Chapter 1: Policy of research and technological development
Section 1: National policy
Section 2: Regional policies
Chapter 2: Aims and institutional means of public research
Chapter 3: Development of the means of public research and activities for the technological development
Chapter 4: Evaluation and control of research and the technological development
Section 1: Aims of the evaluation
Section 2: Agency for the evaluation of research and higher education
Section 3: Provisions relating to the evaluation and control

Title II: Consultative institutions of research and technological development
Chapter, introductory: Higher council of science and technology (Le Haut conseil de la science et de la technologie)
Chapter 1: Interministerial committee for scientific research and technology (Le Comité interministériel de la recherché scientifique et technique, CIRST)
Chapter 2: Council of national science (Le Conseil national de la science, CNS)
Chapter 3: National council for the coordination of human sciences and society (Le Conseil national de coordination des sciences de l'homme et de la société)
Chapter 4: Higher Council for research and technology (Le Conseil supérieur de la recherché et de la technologie, CSRT)
Chapter 5: National council for higher education and research (Le Conseil national de l'enseignement supérieur et de la recherche, CNESER)
Chapter 6: Consultative institutions for scientific and technical information
Chapter 7: Committees of concertation and coordination

Title III: Means for encouraging research and technological development
Chapter 1: R&D tax credits
Chapter 2: Funds for investments in innovation (Les fonds communs de placement dans l'innovation, FCPPI)
Chapter 3: Funds for research and technology and Funds for national science
Chapter 4: Support for innovation
Chapter 5: Donations
(…)

Book II: Practice of Research
Title I: Ethics of research
Title II: Research of human medicine and biology
Title III: Research with animals
Title IV: Modifications of genes in organisms
(…)

Book III: Institutions and Research Organisations
Title I: General rules
Chapter 1: Public research institutions
Chapter 2: Public institutions of higher education and research
Chapter 3: Evaluation of results of research (La valorisation des résultats de la recherche)

Title II: Public institutions of an administrative nature
Chapter 1: Common rules for public institutions with a scientific and technological nature
Chapter 2: Centre national de la recherche scientifique (CNRS)
Chapter 3: Institut national de la recherche agronomique (INRA)
Chapter 4: Institut national de la santé et de la recherche médicale (INSERM)
Chapter 5: Institut de recherche pour le développement (IRD)
Chapter 6: Institutions of exact sciences and technologies
Chapter 7: Institutions of research of human and social sciences
Chapter 8: Academy of technologies
Chapter 9: Agence national de la recherche (ANR), Articles L. 329-1 to 329-7

Title III: Public institutions with an industrial and commercial nature
Chapter 1: Centre national d'études spatiales (CNES)
Chapter 2: Commissariat à l'énergie atomique (CEA)
Chapter 3: Institut français de recherche pour l'exploitation de la mer (IFRREMER)
Chapter 4: Institutions of research in exact sciences and technology
Section 1: Agence nationale pour la gestion des déchets radioactifs (ANDRA)
Chapter 5: Institutions in support of the evaluation of research
Section 1 Agence de l'environnement et de la maîtrise de l'énergie (ADME)

Title IV: Structures of cooperation
Chapter 1: Groupings of public interest
Chapter 2: Industrial centres of technology
Chapter 3: General rules
Chapter 4: Clusters of research and higher education, special networks of advanced research, special centres of research, public institutions for scientific cooperation and foundations of scientific cooperation
(…)

Book IV: Research Staff
Title I: General Rules
Chapter 1: Tasks and basic rights
Chapter 2: Professional education
Chapter 3: Participation of research staff in the establishment of enterprises and in existing enterprises
Section 1: Participation of research staff in the establishment of an enterprise
Section 2: Scientific work for an existing enterprise and participation in the capital of an existing enterprise
Section 3: Participation of research staff in the management or in the supervisory board of a corporation
Section 4: General rules
Chapter 4: Rights of researchers

Title 2: Rules applicable to staff of public institutions of a scientific and technological nature
Chapter 1: General rules
Chapter 2: Researchers
Chapter 3: Engineers and technical research staff
Chapter 4: Administrative research staff
Chapter 5: General rules for engineers, technical and administrative research staff
Chapter 6: General rules for civil servants of public institutions of a scientific and technical nature

Title 3: Rules applicable to scientific staff
Chapter 1: Employees
Chapter 2: Associated researchers and teachers
Chapter 3: Days of leave for researchers and teachers

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HARMONISATION OF THE UKRAINIAN LEGISLATION ON INTELLECTUAL PROPERTY RIGHTS WITH THE EUROPEAN PATENT CONVENTION (EPC)

A. DIFFERENCES BETWEEN THE LAW OF UKRAINE AND THE EPC IN GENERAL

1. REPRESENTATION BEFORE THE OFFICE

<table>
<thead>
<tr>
<th>LAW OF UKRAINE</th>
<th>EPC</th>
<th>PATENT LAW TREATY (PLT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art. 5 Rights of Foreign Persons and Stateless Persons</td>
<td>Art. 133 General principles of representation</td>
<td>Art. 7 Representation</td>
</tr>
<tr>
<td>(2) Foreign and stateless persons residing or having a permanent location outside UA exercise their rights in relations with the Office via representatives.</td>
<td>(2) Natural or legal persons not having their residence or principal place of business in a Contracting State shall be represented by a professional representative and act through him in all proceedings established by this Convention, other than in filing a European patent application;</td>
<td>(2) [Mandatory Representation]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(a) A Contracting Party may require that an applicant, owner or other interested person appoint a representative for the purposes of any procedure before the Office, except that an assignee of an application, an applicant, owner or other interested person may act himself before the Office for the following procedures:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(i) the filing of an application for the purposes of the filing date;</td>
</tr>
</tbody>
</table>

Results:

The EPC, following the PLT, is more liberal than the Law of Ukraine. Foreign persons are permitted to file a European patent application and enter an international application under the PCT into the regional phase with the EPO directly, i.e. without a representative. Only for the next steps in the prosecution before the EPO do foreign persons need to be represented by a European representative before the EPO.

2. PATENTABLE INVENTIONS

<table>
<thead>
<tr>
<th>LAW OF UKRAINE</th>
<th>EPC</th>
<th>PCT</th>
<th>TRIPS Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art. 1 Definitions</td>
<td>Art. 52 Patentable inventions</td>
<td>Art. 17 Procedures before the International Searching Authority</td>
<td>Patentable Subject Matter</td>
</tr>
<tr>
<td>“Invention” means a result of intellectual activity of a human</td>
<td>(1) European patents shall be</td>
<td>(2)(a) If the International Searching Authority considers</td>
<td>1. Subject to the</td>
</tr>
</tbody>
</table>

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170 The analysis was prepared by Mr. Ingwer Koch, former Director of Patent Law Department of the European Patent Office, Expert of InnoPolicy Project. InnoPolicy Project also organized the comparison of Ukrainian legislation and the EPC including the procedure of inventions applications processing in the European Patent Office and Ukraine, conducted by Ukrainian experts. The said materials are included in Project Reports submitted to the beneficiaries.
being in any field of technology;

Art. 6 Conditions of Granting the Legal Protection

(2) The object of an invention, to which the legal protection is granted under this Law, may be:

a product (device, substance, microorganism strain, plant or animal cells culture etc.);

a process (method) as well as the novel use of a known product or process.

(3) According to this Law, the legal protection shall not extend to such technology objects:

... topographies of integrated circuits

results of art constructing

(provisions of paragraphs 2 and 3, patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application.

(i) that the international application relates to a subject matter which the International Searching Authority is not required, under the Regulations, to search, and in the particular case decides not to search, or, ...

the said Authority shall so declare and shall notify the applicant and the International Bureau that no international search report will be established.

Rule 39 Subject Matter under Article 17(2)(a)(i)

39.1 Definition

No International Searching Authority shall be required to search an international application if, and to the extent to which, its subject matter is any of the following:

(i) scientific and mathematical theories,

(ii) aesthetic creations;

(iii) schemes, rules or methods of doing business, performing purely mental acts or playing games,

(iv) mere presentations of information,

(vi) computer programs to the extent that the International Searching Authority is not equipped to search prior art concerning such programs.

Results:

Article 52(1) EPC1973 has been brought into line by the Diplomatic Conference 2000 with Article 27(1), first sentence, TRIPS Agreement with a view to enshrining the word “technology” in the basic provision of substantive European patent law, clearly defining the scope of the EPC, and making patent protection available to technical inventions of all kinds. The new wording of Article 52(1) EPC2000 plainly expresses that patent protection is reserved for creations in the technical field. In order to be patentable, the subject-matter claimed must therefore have a “technical character”, involve a “technical teaching”, i.e. an instruction addressed to a skilled person as to how to solve a particular technical problem using particular technical means.

This explicit clarification that patent protection is available to technical inventions of all kinds is laid down in the definition of the term “invention” in Art. 1 Law of Ukraine.
Article 52(2) EPC lists a number of items which, at any rate, are not being regarded as “inventions” anyway. This list was drafted with similar lists in the PCT in mind, although the text finally adopted by the Diplomatic Conference on 5 October 1973 differs in several regards from the PCT. It should be stressed, however, that the function of these PCT lists is different, in so far as they are not concerned with the notion of “invention” as such. Instead, Rule 39.1 PCT sets out subject-matter which “no International Searching Authority shall be required to search”. *Mutatis mutandis*, the same applies with regard to “international preliminary examination under Rule 67.1 PCT.

Such list is missing completely in the Law of Ukraine. The negative definition of what shall not be regarded as an invention as mentioned in Art. 52(2) EPC is not in the Law of Ukraine. Therefore, in the Law of Ukraine it is not expressly said that, for example, discoveries or programs for computers shall not be regarded as inventions.

### 3. EXCEPTIONS TO PATENTABILITY

#### a) Public order and morality

<table>
<thead>
<tr>
<th><strong>LAW OF UKRAINE</strong></th>
<th><strong>EPC</strong></th>
<th><strong>Convention of the Council of Europe, done at Strasbourg on 27 November 1963, on the Unification of certain Points of Substantive Law on Patents for Inventions (Strasbourg Convention)</strong></th>
<th><strong>Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Art. 6 Conditions of Granting the Legal Protection</td>
<td>Art. 53 Exceptions to patentability</td>
<td>European patents shall not be granted in respect of:</td>
<td>Art. 27 Patentable Subject Matter</td>
</tr>
<tr>
<td>(1) The legal protection shall be granted to an invention that does not contradict the public order, humanity and morality</td>
<td>(a) inventions the commercial exploitation of which would be contrary to &quot;ordre public&quot; or morality; such exploitation shall not be deemed to be so contrary merely because it is prohibited by law or regulation in some or all of the Contracting States;</td>
<td>(a) inventions the publication or exploitation of which would be contrary to &quot;ordre public&quot; or morality; provided that the exploitation shall not be</td>
<td>(2) Members may exclude from patentability inventions, the prevention within their territory of the commercial exploitation of which is necessary to protect &quot;ordre public&quot; or morality, including to protect human, animal or plant life or health or to avoid serious prejudice to the environment, provided that such exclusion</td>
</tr>
<tr>
<td>Rule 28 Exceptions to patentability</td>
<td>Under Article 53(a), European patents shall not be granted in respect of biotechnological inventions which, in particular, concern the following:</td>
<td></td>
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<tr>
<td>(a) processes for cloning human beings;</td>
<td>(a) processes for cloning human beings;</td>
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</tr>
<tr>
<td>(b) processes for modifying the germ line genetic identity of human beings;</td>
<td>(c) uses of human embryos for industrial or commercial purposes;</td>
<td></td>
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</tr>
<tr>
<td>(c) uses of human embryos for industrial or commercial purposes;</td>
<td>(d) processes for modifying the genetic identity of animals which are likely to cause them suffering without any substantial medical benefit to man or animal, and also animals resulting from such processes.</td>
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<td></td>
</tr>
<tr>
<td>Rule 29 The human body and its elements</td>
<td>(1) The human body, at the various stages of its formation and development, and the simple discovery of one of its elements, including the sequence or partial sequence of a</td>
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<td></td>
</tr>
</tbody>
</table>

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gene, cannot constitute patentable inventions.  

(2) An element isolated from the human body or otherwise produced by means of a technical process, including the sequence or partial sequence of a gene, may constitute a patentable invention, even if the structure of that element is identical to that of a natural element. 

(3) The industrial application of a sequence or a partial sequence of a gene must be disclosed in the patent application. 

deemed to be so contrary merely because it is prohibited by a law or regulation; 
is not made merely because the exploitation is prohibited by their law.

Results:

The Law of Ukraine and the EPC regarding the exceptions to patentability in respect of “ordre public” and “morality” seem to be more or less identical. The term “and” in the Law of Ukraine should be replaced by the word “or”. If, for example, an invention contradicts public order, a legal protection shall not be granted irrespective of whether it contradicts humanity and/or morality. “Ordre public” and morality are two different terms. The concept of “ordre public” covers the protection of public security and the physical integrity of individuals as part of society and the protection of the environment. Therefore, “ordre public” is formed by the ethically based constitutional rules. However, the concept of morality is related to the belief that some behaviour is right and acceptable whereas other behaviour is wrong. For the purposes of the EPC, the culture in question is the culture inherent in European society and civilisation. The term “humanity” in the Law of Ukraine has no further significance. If an invention contradicts humanity it also contradicts “ordre public”.

Under Art. 53(a) EPC, in line with Art 2(a) Strasbourg Convention and Art. 27(2) TRIPS Agreement, an invention shall only not be granted if the – commercial – exploitation of the invention is contrary to “ordre public” or morality. Any other questions of “ordre public” and morality cannot be considered under Art. 53(a) EPC. The mere possibility of abuse of an invention is not sufficient to deny patent protection pursuant to Art. 53(a) EPC, if the invention can also be exploited in a way which does not and would not infringe “ordre public” and morality. And the exploitation is not to be deemed to be contrary to “ordre public” or morality under the EPC, in line with the Strasbourg Convention and the TRIPS Agreement, merely because it is prohibited by law or regulation in some or all Contracting States. One reason for this is that a product could still be manufactured under a European patent for export to States in which its use is not prohibited.


b) Plant and animal varieties

<table>
<thead>
<tr>
<th>LAW OF UKRAINE</th>
<th>EPC</th>
<th>Strasbourg Convention</th>
<th>TRIPS Agreement</th>
<th>PCT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art. 6 Conditions of Granting the Legal Protection</td>
<td>Art. 53 Exceptions to patentability</td>
<td>Art. 2 The Contracting States shall not be bound to provide for the grant of patents in</td>
<td>Art. 27 Patentable Subject Matter</td>
<td>Rule 39 Subject Matter under Article 17(2)(a)(i)</td>
</tr>
<tr>
<td>(3) According to this Law, the legal</td>
<td>European patents shall not be granted in respect of:</td>
<td>(3) Members may also exclude from patentability:</td>
<td></td>
<td>39.1 Definition</td>
</tr>
<tr>
<td>(b) plant or animal varieties or essentially biological processes for the production of plants or animals; this provision shall not apply to microbiological processes or the</td>
<td></td>
<td>No International Searching</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Protection shall not extend to such technology objects:</th>
<th>products thereof;</th>
<th>respect of</th>
<th>Authority shall be required to search an international application if, and to the extent to which, its subject matter is any of the following:</th>
</tr>
</thead>
<tbody>
<tr>
<td>plant varieties and animal breeds; processes of the reproduction of plants and animals that are biological in its basis and do not belong to belong to non-biological and microbiologic al processes;</td>
<td><strong>Rule 27 Patentable biotechnological inventions</strong></td>
<td><strong>(b) plant or animal varieties or essentially biological processes for the production of plants or animals;</strong> this provision does not apply to microbiological processes and the products thereof;</td>
<td>(ii) plant or animal varieties or essentially biological processes for the production of plants and animals, other than microbiological processes and the products of such processes,</td>
</tr>
<tr>
<td><strong>Rule 27 Patentable biotechnological inventions</strong></td>
<td>Biotechnological inventions shall also be patentable if they concern:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) biological material which is isolated from its natural environment or produced by means of a technical process even if it previously occurred in nature;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b) plants or animals if the technical feasibility of the invention is not confined to a particular plant or animal variety;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(c) a microbiological or other technical process, or a product obtained by means of such a process other than a plant or animal variety.</td>
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<td></td>
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</tbody>
</table>

**Results:**

In principle the exceptions to patentability regarding plant and animal varieties are identical in the Law of Ukraine and the EPC. However, what is missing in the Law of Ukraine is the positive expression of Rule 27(b) EPC, based on Art. 4(2) EU Biotech Directive that inventions which concern plants or animals shall be patentable (if the technical feasibility of the invention is not confined to a particular plant or animal *variety*).

c) Medical Diagnosis and Treatment measures; First medical indication of a *per se* already known substance or composition; Further patent protection of substances or compositions already known as medicines

<table>
<thead>
<tr>
<th>LAW OF UKRAINE</th>
<th>EPC</th>
<th>TRIPS Agreement</th>
<th>PCT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Art. 53 Exceptions to patentability</strong></td>
<td><strong>Art. 54 Novelty</strong></td>
<td><strong>Rule 39 Subject Matter under Article 17(2)(a)(i)</strong></td>
<td><strong>39.1 Definition</strong></td>
</tr>
<tr>
<td>European patents shall not be granted in respect of:</td>
<td><strong>(4) Paragraphs 2 and 3 shall not exclude the patentability of any substance or composition, comprised in the state of the art, for use in a method referred to in Article 53(c), provided that its use for any such method is not comprised in the state of the art.</strong></td>
<td><strong>No International Searching Authority shall be required to search an international application if, and to the extent to which, its subject matter is any of the following:</strong></td>
<td>**</td>
</tr>
</tbody>
</table>
Paragraphs 2 and 3 shall also not exclude the patentability of any substance or composition referred to in paragraph 4 for any specific use in a method referred to in Article 53(c), provided that such use is not comprised in the state of the art.

animals; treatment of the human or animal body by surgery or therapy, as well as diagnostic methods.

Results:

Whilst the legislator of the **EPC1973** has chosen the legal fiction of lack of industrial applicability, the exclusion from patentability of surgical, therapeutic and diagnostic methods seems actually to be based on **socio-ethical and public health** considerations. Medical and veterinary physicians should be free to take all actions they consider suitable to cure a disease, and in this exercise they should remain inhibited by patents. The Diplomatic Conference 2000 decided not to uphold this fiction since methods of treatment and diagnostic methods are excluded from patentability in the **interests of public health**. Therefore these inventions were included in the **exceptions to patentability** in order to group the three categories of exceptions to patentability together in Article 53(a), (b) and (c) **EPC2000**.

Art. 54(4) **EPC2000**, which corresponds to the former Article 54(5) EPC1973, relates to the so-called **first medical indication of a per se already known substance or composition**. Either a product for use in a method under Article 53(c) EPC is new per se and can constitute the subject-matter of a product claim under Article 53(c), second sentence, EPC2000, or a product (substance or composition) is already known per se but can nevertheless be granted patent protection provided, under Article 54(4) EPC2000, said product has not yet been used in a method under Article 53(c), first sentence, EPC2000.

Art. 54(5) **EPC2000** now expressly allows **further patent protection of substances or compositions already known as medicines** provided their use in a method under Article 53(c) EPC be **specific** and not comprised in the state of the art. Article 54(5) EPC2000 now provides for patent protection of a known substance or composition for **"any specific use"** of the said product in a method of surgery or therapy or in a diagnostic method provided this use is not comprised in the state of the art and is inventive.

These provisions on patentable matters in the Law of Ukraine and the EPC are essentially different.

In the Law of Ukraine any provisions of the exception to patentability regarding diagnostic, therapeutic and surgical methods for the treatment of humans or animals as laid down in Art. 53( c) EPC, Art. 27(3)(a) TRIPS Agreement and Rule 39.1(iv) PCT are missing.

4. EXTENSION OF THE TERM OF PATENT

**LAW OF UKRAINE**

Art. 6 Conditions of Granting the Legal Protection

(4) The term of the patent, the object of which is a drug, means for the protection of animals, means for the protection of plants and for the use of which a permission of the relevant authorized body is required, may be extended at the request of the owner of

**EPC**

Art. 63 Term of European

(2) Nothing in the preceding paragraph shall limit the right of a Contracting State to extend the term of a European patent, or to grant corresponding protection which follows immediately on expiry of the term of the patent, under the same conditions as those applying to national patents:

(a) in order to take account of a state of war or similar emergency conditions affecting that State:
This publication has been produced with the assistance of the European Union. The contents of this publication are the sole responsibility of the Innopolicy Project and can in no way be taken to reflect the views of the European Union.
Ukraine, is not in line with the EPC. Arguments in favour of and against an internationally accepted general “grace period” are still being discussed in the negotiations about the draft Substantive Patent Law Treaty within the World International Patent Organization (WIPO).

6. INDUSTRIAL APPLICATION

<table>
<thead>
<tr>
<th>LAW OF UKRAINE</th>
<th>EPC</th>
<th>Paris Convention for the Protection of Industrial Property (Paris Convention)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art. 7 Patentability Requirements to an Invention</td>
<td>Art. 57 Industrial application</td>
<td>Art. 1 Establishment of the Union; Scope of Industrial Property</td>
</tr>
<tr>
<td>(8) An invention shall be considered to industrially applicable provided that it may be used in industry or other field of activity.</td>
<td>An invention shall be considered as susceptible of industrial application if it can be made or used in any kind of industry, including agriculture.</td>
<td>(3) Industrial property shall be understood in the broadest sense and shall apply not only to industry and commerce proper, but likewise to agricultural and extractive industries and to all manufactured or natural products, for example, wines, grain, tobacco leaf, fruit, cattle, minerals, mineral waters, beer, flowers, and flour.</td>
</tr>
</tbody>
</table>

Results:

The industrial application under Art. 57 EPC should be understood as including any physical activity of technical character. Art. 7(8) Law of Ukraine may be understood in the same way. However, from the wording of the expression “other field of activity” it may be understood broader than Art. 57 EPC or even broader than Art. 1(3) Paris Convention, because in the Law of Ukraine there is no restriction to any technicality of the activity. The requirement of industrial application under Art. 57 EPC does not include, for example, applications for private use and commercial and financial applications. It may be questioned whether these restrictions could be interpreted under the term “other field of activity” under Art. 7(8) Law of Ukraine.

7. DISCLOSURE OF THE INVENTION

<table>
<thead>
<tr>
<th>LAW OF UKRAINE</th>
<th>EPC</th>
<th>Strasbourg Convention</th>
<th>PCT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art. 12 Application:</td>
<td>Art. 83 Disclosure of the Invention</td>
<td>Art. 84 Claims</td>
<td>Art. 5 The Description</td>
</tr>
<tr>
<td>(7) The description of an invention shall be represented in the defined order and shall disclose the subject-matter of an invention in a manner sufficiently clear and complete for the invention to be carried out by a person skilled in the art.</td>
<td>The European patent application shall disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.</td>
<td>The claims shall define the matter for which protection is sought. They shall be clear and concise and be supported by the description.</td>
<td>The description shall disclose the invention in a manner sufficiently clear and complete for the invention to be carried out by a person skilled in the art.</td>
</tr>
<tr>
<td>(8) Invention claims shall disclose the subject-matter of an invention, shall be based on the description and shall be clearly and concisely represented in the defined order.</td>
<td></td>
<td>(2) The description</td>
<td></td>
</tr>
</tbody>
</table>
(7) If the applicant has submitted the additional material, it shall be determined in the course of examination, whether these materials do not go beyond the subject-matter of an invention, disclosed in the application.

The additional materials shall go beyond the subject-matter of an invention disclosed in the application if they contain features that should be included to the invention claims.

<table>
<thead>
<tr>
<th>Art. 123 Amendments</th>
<th>must disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2) The European patent application or European patent may not be amended in such a way that it contains subject-matter which extends beyond the content of the application as filed.</td>
<td></td>
</tr>
</tbody>
</table>

Results:
The Law of Ukraine is different to the EPC regarding the disclosure requirements. Art. 83 EPC is one of the basic provisions of the patent law. The general principle of the European patent law is that the applicant may obtain a patent protection for his invention only if he provides a complete disclosure of his invention at the date of filing his application. Whereas Art. 83 EPC governs the adequacy of the teaching in the disclosure, Art. 84 EPC stipulates that the claims shall be clear and define the subject-matter for which protection is sought. This systematology follows the Strasbourg Convention and the PCT. Under Art. 8(1) Strasbourg Convention and under Art. 6 PCT the claim (or claims) shall define the matter for which protection is sought. However, the description shall disclose the invention (in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art). An insufficient disclosure may result in the refusal of the application. And an applicant shall not be allowed to improve his position by adding subject-matter not disclosed in the application as filed.

Compared with these principles laid down in Art. 83, 84 and 123(2) EPC, under Art. 12 Law of Ukraine the description (para. 7) as well as the claims (para. 8) shall disclose the subject-matter of an invention (in a manner sufficiently clear and complete for the invention to be carried out by a person skilled in the art). From Art. 16(7) Law of Ukraine it can be seen that the prohibition of the extension of subject-matter by ‘additional materials’ (‘amendments’ under Art. 123(2) EPC) refers to the claims, whereas Art. 123 (2) EPC refers to the application (as a whole) as filed.

Taking into account that under Art. 13(1) Law of Ukraine (as under Rule 40(1) EPC) no claim has to be filed at the date of filing the application, there is a substantive difference between the Law of Ukraine and the EPC regarding the principles of disclosure of the invention and extension to subject-matter not disclosed.

8. DATE OF FILING OF AN APPLICATION, LANGUAGE REQUIREMENTS

<table>
<thead>
<tr>
<th>LAW OF UKRAINE</th>
<th>EPC</th>
<th>PLT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art. 13 The Date of Filing of an Application</td>
<td>Art. 14 Languages of the European Patent Office, European patent applications and other documents</td>
<td>Article 5 Filing Date</td>
</tr>
<tr>
<td>(1) The official languages of the European Patent Office shall be English, French and German.</td>
<td>(2) A European patent application shall be filed in one of the official languages or, if filed in any other language, translated into one of the</td>
<td>(1) [Elements of Application] (a) Except as otherwise prescribed in the Regulations, and subject to paragraphs (2) to (8), a Contracting Party shall provide that the filing date of an application shall be the date on which its Office has received all of the following elements, filed, at the option of the applicant, on paper or as otherwise permitted by the Office for the purposes of the filing date:</td>
</tr>
<tr>
<td>(2) A European patent application shall be filed in one of the official languages or, if filed in any other language, translated into one of the</td>
<td>(i) an express or implicit indication to the effect that the elements are intended to be an application;</td>
<td>(ii) indications allowing the identity of the applicant to be</td>
</tr>
</tbody>
</table>

This publication has been produced with the assistance of the European Union. The contents of this publication are the sole responsibility of the Innopolicy Project and can in no way be taken to reflect the views of the European Union.
The Law of Ukraine and the EPC differ in general regarding the requirements of the date of filing and the language requirements in this respect.

The language requirements of the EPC for the accordance of a filing date have opted for the minimum requirements of the PLT and goes even beyond. The words "any other language" in Art. 14(2) EPC imply that an application may be filed in any language, in accordance with Article 5 PLT which states that, for the purpose of obtaining a filing date, a description of the invention in a language of the applicant's choice must be accepted. However, under the EPC the whole application may be filed in any language of the applicant’s choice, not only the description as laid down in the PLT and the Law of Ukraine. In the view of the legislator of the EPC it should not be obligatory to
file the request for grant of a European patent with the indication that a European patent is sought and the information identifying the applicant or allowing the applicant to be contacted in one of the official languages of the EPO.

To get a date of filing under the EPC the application may contain a reference to a previously filed application instead of a description. The revised wording of the Implementing Regulation to the EPC follows the model of Article 5(1) and (7) PLT. Under Article 5(7) and Rule 2(5)(a) PLT, Contracting Parties are obliged to accept a reference to a single, previously filed application instead of a description and any drawings, provided that the previously filed application is properly identified. These requirements are inserted into new Rule 40(2) EPC 2000. In such a case, Contracting Parties to the PLT may request the filing of a copy of the previously filed application (Rule 2(5) (b) PLT) (unless such a copy is already available to the Contracting Party (Rule 4(3) PLT)), and, where appropriate, a translation of that application. This possibility to refer to a previously filed application instead of filing a description is favourable for the applicant and, at least if the previous application is filed with the same Office for example by requesting internal priority, also for the Office because in this case the content of the description of the later filed application cannot go beyond the content of the earlier application. Therefore, the examination of the priority whether the later filed application contains the same invention is easier for the Office.

9. PRIORITY

<table>
<thead>
<tr>
<th>Law of Ukraine</th>
<th>EPC</th>
<th>PCT</th>
<th>TRIPPS Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art. 15 Priority</td>
<td>Art. 87 Priority right</td>
<td>Art. 8 Claiming Priority</td>
<td>Art. 2 Intellectual Property Agreements</td>
</tr>
<tr>
<td>(1) The applicant shall have the right to claim the priority of an earlier application on the same invention (utility model) within 12 months from the date of filing of the earlier application with the Office or the relevant body of the State, which is a member of the Paris Convention for the Protection of Industrial Property, provided that the priority has not been claimed on the earlier application.</td>
<td>(1) Any person who has duly filed, in or for (a) any State party to the Paris Convention for the Protection of Industrial Property or (b) any Member of the World Trade Organization, an application for a patent, a utility model or a utility certificate, or his successor in title, shall enjoy, for the purpose of filing a European patent application in respect of the same invention, a right of priority during a period of twelve months from the date of filing of the first application.</td>
<td>(1) The international application may contain a declaration, as prescribed in the Regulations, claiming the priority of one or more earlier applications filed in or for any country party to the Paris Convention for the Protection of Industrial Property.</td>
<td>(2) Nothing in Parts I to IV of this Agreement shall derogate from existing obligations that Members may have to each other under the Paris Convention, the Berne Convention, the Rome Convention and the Treaty on Intellectual Property in Respect of Integrated Circuits.</td>
</tr>
</tbody>
</table>
Results:

The EPC and the PCT are just more liberal than the Law of Ukraine regarding the priority right. Under the EPC1973, the automatic recognition of these rights was limited to States which are party to the Paris Convention. Art. 87(1) EPC2000 as amended by the Diplomatic Conference 2000, aligning the EPC with Article 2 of the TRIPS Agreement, requires that priority rights also be extended to first filings made in any member of the WTO.

Furthermore, Article 87(5) EPC1973 prescribed a mechanism for the mutual recognition of priority rights with third countries where automatic recognition pursuant to Article 87(1) EPC did not apply. This mechanism was so unwieldy that it had never been activated. Hence, Article 87(5) EPC2000 was amended by the Diplomatic Conference 2000 in order to make its application a simple, rapid and viable option where the mutual recognition of priority rights between the EPO and a non-Paris Union, non-WTO state is deemed to be desirable. The new Article 87(5) EPC2000 thus enables the President of the EPOffice to issue a communication recognising that a first filing at the EPO gives rise to a right of priority, and refers to Industrial Property Authorities rather than to States. These two changes removed the essentially technical issue of recognition of priority rights from the political arena of the Administrative Council of the EPOrganisation, so that it can be dealt with more appropriately and effectively at a technical, working level. In addition, since the terms for recognising a priority right are well laid down in the Paris Convention, there is no need to set up a comprehensive framework regarding such recognition, and a communication noting the de facto mutual recognition of priority rights in conformity with the Paris Convention should suffice. Therefore, the requirement that a bilateral or multilateral agreement be concluded is removed. The requirement that the other country in question accord such priority rights for first filings made in or for any EPC Contracting State is also removed, as the retaining of such a requirement would cause Article 87(5) EPC to remain completely unworkable.

However, Art. 15 Law of Ukraine does not have any provision of a mutual recognition of priority rights and only accepts earlier applications filed with an Office or relevant body of a State, which is a member of the Paris Convention.

10. EXAMINATION OF APPLICATION

a) Examination on Filing and Examination as to Formal Requirements, Drawing up a Search Report and Publication

<table>
<thead>
<tr>
<th>LAW OF UKRAINE</th>
<th>EPC</th>
<th>PCT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art. 16 Examination of Application</td>
<td>Art. 90 Examination on filing and examination as to formal requirements</td>
<td>Art. 11 Filing Date and Effect of the International Application</td>
</tr>
<tr>
<td>(9) In the course of the formal examination: the date of filing of the application shall be determined according to Article 13 of this Law; it shall be determined whether</td>
<td>(1) The European Patent Office shall examine, in accordance with the Implementing Regulations, whether the application satisfies the requirements for the accordance of a date of filing.</td>
<td>(1) The receiving Office shall accord as the international filing date the date of receipt of the international application, provided that that Office has found that, at the time of receipt:</td>
</tr>
<tr>
<td></td>
<td>(3) If the European patent application has been accorded a date of filing, the European Patent Office shall examine, in accordance with the Implementing Regulations, whether the requirements in Articles 14, 78 and 81 and, where applicable, Article 88, paragraph 1, and Article 133, paragraph 2, as well as any other</td>
<td>Art. 15 The International Search</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1) Each international application shall be the subject of international search.</td>
</tr>
<tr>
<td>Paragraph</td>
<td>Description</td>
<td></td>
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<tr>
<td>-----------</td>
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<td></td>
</tr>
<tr>
<td>Paragraph 2 of Article 6 of this Law</td>
<td>the claimed object belongs to the technology objects specified in Paragraph 2 of Article 6 of this Law as well as to the technology objects specified in Paragraph 3 of Article 6 of this Law;</td>
<td></td>
</tr>
<tr>
<td>Paragraph 3 of Article 6 of this Law</td>
<td>the application shall be examined for conformity with the formal requirements of Article 12 of this Law and the regulations issued by the Office in compliance with this Law;</td>
<td></td>
</tr>
<tr>
<td>Rule 61</td>
<td>Content of the European search report</td>
<td></td>
</tr>
<tr>
<td>Rule 62</td>
<td>Extended European search report</td>
<td></td>
</tr>
<tr>
<td>Rule 43bis1</td>
<td>Written Opinion</td>
<td></td>
</tr>
</tbody>
</table>

### Results:

There are differences in general between the Law of Ukraine and the EPC, in line with the PCT, regarding the examination on filing. Under the Law of Ukraine, the EPC and the PCT the (Receiving) Office determines in the examination on filing the requirements of the **date of filing** and the conformity of the application with the **formal requirements** of the relevant provisions.

However, then the Office of the Ukraine examines whether the claimed object belongs to the technology objects specified in Art. 6(2) and (3) Law of Ukraine, whereas under the EPC, in line with the PCT, a European (International) search report will be drawn up regarding the novelty and the inventive step of the claimed invention.
And this European (International) search report is accompanied by an opinion whether the invention to which the application relates seems to meet the requirements of novelty, inventive step and industrial application.

Under the Law of Ukraine after the expiry of 18 months from the date of filing or, if the priority has been claimed, from its priority date, the Office shall publish in its official bulletin the data on the application. However, under the EPC (and the PCT) at that time not only the relevant data of the application shall be filed but the application as such and the search report. Furthermore, the written opinion accompanying the search report will be available via public file inspection.

Therefore, the public (and the applicant) shall have after 18 months from the date of filing or the date of priority, if applicable, under the EPC and the PCT all information of the relevant state of art regarding the novelty and inventive step of the invention claimed by the invention, whereas under Art. 6(3) Law of Ukraine the public (and the applicant) have at that stage of the procedure only the information that the object of the invention claimed is not an excluded technology.

b) Missing parts of the description or missing drawings

<table>
<thead>
<tr>
<th>LAW OF UKRAINE</th>
<th>EPC</th>
<th>PLT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art. 16 Examination of Application</td>
<td>Rule 56 Missing parts of the description or missing drawings</td>
<td>Filing Date Where Missing Part of Description or Drawing Is Filed</td>
</tr>
<tr>
<td>(12) If in the materials of the application, which meets the requirements of Article 13 of this Law, there is a reference to a drawing, but the drawing is not available in the application, the applicant shall be notified accordingly with the proposition to submit the drawing or to remove the relevant reference from the application. If an applicant submits the drawings within 2 months from the date of receiving the notification, the date of filing of an application shall</td>
<td>(1) If the examination under Article 90, paragraph 1, reveals that parts of the description, or drawings referred to in the description or in the claims, appear to be missing, the European Patent Office shall invite the applicant to file the missing parts within two months. The applicant may not invoke the omission of such a communication.</td>
<td>(a) Where a missing part of the description or a missing drawing is filed with the Office within the time limit prescribed in the Regulations, that part of the description or drawing shall be included in the application, and, subject to subparagraphs (b) and (c), the filing date shall be the date on which the Office has received that part of the description or that drawing, or the date on which all of the requirements applied by the Contracting Party under paragraphs (1) and (2) are complied with, whichever is later.</td>
</tr>
<tr>
<td></td>
<td>(2) If missing parts of the description or missing drawings are filed later than the date of filing, but within two months of the date of filing or, if a communication is issued under paragraph 1, within two months of that communication, the application shall be re-dated to the date on which the missing parts of the description or missing drawings were filed. The European Patent Office shall inform the applicant accordingly.</td>
<td></td>
</tr>
<tr>
<td>(3) If the missing parts of the description or missing drawings are filed within the period under paragraph 2, and the application claims priority of an earlier application, the date of filing shall, provided that the missing parts of the description or the missing drawings are completely contained in the earlier application, remain the date on which the requirements laid down in Rule 40, paragraph 1, were fulfilled, where the applicant so requests and files, within the period under paragraph 2:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) a copy of the earlier application, unless such copy is available to the European Patent Office</td>
<td></td>
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</tbody>
</table>
be the date when the examination institute receives the drawing. If the applicant does not react to the proposition, the application shall be considered not filed, and the applicant shall be notified accordingly. under Rule 53, paragraph 2:

(b) where the earlier application is not in an official language of the European Patent Office, a translation thereof in one of these languages, unless such copy is available to the European Patent Office under Rule 53, paragraph 3; and

(c) an indication as to where the missing parts of the description or the missing drawings are completely contained in the earlier application and, where applicable, in the translation thereof.

date shall, upon the request of the applicant filed within a time limit prescribed in the Regulations, and subject to the requirements prescribed in the Regulations, be the date on which all the requirements applied by the Contracting Party under paragraphs (1) and (2) are complied with.

Results:

The EPC is much more flexible regarding missing parts of the application as filed. Rule 56 EPC2000 has been amended by the Diplomatic Conference 2000 to bring this provision on missing parts of the application as filed into line with the corresponding provisions of Art. 5(6) PLT. If the applicant, either after an invitation under Rule 55 EPC 2000 or of his own motion, files a missing part of the description or missing drawings within two months from the filing date or the communication under Rule 56(1) EPC 2000, the application will be re-dated (Rule 56(2) EPC 2000, Rule 2(3) PLT). However, if the application claims priority, and the missing part of the description or any missing drawings was contained in the priority application, that missing part of the description or drawings may, if the requirements of Rule 56(3) EPC2000 are met, be included in the application without loss of the original date of filing (Article 5(6) (b) and Rule 2(4) PLT).

Therefore, different to Art. 16(12) Law of Ukraine, not only missing drawings but also missing parts of the description can be filed later and, without loss of the original filing date, if these parts were contained in the earlier application, if the applicant claims priority, even if the priority document has not been filed at the original date of filing.

11. DEFERRED EXAMINATION

<table>
<thead>
<tr>
<th>LAW OF UKRAINE</th>
<th>EPC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Art. 16 Examination of Application</strong></td>
<td><strong>Examination of the European patent application</strong></td>
</tr>
<tr>
<td>(17) In the course of the qualifying examination a claimed invention shall be examined on the conformity with the patentability requirements defined by Article 7 of this Law.</td>
<td>(1) The European Patent Office shall, in accordance with the Implementing Regulations, examine on request whether the European patent application and the invention to which it relates meet the requirements of this Convention. The request shall not be deemed to be filed until the examination fee has been paid.</td>
</tr>
<tr>
<td>The examination institute shall carry out the qualifying examination after the receipt of the relevant request of any person and the document on the payment of respective fee for the examination.</td>
<td><strong>Rule 70 Request for examination</strong></td>
</tr>
<tr>
<td>The applicant may file the said request and the document on the payment within 3 years from the date of filing of the application. Another may file the said request and document after publication of the data on the application for an invention but not later than 3 years from the date of filing of the application. This person shall not make decisions with respect to the application, and shall only receive the conclusion of the examination on the application approved by the Office.</td>
<td>(1) The applicant may request examination of the European patent application up to six months after the date on which the European Patent Bulletin mentions the publication of the European search report. The request may not be withdrawn.</td>
</tr>
</tbody>
</table>
Results:

There is a difference between the Law of Ukraine and the EPC regarding the request for qualifying examination. Under the EPC for any European patent application a search report and an opinion on patentability will be drawn up by the EPO, provided the applicant has filed the relevant fees in the prescribed short time limits after filing the application. No European patent application shall be published 18 months after the date of filing or date of the priority, if applicable, without a search report mentioning the relevant state of art regarding the novelty and inventive step of the invention claimed with the application. The search report shall be accompanied by an opinion of the patentability of the claimed invention, including the requirements of industrial application and sufficiency of disclosure of the invention of the application as filed. Under Rule 70(1) EPC the applicant may request examination of the European patent application up to **six months** after the date on which the European Patent Bulletin mentions the publication of the European search report.

However, under the Law of Ukraine the data of the application will be publicly available 18 months after the date of filing or date of the priority, if applicable, without any search report and without any accompanying opinion of the patentability of the claimed invention. The applicant, or any third party, may file a request for qualifying examination within **3 years** from the date of filing of the application.

The option to **defer the request for qualifying examination (or even any request for drawing up the European search report)** by 3 (or 7 years after filing the application as applicable under German law) has been discussed extensively within the Administrative Council of the EPOrganisation in the last 2 to 3 years. The clear result of this discussion was that any deferral of drawing up and publishing the European search report has been unanimously disapproved. Furthermore, any prolongation of the period for filing the request for qualifying examination after the current period of 6 months after publication of the search report has been disapproved by the majority of the Administrative Council. **Deferred examination was described as undesirable “submarines”**. The public and the competitors of the applicant should be informed with the publication of the application about the relevant state of the art regarding the invention claimed by the application. Therefore, the system of the Law of Ukraine regarding the deferred examination to be included within the EPC would not find any relevant support within the Administrative Council of the EPOrganisation.

### 12. APPEALS PROCEDURE

<table>
<thead>
<tr>
<th>LAW OF UKRAINE</th>
<th>EPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art. 24 Appellation against the Decision on an Application</td>
<td>Art. 21. Boards of Appeal</td>
</tr>
<tr>
<td>(1) The applicant may appeal to the court or the Appellate Chamber against the Office decision on an application within 2 months from the date of receiving the Office decision or copies of</td>
<td>(1) The Boards of Appeal shall be responsible for the examination of appeals from decisions of the Receiving Section, the Examining Divisions and Opposition Divisions, and the Legal Division.</td>
</tr>
<tr>
<td></td>
<td>Art. 106 Decisions subject to appeal</td>
</tr>
<tr>
<td></td>
<td>(1) An appeal shall lie from decisions of the Receiving Section, Examining Divisions, Opposition Divisions and the Legal Division. It shall have suspensive effect.</td>
</tr>
<tr>
<td></td>
<td>(2) A decision which does not terminate proceedings as regards one of the parties can only be appealed together with the final decision, unless the decision allows a separate appeal.</td>
</tr>
<tr>
<td></td>
<td>Art. 112a Petition for review by the Enlarged Board of Appeal</td>
</tr>
<tr>
<td></td>
<td>(1) Any party to appeal proceedings adversely affected by the decision of the Board of Appeal may file a petition for review of the decision by the Enlarged Board of</td>
</tr>
</tbody>
</table>
(9) The applicant may appeal to the court against the Appellate Chamber decision approved by the Office within 2 months from the date of receiving the decision.

(2) The petition may only be filed on the grounds that:

(a) a member of the Board of Appeal took part in the decision in breach of Article 24, paragraph 1, or despite being excluded pursuant to a decision under Article 24, paragraph 4;

(b) the Board of Appeal included a person not appointed as a member of the Boards of Appeal;

(c) a fundamental violation of Article 113 occurred;

(d) any other fundamental procedural defect defined in the Implementing Regulations occurred in the appeal proceedings; or

(e) a criminal act established under the conditions laid down in the Implementing Regulations may have had an impact on the decision.

Results:

There are differences in general between the Appeals Procedure under the Law of Ukraine and the EPC. Under Art. 24(1) Law of Ukraine the applicant has the right to file an appeal against any “final” decision of the Office relating to his application at any stage of the procedure either with the Appellate Chamber of the Office or with the competent court. If he chooses to appeal to the Appellate Chamber, he has the right to appeal the decision of the Appellate Chamber to the competent court, i.e. in this case the applicant has two instances of appeal.

Under Art. 106 EPC the applicant has only one ordinary instance of appeal, i.e. the Boards of Appeal and can only appeal against a final decision of the first instance department of the EPO, unless an intermediate decision of first instance expressly allows a separate appeal. An intermediate or interlocutory decision, i.e. a decision not terminating the whole first instance proceedings, is only appealable if the first instance department taking this decision allows the separate appeal under Art. 106(2) EPC. An interlocutory decision that allows separate appeal will state so and give the reasons on which it is taken; if no separate appeal is allowed, the reasons may be given only in the final decision.

The Diplomatic Conference 2000 introduced a new competence to the Enlarged Board of Appeal to decide on petitions for a limited judicial review of decisions of the Boards of Appeal. Under new Article 112a(1) EPC, a party adversely affected by a decision of a Board of Appeal may file a petition for review to the Enlarged Board of Appeal. However, this petition for review may only be based on the grounds defined in the EPC. These are fundamental procedural defects which occurred in appeal proceedings and the existence of a criminal act which may have had an impact on the decision.

The examples in Article 112a(2) (a) to (c) EPC and particularly the wording of Article 112a(2)(d) EPC make it clear that only fundamental (but not minor) procedural defects can be the basis for a petition for review. Under no circumstances may the petition for review be a means to review the application of substantive law. This restriction seems justified because the function of the petition for review is to remedy intolerable deficiencies occurring in individual appeal proceedings, not to further the development of EPO procedural practice or to ensure the uniform application of the law.

13. INVALIDATION OF A PATENT

<table>
<thead>
<tr>
<th>LAW OF UKRAINE</th>
<th>EPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art. 33 Invalidation of a Patent</td>
<td>Art. 138 Revocation of European patents</td>
</tr>
</tbody>
</table>
(1) A patent may be fully or partially invalidated by the court in the following cases:

- the patented invention described in invention claims does not meet the patentability requirements defined in Article 7 of this Law.
- invention claims contain indications that were not presented in the filed application.
- the requirements of Paragraph 2 of Article 37 of this Law are not fulfilled.
- a patent has been granted in the result of filing of the application with the violation of rights of other persons.

**Art. 37 Patenting an Invention in Foreign States**

(2) If patenting of an invention is accomplished according to the procedure established by the Patent Cooperation Treaty, an international application shall be filed with the Office.

(1) Subject to Article 139, a European patent may be revoked with effect for a Contracting State only on the grounds that:

- (a) the subject-matter of the European patent is not patentable under Articles 52 to 57;
- (b) the European patent does not disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art;
- (c) the subject-matter of the European patent extends beyond the content of the application as filed or, if the patent was granted on a divisional application or on a new application filed under Article 61, beyond the content of the earlier application as filed;
- (d) the protection conferred by the European patent has been extended; or
- (e) the proprietor of the European patent is not entitled under Article 60, paragraph 1.

Results:

The grounds for invalidation/revocation of a patent are more or less identical under Art. 33 Law of Ukraine and Art. 138 EPC. What is missing in Art. 138 EPC is the ground of invalidation under the Law of Ukraine not having filed the international application with the competent international authority under the PCT, i.e. as a Ukrainian citizen not having filed the international application with the Ukrainian Office.

14. OPPOSITION PROCEDURE

<table>
<thead>
<tr>
<th>Law of Ukraine</th>
<th>EPC</th>
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</thead>
<tbody>
<tr>
<td>Art. 99 Opposition</td>
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</table>

(1) Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations.

Results:

The Law of Ukraine did not have any opposition procedure after grant of the patent.

B. SUGGESTIONS FOR HARMONISATION OF THE LAW OF UKRAINE WITH EPC

1. The foundations for all further unification in the field of intellectual property were laid with the entry into force in 1884 of the Paris Convention. In the first place it did away with discrimination and the reciprocal requirement between States by providing for ‘national treatment’. In the second place, the Paris Convention established a common minimum standard as to the protection of intellectual property. However, the Paris
Convention itself has introduced an element of flexibility by providing for ‘special agreements’ to be concluded by its member States amongst themselves. Further progress towards internationalisation of patent law has been sought by way of these more flexible ‘special agreements’ alongside adapting and extending the ‘mother’ convention. In the story of the making of the European patent, three periods can be distinguished. The first one may be dubbed the Council of Europe era and the second the era of the European Economic Community [EEC], whereas the final round took place within the framework of the so-called ‘Intergovernmental Conference for the Setting up of a European System for the Grant of Patents’ [Inter-Governmental Conference] (see M. van Empel, [Official Observer of the Diplomatic Conference 1973], The Granting of European Patents, 1975, No. 10, 19).

2. The era of the Council of Europe is characterised by a multitude of plans. The plan submitted in 1949 by the French Senator Longchambon stated it all. Then the Strasbourg Convention (“Convention on the Unification of Certain Points of Substantive Law on Patents for Inventions”) was signed at Strasbourg on 27 November 1963. Its prime purpose is to bring national patent laws into closer harmony with each other notably with regard to patentability requirements and to the extent of the protection conferred by patents. This Strasbourg Convention played a major role in discussions on the EPC. With the Strasbourg Convention it provided a sound basis for further progress within the framework of the EPC (see van Empel, see above, No. 25).

3. The general principles which govern the EPC are laid down in its Preamble and its first four Articles. In the first place the common system of law established by the EPC concerns the grant of patents only. This does not mean, however, that the EPC stands isolated in the international field. According to the third Recital of the Preamble, the EPC is a ‘special agreement’ within the meaning of Art. 19 Paris Convention as well as a ‘regional patent treaty’ within the meaning of Art. 45(1) PCT.

4. In drafting the articles of the EPC the Working Party I of the ‘Intergovernmental Conference for the Setting up of a European System for the Grant of Patents’ based itself in particular on the provisions of the 1965 version of the Draft Convention relating to a European Patent Law, drawn up within the EEC, and on the Draft of an open European Patent Convention, drawn up by the Member States of the European Free Trade Association [EFTA]. In addition, as regards the provisions relating to patent law, the Working Party also based itself on the corresponding articles of the Strasbourg Convention, see Minutes of the meeting of Working Party I of the Inter-Governmental Conference, held in Luxembourg on 8 to 11 July 1969, dated 29 July 1969, BR/7/69, page 4.

5. The particular character accorded to the patent system appears in the second Recital of the Preamble, and in Art. 2 and 3 EPC: the EPC provides for a common, unitary procedure for the grant of ‘European patents’. This procedure is governed by the autonomous “system of law common to the Contracting States” mentioned in Art. 1 EPC. However, once the European patent has been granted, it is on principle no longer governed by such common rules. Indeed, according to Art. 2(2) EPC:

"The European patent shall, in each of the Contracting States for which it is granted, have the effect of and be subject to the same conditions as a national patent granted by that State, unless this Convention provides otherwise."

6. Here appears the concept of the ‘bundle patent’: the ‘European patent’ is foremost a device enabling Contracting States to pool their prior examination activities while at the same time retaining their sovereignty as to the regime for patents so granted with effect for their territory. Thus in a sense the European patent is no more than a ‘bundle’ of national patent applications which are processed together. Such is the “bundle” concept in its pure state. As indicated at the end of Art. 2(2) EPC, however, the purity is not complete.

7. As announced in the second Recital of the Preamble, the EPC contains "certain standard rules governing patents so granted":

"DESIRING that such protection may be obtained in those States by a single procedure for the grant of patents and by the establishment of certain standard rules governing patents so granted."

8. These “standard rules” concern in the first place the term of the European patent. In the second place Art. 138 EPC contains an exhaustive enumeration of grounds for revocation of European patent. This latter
element is of fundamental importance as it ensures that the European patent is submitted to the **same set of patentability requirements** throughout its term.

(1) Subject to Article 139, a European patent may be revoked with effect for a Contracting State only on the grounds that:

(a) the subject-matter of the European patent is not patentable under Articles 52 to 57;

(b) the European patent does not disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art;

(c) the subject-matter of the European patent extends beyond the content of the application as filed or, if the patent was granted on a divisional application or on a new application filed under Article 61, beyond the content of the earlier application as filed;

(d) the protection conferred by the European patent has been extended; or

(e) the proprietor of the European patent is not entitled under Article 60, paragraph 1.

9. The Inter-Governmental Conference held it extremely desirable that each Contracting State should amend its national legislation to fit in with the provisions of Art. 138(1) EPC, see Minutes of the meeting of Working Party I of the Inter-Governmental Conference, held in Luxembourg on 7 to 11 September 1970, dated 26 October 1907, BR/49/70, page 40. Later the Working Party I of the Inter-Governmental Conference noted that the grounds for revocation listed in Art. 138(1) EPC could be used later as a model for the harmonisation of national laws of the Contracting States of the EPC, see Minutes of the 4th meeting of the Intergovernmental Conference, held in Luxembourg on 20 to 28 April 1971, dated 7 July 1971, BR/125/71, page 31.

10. In effect this means that the European patent is something more than just a “bundle” of applications all the same. There is a set of rules which is thus common to all Contracting States and which sets the European patent granted for a certain State apart from national patents for the same State, at least on principle. It was expected by the Diplomatic Conference 1973 that the national patent law in the Contracting States will be adapted to conform with these common “standard rules” (see van Empel, see above, No. 58).

11. Therefore, in accordance with the second Recital of the Preamble and Rules 2(2) and 138(1) EPC, the Contracting States harmonised their national laws as to patentability requirements so that as far as possible the national courts of each State shall approach the issue of validity of patents in the same way as the EPO. In order to assimilate the national patent law in the Contracting States to the system of law of the EPC, the national legislators included many changes in their national law of patents. Presently it can be said that the substantive law of patents is for the most part harmonised across the Contracting States of the EPC. Therefore, it should be demanded that all States acceding the EPC should first harmonise their national substantive law of patents with the provisions of substantive law of the EPC, i.e. with Art. 52 - 57, 83 and 123 EPC.

12. The provisions for harmonising the Law of Ukraine with the EPC are the following (see above under A.):

a) harmonise Art. 6(2) Law of Ukraine with Art. 52(1) EPC enshrining the word “technology” in the basic provision of substantive patent law, see A(2) above;

b) implement in Art. 6(2) Law of Ukraine a list of items which at any rate are not being regarded as inventions anyway, like Art. 52(2) EPC, see A(2) above;

c) harmonise Art. 6(1) Law of Ukraine with Art. 53(a) EPC regarding the exceptions of patentability on the reasons of “ordre public” and morality, see A(3)(a) above;

d) introduce in Art. 6(1) Law of Ukraine the interpretation of the term “morality” regarding biotechnological inventions as mentioned in Rules 28 and 29 EPC, see A(3)(a) above;

e) introduce in Art. 6(3) Law of Ukraine the positive expression like Rule 27(b) EPC that inventions which concern plants and animals shall be patentable, see A(3)(b) above;
f) introduce in Art. 6(3) Law of Ukraine provisions on exceptions to patentability regarding medical diagnosis and treatment measures as mentioned in Art. 53(c) EPC, see A(3)(c) above;

g) introduce in Art. 7 Law of Ukraine a provision on the patentability of a first medical indication of a per se already known substance or composition as mentioned in Art. 54(4) EPC, see A(3)(c)above;

h) introduce in Art. 7 Law of Ukraine a provision on the patentability of further patent protection of substances or compositions already known as medicines as mentioned in Art. 54(5) EPC, see A(3)(c)above;

i) withdraw Art. 7(6) Law of Ukraine on a general ‘grace period’, see A(5) above;

j) harmonise Art. 8(7) Law of Ukraine with Art. 57 EPC regarding the provision of industrial application, see A(6) above;

k) harmonise Art. 12(7) Law of Ukraine with Art. 83 EPC regarding the provision of sufficiency of disclosure, see A(7) above;

l) harmonise Art. 16(7) Law of Ukraine with Art. 123 EPC regarding the provision of extension to subject-matter not disclosed, see A78) above.
SUPPORT TO FOREIGN PATENTING: EXAMPLES IN EU MEMBER STATES AND OTHER COUNTRIES

Summary

The document presents the results of a survey analysis on government and private support to foreign patenting in EU member states and other countries. Examples from fourteen EU member states, three non-EU countries and one multinational project are given in three sections: direct government support programs, government support through innovation and R&D programs, and private or private-government support. Policy reasons for adoption, description and results strong/weak points are presented for each support mechanism, wherever available, with reference sources.

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PART 1: DIRECT GOVERNMENT SUPPORT PROGRAMS

Poland 1: Patent Plus Program\textsuperscript{172}

\textbf{A. Short description of policy reasons to adopt the mechanism}

It has been recognised that the introduction of transparent and systemic framework conditions concerning IP protection of research results generated in research institutions is a starting point for elimination of barriers hampering technology transfer from research institutions. Although there has been a general upward trend in a number of granted patents, its number is still relatively low. By the end of 2005, it was estimated that out of slightly more than 2,000 resident applications a little more than 1,000 were actually granted.

\textbf{B. Description of the mechanism}

The main objective of the Patent Plus programme is to facilitate technology transfer from research institutions to industry through support to IP protection of research results obtained in these institutions. The programme also aims at raising awareness of R&D personnel about the importance of intellectual property rights in commercialisation of novel solutions and facilitation of co-operation with the business sector. The programme consists of two modules. While the first module \textit{covers the costs or co-finances some costs relating to IP protection}, the second aims at facilitating co-operation with business partners and diffusing knowledge about IP protection in public research institutions.

Managing institution and funding agency: \textit{Ministry of Science and Higher Education.}


Form of funding: Grants.

Groups eligible for financing: Higher education institutions’ research units/centers.

Selection criteria:

The following \textit{selection criteria} are used during the evaluation of proposals:

- Feasibility of commercialization
- Feasibility to apply novel solution by an enterprise
- Indicator of patent applications and number of granted patents
- Ability to obtain profit from international sales of licenses or related fees
- Co-operation between a beneficiary and enterprises to commercialize R&D results generated in research institutions
- Procedures of IP management existing in research institutions or intent of adopting such procedures.

Amount of financing: Overall budget in EUR - €1,324,678. Financing may cover up to 90\% of the planned project expenditures.

\textbf{C. Result; strong, week points}

Prior to the launch of this measure a similar instrument was launched by the \textit{Polish Agency for Enterprise Development} to support SMEs in protecting their IP rights. The underlying difference with the other initiatives is that Patent Plus is a complex programme, which offers not only support to research institutes in obtaining IP protection, but also invests in fostering stronger science-industry links through co-financing of feasibility studies for example. Besides that, the programme also supports trainings in IP management or even supports researchers in obtaining qualifications of patent attorneys.

The Patent Plus programme is reported to be accepted with great interest by the potential beneficiaries proving the need for supporting the science sector in patenting the research results.

\textbf{Ireland: Patent Fund for Researchers in Higher Education Institutes}\textsuperscript{173}


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A. Short description of policy reasons to adopt the mechanism
The discovery, protection and transfer of commercially valuable intellectual property from ‘bench to boardroom’ are essential for Ireland to generate more high-value jobs and exports. Enterprise Ireland is focused on increasing the commercialization of publicly funded research and has put in place support systems for commercializing outputs of research in Ireland’s Higher Education (HEI) and Research Performing Institutions (RPO). The Enterprise Ireland Patent Fund provides funding to support patenting costs in these institutions.

For institutions with Technology Transfer Strengthening Initiative (TTSI) contracts, the recent restructuring of funding to include funding for patenting costs means that there is no longer a need to apply to the Enterprise Ireland Patent Fund. The Institution will decide to protect the Intellectual Property (IP) of inventions created by their researchers which they consider to have potential for commercialization.

B. Description of the mechanism
Funding can be provided at any (or all) of the three stages in the process of patent protection to HEI’s and RPOs not covered by contracts under the TTSI program. A maximum contribution from Enterprise Ireland up to 75% of eligible documented costs up to the limits outlined will apply. Patenting activities from 01/01/2010 are eligible for support.

Principle Investigators and researchers who are interested in protecting the IP from their research by filing a patent should contact the Technology Transfer Office or equivalent office in their institution. The Technology Transfer Office must make an application to Enterprise Ireland for patent funding. Enterprise Ireland will not accept applications directly from researchers - you must apply through your Technology Transfer Office.

Institutions are required to gain pre-approval from Enterprise Ireland for Stage 1, Stage 2 and Stage 3 patent funding. The TTO or equivalent office must complete the relevant application form which requests the following information:

- Administrative details
- Commercialization strategy for the invention
- Technical description and R&D status of the invention.

Groups eligible for financing: Ireland’s Higher Education (HEI) and Research Performing Institutions (RPO) not covered by contracts under the Technology Transfer Strengthening Initiative TTSI program.

Selection criteria: For Stage 1 funding, it is expected that the application will present an outline commercialization plan for the invention. For Stage 2 applications, it is expected that the institution's current commercialization strategy for the invention will make a convincing business case for support. For Stage 3 applications, Enterprise Ireland requires evidence that rigorous due diligence of commercial opportunities for the invention has been performed. Negotiation of licenses for the invention should have commenced and ideally be well progressed.

Amount of financing:

<table>
<thead>
<tr>
<th>Stage</th>
<th>Upper Limit</th>
<th>Enterprise Ireland Contribution up to 75%</th>
</tr>
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</table>

### Enhance Innovation Strategies, Policies and Regulation in Ukraine

<table>
<thead>
<tr>
<th>Stage 1 applications (Priority Patent Applications)</th>
<th>€7,000</th>
<th>€5,250</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 2 applications (Patent Co-Operation Treaty, PCT)</td>
<td>€15,000</td>
<td>€11,250</td>
</tr>
<tr>
<td>Stage 3 applications (Nationalization stage applications)</td>
<td>€50,000</td>
<td>€37,500</td>
</tr>
</tbody>
</table>

#### C. Result; strong, week points

**Finland: Foundation of Finnish Inventions**

**A. Short description of policy reasons to adopt the mechanism**

The Foundation devotes significant attention to the protection of inventions by intellectual property rights, especially patents. **The inventiveness and most commonly the patentability of an invention is considered a key criterion for the selection of the projects to be funded by the Foundation.** In addition, inventors and SMEs receive legal assistance for the protection of patents in Finland and in potential export markets, as well as advice on the development of an IP strategy for the invention. Finally, during the commercialization phase, advice on licensing is provided and an inventions market exists (available on-line at [http://www.innofin.com](http://www.innofin.com)) for bringing together inventors and potential licensees.

The advice services and risk financing provided by the Foundation for Finnish Inventions are tailored to a specific target group, comprising individual inventors and small entrepreneurs, which other public innovation support organizations do not cover at all or only marginally.

**B. Description of the mechanism**

The Foundation for Finnish Inventions supports and helps individual inventors and small entrepreneurs to develop and exploit invention proposals. The Foundation's services and funding provide **a chain of support throughout the invention process up to commercialization.** The funding provided is risk financing for which securities are not required. **The financing can be grants or support funding.** The maximum amount of total funding per invention is between €2,000 and €200,000, depending on the project. Modest grants are awarded primarily for concept development costs during the early phases, such as prototype development. Grants are between €1,000 and €2,000. Support funding is intended for the development of inventions. Support funding can be used for costs associated with patenting, product development and commercialization. Support funding is typically granted in several installments, totaling between €2,000 and €200,000 per invention. The use of support funding must be reported to the Foundation on an annual basis. Support funding is repayable if the project is commercially successful. The maximum sum repaid equals the amount of support granted, without interest or multipliers. If the invention is not commercially exploited, there is no obligation to repay support funding. The rights to the invention will remain with the inventor.

**Financing for the development and commercialization of inventions** is usually provided under the following four modalities:

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"Keksi" Funding: covers the early costs of developing an invention up to a maximum of EUR 8,000. There is no refund obligation.

Support Funding (between €2,000 and €200,000): is used for paying the costs of patenting, product development and commercialization. It incorporates a conditional refund to the Foundation depending on the success of the project and on the revenue received from it by the inventor. No interests are charged.

Grants: provide smaller sums with no refund obligation (between €1,000 and €2,000).

Loans: provide working capital in the initial stages of commercialization of an invention to inventors and SMEs

Groups eligible for financing: Inventors and SMEs; individual inventors, university researchers and small enterprises.

Selection criteria: Individual inventors and small entrepreneurs with inventive idea are eligible for funding of the Foundation for Finnish Inventions. The Foundation's experts weigh up each invention on a case-by-case basis. All funding granted is discretionary, based on an individual evaluation of the invention. Aspects evaluated cover:

- market potential;
- functionality and the technology used;
- novelty and inventiveness;
- business potential.

Amount of financing: Overall budget - 7,100,000 EUR for the years 2006-2008. Financing varies between EUR 1,000 and EUR 200,000 depending on the nature of the invention and its business potential. Most of the operational funds of the Foundation are obtained from the Ministry of Trade Industry of Finland.

C. Result; strong, week points
Over the years, the Foundation for Finnish Inventions has received 16,000 applications for funding from which 2,000 inventions have received financial support, including funding for patenting the inventions. To date, a total of 500 new products have been commercially exploited with Foundation support either by the inventor/entrepreneur directly or under a license agreement.

Hungary: Support to IPR protection for Hungarian inventions abroad

A. Short description of policy reasons to adopt the mechanism
Based on available data, Hungary lags behind the EU average in terms of IPR protection activities, including patents as well as trademarks and designs. In fact, according to the EIS indicators, one of the areas where Hungary shows the weakest relative performance is this area: a mere 5-20% of the EU average. Keeping in mind that patenting activities are not unequivocally the only (or most relevant) indicator of innovation performance, e.g. its significance varies greatly among sectors and with the economic development of a given country, it is generally acknowledged that the poor patenting activities of Hungarian firms is an important weakness of the Hungarian NIS. Therefore, to address this shortcoming, some of the relevant obstacles are targeted by this measure.

B. Description of the mechanism
The objective of the measure is to foster innovation processes within the Hungarian economy, boost its competitiveness, facilitate export by supporting international Intellectual Property Rights (IPR) protection activities of Hungarian small and medium-sized enterprises (SMEs), individuals, PROs and higher education institutions (HEIs). Financial resources are provided for acquiring, renewing and maintaining utility models, designs and international IPR protection. The scheme also supports enforcement of international IPR.

Innovation process addressed: development/prototype creation; commercialization of innovation (including IPR).

The National Office for Research and Technology is responsible for the management of the scheme. Operational tasks, such as handling applications are carried out by the Hungarian Economic Development Centre.

The Hungarian Economic Development Centre assesses the applications against formal criteria. Applications which qualify are evaluated based on the criteria detailed above by the Evaluation Committee (comprised of independent experts, appointed by the National Office for Research and Technology, NKTH). Based on the rank order of the projects, the Committee may either recommend the given project for funding (in full or with a reduction of costs and/or activities), or reject it (on grounds of content or the scarcity of available funds). The formal decision is made by the President of the NKTH.

Eligible costs: external expertise (consultants, studies, etc.); costs directly related to the acquisition, maintaining and renewal of IPR protection.

Mode of funding: subsidized loans (including interest allowances); guarantees; tax incentives (including reduction of social charges). No direct funding provided.

Groups eligible for financing: SMEs only; scientists/researchers (as individuals); higher education institutions’ research units/centers; other non-profit research organizations (not HEI).

Selection criteria: Projects to be supported are selected based on the following criteria (weight has not been assigned to them):

− Alignment with programs main objectives;
− Professional, scientific, technological novelty and social usefulness;
− Likelihood of attaining IPR protection in the countries specified;
− Prospects for economic exploitation of invention in the countries specified;
− Impact of product or process on the environment;
− Previous innovation and business activities of firm;
− Feasibility of invention and its social and economic relevance internationally;
− Relation of invention to advanced technologies;
− Justification of costs, requested funding compared to expected results.

Amount of financing: Overall budget 800,000 EUR (the overall budget refers to the envisaged volume of funds to be distributed during the full duration of the scheme (2008-10), via individual calls for proposals. The maximum amount of support is 40,000 EUR, which may be up to 100% of the eligible costs.

C. Result; strong, week points

As of March 2009, two calls for proposals have been completed. The first one in 2008 (16 selected projects, 136,000 EUR committed) and one in 2009 (14 selected projects, 115,000 EUR committed.) This means that roughly one-third of funds allocated to this measure have been committed.

Greece: Awards and financial support to inventors

A. Short description of policy reasons to adopt the mechanism

The social perception of the inventors is based on the parochial view of the isolated technician who constructs devices, mostly for his own satisfaction. The need to change this perception is paramount in the construction of

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the knowledge-based economy. Scientists and engineers have to become the main actors in the landscape, which is enriched with complex rules and external relations. The inventions produced in Greece have not only to increase dramatically in numbers but also to change radically in quality. The awards is a tool used worldwide to modify attitudes and to a lesser extend behaviours.

B. Description of the mechanism
A call for proposals is launched at irregular intervals (initially planned every year). Proposals are submitted to the Greek Patent Office (OBI). The proposals refer to patent grants or patent applications in specified period of reference. An Evaluation Committee, composed of 7 university professors, engineers and business people, is established by ministerial decision, to select inventions to be prized by the minister himself in a public event, which receives large advertisement.

Mode of funding: guarantees.

Groups eligible for financing: All companies; scientists/researchers (as individuals); higher education institutions’ research units/centers; other non-profit research organizations (not HEI). Inventors or beneficiaries that have permanent residence in Greece and: /a/ have applied to OBI or to a European registration office, with validity Greece or, /b/ have already registered, during the last five years, to OBI or to a European registration office, with validity in Greece.

Selection criteria:

− Level of change of the state of the art by the inventions;
− Include significant inventor activity;
− There are prototypes;
− Can contribute to the technological development of Greece;
− The invention is commercially exploitable and creates investor’s interest.

Amount of financing: Overall budget – 50000 EUR, covering the cost of the prizes, the selection committee and the event of award.

C. Result; strong, week points

Austria: uni:invent177

A. Short description of policy reasons to adopt the mechanism
The Universities Act 2002 which fully came into effect in 2004 turned Austrian public universities into legal entities in law, enjoying far-reaching autonomy and publicly financed through three-year performance contracts. This new autonomy also implies that universities may independently avail of their respective budgets and exploit the knowledge generated. Thereby the universities are now able to apply for patents. The uni:invent program was intended to support Austrian universities in this new responsibility for their intellectual property.

B. Description of the mechanism
The main goal of the uni:invent program is to enhance the economic exploitation of knowledge generated at Austrian universities by raising awareness of the economic importance of inventions and patents and by increasing the number of patents filed by Austrian universities. The main instruments of support are the establishment of innovation scouts at participating universities and the funding of prototype development.

The uni:invent program was initiated by the Federal Ministry of Science and Research (BMWF) and by the Ministry of Economy, Family and Youth (BMWFJ). uni:invent was launched in 2004 and it is managed by the Austria Wirtschaftsservice, the federal innovation agency (AWS).

AWS offers the following services:

- **Evaluation of inventions** reported by universities in terms of content and legal situation and providing an assessment report to the university
- **Recommendations to the university concerning the picking up of an invention**
- **Management of the patenting process**
- **License management**: active search for potential licensees, contract negotiations with licensees and controlling of license fee payments on behalf of the university
- **Training of contact persons for scientists at universities (innovation scouts)**
- **Administration of universities’ patent accounts**

AWS permanently offers the services listed above to the participating universities. At those universities, local services have been established with the support of the program, especially "innovation scouts”, that help scientists with the exploitation of promising research results. As the program is not funding projects but the development and implementation of a new innovation service at and for universities, the activities are continuously ongoing throughout the program's duration (i.e. no calls for proposals or the like).

**Groups eligible for financing:** Every university in Austria according to the new Universities Act 2002 is entitled to participate in the program.

**Selection criteria:** Although the uni:invent program does not explicitly define research or technology fields, the very focus on patenting and economic exploitation of universities' research results implies that research in fields where patenting is not the main path to exploitation (e.g. social and cultural sciences) will not be supported. Consequently, the Universities of the Arts and the Vienna University of Economics and Business Administration do not participate in the program.

**Amount of financing:** €9m for three years. For each of the three year periods of uni:invent (2004-2006 and 2007-2009) a budget of €3m per year.

**C. Result; strong, week points**

The program has been assessed in an accompanying evaluation during the period from 2004 - 2006; the evaluators then suggested a prolongation of the program, given some improvements. The reports are available for download: interim reports and in the final version, both in German only. The uni:invent program has been prolonged for further three years after the positive interim evaluation of the first period 2004-2006. At the moment, the program is ongoing; its future beyond 2009 is subject to decision.

**Poland 2: Management of Intellectual Property Rights**

**A. Short description of policy reasons to adopt the mechanism**

The main goal of this measure is to improve the functioning of the innovation market and promotion of innovative solutions through the intensification and encouragement of intellectual property rights application. More specifically speaking, the measure will cover the costs related to the application and protection of IP rights especially abroad as well as contribute to the goal of raising awareness about the importance of IP issues among the entrepreneurs.

Development of the innovation market requires execution of its legal protection. In Poland, the awareness of effective application of intellectual property rights and subsequent advantages is relatively low. Moreover, the number of application for patents as well their assignment is also significantly below European average.

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The main reason is the high costs of making an application for the Polish companies and research institutes. Promotion of intellectual property rights aims at reducing these costs as well as associated financial risks; taking advantage of opportunities that stem from legal protection will make investment in R&D activity more profitable, and new solutions will be accessible providing benefits to their authors.

B. Description of the mechanism
The Polish Agency for Enterprise Development (PARP) is responsible for the assessment and selection of projects, agreements for financing, monitoring and payments to the beneficiaries. The Ministry of Economy acts as Intermediary institution, which involves control related activities. For example, it oversees the overall assessment and selection process and accepts the recommended projects for funding. In addition to this, the Ministry of Economy can participate in project control related activities. The Ministry of Regional Development accepts all documents related to the implementation and accepts the recommended projects for funding. The Selection Committee is a team of experts involved in the assessment of submitted applications. It is composed of external as well as internal (PARP) experts.

The State Aid aspects are regulated by the decree issued by the Minister of Regional Development of 7 April 2008 concerning the financial assistance granted by the PARP in the framework of the Operational Programme Innovative Economy 2007-2013.

Groups eligible for financing: There are two types of projects - realized by the enterprises and by the business intermediary organizations in the area of promoting IP protection among the companies. Target of measure and eligible for funding: all companies, scientists/researchers (as individuals), technology and innovation centers (non-profit).

Selection criteria: There are several selection criteria defined, one of those is the sustainability of 5 years for companies and 3 years for SMEs.

Amount of financing: Overall budget in EUR: 39 000 000.

C. Result; strong, week points
By the end of 2008, 25 contracts have been signed for the total value of €452 thousands.

By the end of 2015 following results are expected:

- the number of supported projects: 1800;
- the number of submitted patent applications to EPO and USPTO: 200;
- the number of submitted applications for utility models: 150;
- the number of submitted applications for industrial designs: 800.

India: Support International Patent Protection in Electronics and IT (SIP-EIT)

A. Short description of policy reasons to adopt the mechanism
Faced with the impassivity shown by the information technology researchers and innovators, the government is extending a helping hand. Department of Information Technology (DIT), government of India and Centre for Development of Advanced Computing (C-DAC) have started a scheme for the purpose. Through this scheme, researchers can get half of the expenses for filing international patents reimbursed.

This forms one of the steps taken by DIT and CDAC to increase awareness on Intellectual Property Rights, especially for Small and Medium Enterprises. The scheme seeks to encourage indigenous innovation and to

179 Information source: http://www.mit.gov.in/content/about-scheme
recognize the value and capabilities of global IP and capture growth opportunities in the area of information technology and electronics.

This attempt to recognize the value and capabilities of global IP and capture growth opportunities in the area of information technology and electronics is based on a study of sample Published Patent Applications related to Information and Communication Technologies carried out by DIT in association with Centre for Development of Advanced Computing (C-DAC). The dismal picture of filed patent applications (less than 10%) in the area of Information and Communications, as evident in the figures of Published Patent Applications (related to ICT), made it imperative to highlight the necessity of intensifying the IPR culture in Indian organizations / researchers especially in SMEs.

B. Description of the mechanism

The aim of the scheme is to help Indian researchers to apply for international patents. As per the scheme, DIT will reimburse 50% of cost of patent filing for any international patent filing by SMEs whose patentable inventions are in ICT/Electronics domains irrespective of final application areas. The scheme designed by Department of Information Technology, government of India is meant to help small, medium enterprises and start-up units.

Applicants having already filed a patent application for the said invention in India and inventions in the electronics/ICT technology domain will be eligible for the support.

The Department of Information Technology (DIT), Ministry of Communications and Information Technology, Govt. of India in its endeavor towards generation of awareness on Intellectual Property Rights, especially for Small and Medium Enterprises, has lately announced a scheme for providing financial assistance to SMEs and Technology Start-Up units for international patents filing. The scheme, named as Support International Patent Protection in Electronics and IT (SIP-EIT), seeks to encourage indigenous innovation by reimbursing 50% of cost of patent filing for any International Patent filing by SMEs whose patentable inventions are in ICT/Electronics domains irrespective of final application areas.

C-DAC is hopeful that this initiative would make entrepreneurs more aware of their intellectual property rights and would encourage them to file applications for patents on their inventions. This enterprise is also in consonance with the mission of C-DAC to utilize the intellectual property generated in the field of Information Technology to benefit society by converting it into an exciting business opportunities and establishing a self-sustaining and wealth creating operation.

The support up to 50% of the total patent cost will be in form of reimbursement of expenses in actual to the applicant and will be limited to Rs.15 lakhs or 50% of the total expenses incurred on filing each invention whichever is less. The reimbursement shall include expenditures incurred during patent filing such as all patent processing costs including Attorneys’ Fees, Patent Office filing fees, Examination Fees, Patent Search cost, Additional cost for entering National Phase up to grant/issue.

The option for filing International Patent for an applicant can either be the PCT route or direct to any country of his choice. However, the applicant needs to furnish justification for his choice of route and of country/countries in which he desires to file a patent application.

The documents to be provided by the Company to avail the scheme are:

- Application Form (giving requisite information about the applicant and the invention)
- Reimbursement Details (As per the format in the application form)
- Patent Search Report
- Product brochure (if any)
- Copy of Registration of the applicant industry
- Copy of official filing with Indian Patent Office
- Proof of DSIR recognition of in-house R&D in industry (preferred) / Proof of Govt. supported incubation Enterprise
- Declaration (as given in the application form).

The reimbursement is to be made after satisfaction on the eligibility and acceptance criteria and as per details given meets the patentability criteria for consideration of support, the reimbursement process will be initiated immediately and payment made through e-transfer.

Groups eligible for financing: The SMEs eligible to apply for the reimbursement under “Support International Patent Protection in Electronics and IT (SIP-EIT)” are Registered Indian Micro, Small and Medium enterprises, Enterprises engaged in the manufacture or production of goods where the investment in plant and machinery does not exceed Rs.10.00 crore or Enterprises providing or rendering of services where the investment in plant and machinery does not exceed Rs.5.00 crore, In-house R&D Certification by DSIR or Technology Incubation enterprises registered as companies with support under some government scheme.

Selection criteria: The criteria for acceptance of patent applications for consideration of financial support are as follows:
- Applicants having already filed a patent application for the said invention in India.
- Invention must be in the Electronics/ICT technology domain.
- The application must be accompanied by prior art search report from an International Search authority/registered attorney firm or any other agency of repute.
- The patent applications are to be processed through a registered patent attorney in a patent attorney firm having an experience of at least 5 years in handling international patent applications.
- The applicant can apply for the support at any stage of international filing. However, reimbursement will only be applicable to expenditures incurred subsequent to the date on which application has been cleared for support.

Amount of financing: Up to 50% of the total patent cost can be reimbursed through this scheme. Support will be limited to Rs. 15 lakhs or 50% of the total expenses incurred on filing each invention whichever is less.

C. Result; strong, week points

According to Mr. Tarun Khurana, Partner and Patent Attorney in Institute of Intellectual Property Research & Development (IIPRD), the highlights of the proposed scheme, called SIP-EIT, are as follows:

1. Registered MSME, DSIR certified companies, and Technology Incubation enterprises are eligible to apply for the scheme.
2. The funds are given as a grant – i.e., no refunds expected.
3. The applicants are free to hire any attorneys whose fees are included in the schedule and would be refunded subject to the below mentioned maximum limit.
4. 50% of all expenses, including lawyers’ fees, is reimbursed by the DIT. However, this “50%” must not exceed Rs. 15 Lakhs
5. Along with the registration and financial details, the Applicant needs to provide a prior art search report indicating the chance of patentability of the invention, product brochure, and official copy of Indian Patent Application Filing.
6. The Start-up/SME need not be an ICT company; it can be a pharmaceutical or any other company having an ICT product, apparatus and/or process.

This is believed to be an excellent support that if utilized properly can yield effective Licensing and Product Commercialization opportunities for the company.

The only caveat, according to Mr. Khurana at the moment, would be the appropriateness in grant of ICT based Patents in India and their enforceability in the Court of Law keeping the Section 3(k) in mind. There are examples of computer implemented patents being granted in India of whose corresponding patents have been rejected by the EPO and other geographies which have tests based on technical effect and tangible results. Therefore, keeping in consideration the inconsistency of patents being granted based on the technical effect bar of the Indian Patent Office, probably it is high time that objective tests be set to ensure reliability in the outcome of the patentability to produce defendable and enforceable ICT patents.

Italy, Province of Milan: Program for financial support to SMEs to patent their inventions abroad

A. Short description of policy reasons to adopt the mechanism

B. Description of the mechanism

The [Italian Province of Milan](http://www.insme.org/page.asp?IDArea=1&page=financing&actiion=detail&IDO=63&IDO=11) has launched in 2008 a new program to provide financial support (€ 1,200,000,00) to SMEs to patent their inventions abroad.

Groups eligible for financing: The program is targeted to micro, small and medium-sized enterprises operating within the Province of Milan and Monza and it is conceived only for project of Industrial invention, Utility model and Ornamental drawing or model.

Selection criteria:

Amount of financing: The facility consists of 50% of the expenses with a maximum of € 8,000 in case of submission of one application; € 16,000 for two applications and € 24,000 for three or more applications.

C. Result; strong, week points

Germany: INSTI Project/ INSTI SME Patent Action Program

A. Short description of policy reasons to adopt the mechanism

The main objective of the project is to increase the use of patent system and scientific-technical databases, so as to avoid wasteful investments or duplication of efforts in which two or more companies may be working on the same product. Furthermore, by encouraging the use of the patent system the project aims at enabling enterprises to enhance the legal protection of their products and processes, which would ultimately translate into an increased ability of enterprises to establish themselves in new markets, acquiring a competitive edge in founding new enterprises etc.

B. Description of the mechanism

The INSTI Project was established in 1995 by the [German Federal Ministry of Education and Research (BMBF)](http://www.wipo.int/sme/en/best_practices/germany.htm), with the aim to create an ingenious environment for inventors and innovations in Germany and to improve the transfer of research and development results into marketable products. The Project, which was initially supposed to have a five year timeframe, has been extended with no definite time limit. The Project is managed by the 'Institut der deutschen Wirtschaft' (IW) and funded by the BMBF.

INSTI project established a nation-wide network of INSTI partners. These include patent attorneys, regional patent information centers, information brokers, business consultants and technology transfer centers. INSTI partners can be contacted by SMEs, inventors and scientist for assistance on:

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• Patent information or training in using patent databases,
• Information about the patent system, trademarks, cost of patents and the possibilities of using legal protection for new products,
• Practical aspects of innovations e.g. how to use creative techniques or how to manage innovation
• Launching new products nationally or internationally or establishing new business contacts
• Exchange of experience

**Financing**, licensing or acquiring services of a renowned patent attorney.

The **INSTI SME Patent Action Program** focuses specifically on small and medium-sized enterprises (SMEs). The main objective of this program is to provide financial assistance to SMEs wishing to undertake necessary steps toward patenting their inventions.

Areas of which the BMBF offers financial assistance are:

• Searches for "the state of the art" with respect to developments in technical fields;
• Undertaking a cost/benefit analysis of patenting the product or technique;
• Cost of a patent attorney and the German Patent Office's administrative fees;
• Preparation for the exploitation of the patent or utility model;
• Cost of a patent attorney and administrative fees to file for a patent abroad; and
• Cost for the preparation and an enquiry about necessary certifications.

In the event that a SME does not utilize the maximum grant awarded for a certain section, the remaining sum can be used for another section for about half of the possible grant if in this section the grant reached its maximum.

**Groups eligible for financing:** Eligible for this program are SMEs of the manufacturing trade and agriculture including craft businesses and founders registered and producing in Germany.

**Selection criteria:** The program offers financial support to SMEs which apply for the first time for a patent or utility model or have not filed for one within the last five years prior to application.

**Amount of financing:**

Under the program, an SME can receive grants of 50% of the external costs, up to a maximum of DM 15,000 (by 01.01.02 8,000), disbursed as follows:

• Section 1: max. DM 1,500 (by 01.01.02/800 €) for searches on the state of the art
• Section 2: max. DM 1,500 (by 01.01.02/800 €) for undertaking a cost/benefit analysis
• Section 3: max. DM 4,000 (by 01.01.02/2,100 €) for a German patent application
• Section 4: max. DM 1,500 (by 01.01.02/800 €) for preparations of exploitation
• Section 5: max. DM 5,000 (by 01.01.02/2,700 €) for foreign patent application and
• Section 6: max. DM 1,500 (by 01.01.02 800 €) for the preparation and an enquiry about necessary certifications.

Recipients of grants must themselves shoulder the remaining external expenditure and the internal outlay.

**C. Result; strong, week points**

As of June 2001, 2340 SMEs have applied for a fund (26.6% are founders of an enterprise). Many small sized businesses have participated in this program. 52.6% of the applicants have up to three employees. Of the SMEs that were granted a fund, 91.6% have filed for a German patent application.

**Cyprus: The Patent Action¹⁸³**

**A. Short description of policy reasons to adopt the mechanism**

The specific characteristics of the Cypriot innovation system indicate that knowledge exploitation is limited. Patenting in the EPO is very low and with 10-15 patents granted per year it rates Cyprus only at 10-13% of the European average; with 1% this is worse for the USPTO and it is virtually 0 in terms of Triadic patenting. Worse than that, this performance is deteriorating instead of improving (European Innovation Scoreboard, 2007). The above weakness has been detected for the first time in the framework of the implementation of the Regional Innovation Strategy in Cyprus (RISC) action plan. As a result, the specific measure has been introduced under the strategic pillar 1 "Enforcement of the endogenous capabilities of the companies to develop innovative activities". The "Patent" action adopted by the RPF is, actually, the implementation of the RISC measure.

B. Description of the mechanism

The measure aims at the provision of financial support for patent registration. Institutions or enterprises, who implemented research activities (fundamental research, industrial / applied research and pre-competitive development), which were completed during the last three years and which were funded by the Research Promotion Foundation (RPF), the European Commission (e.g. EUREKA, FP6) or any other body that finance scientific research will be eligible for funding of the costs incurred from submitting and / or being granted a patent.

The measure applies to cases of research projects that have been completed. The funding provided by the measure covers all costs associated with obtaining and validating patents, including costs relating to the preparation, filing, translation, prosecution and defending the validity of the right during the official prosecution of the application and possible opposition proceedings, as well as the annual fees for the protection of patents for a period of two years. In case the inventor commercializes the invention the amount of the support will be returned to the RPF.

The main objective of the measure is to increase in the annual base the number of patents submitted by Cypriot enterprises, research organizations and individual researchers / inventors and the further commercial exploitation of these patents by local individuals and bodies.

The Patents action is implemented by the Research Promotion Foundation (RPF). The organizations/individuals who are interested to submit a proposal under the present call, should previously submit the relevant patent application in the first legal jurisdiction of their choice, to the corresponding national or international authority. The patent application should refer to research projects, which were completed during the last three years. The proposal submitted to the RPF should include the description of the procedure and anticipated cost. For each stage of patenting process included in the proposal, the beneficiaries should demonstrate that RPF funding provides incentive for the implementation of the relevant expenses. The RPF examines the proposals and informs the candidate about the terms under which the organization will provide him with financial support. Then, the participant proceeds with the next stages of patenting process. The RPF expects that the proposals submitted to RPF will include at least one of the following methods of patenting:

- patent validation at National level, covering the area of Cyprus or any other country, through the submission of patent application to the corresponding national authority,
- patent validation at a European Level, through the submission of patent application to the European Patent Office (EPO),
- payment of annual fees for the protection of a patent for a period of up to two years,
- submission of an application under the Patent Cooperation Treaty (PCT), through the World Intellectual Property Organization (WIPO).
The management is entrusted to the RPF. The proposals are submitted to the RPF and then evaluated in priority order, based on the Proposal Number of each proposal, and as long as funding is available in the budget of the present call.

Mode of funding: Subsidized loans (including interest allowances); guarantees; tax incentives (including reduction of social charges); no direct funding provided.

Eligible costs: All costs associated with obtaining and validating patents, including costs relating to the preparation, filing, translation, prosecution and defending the validity of the right during the official prosecution of the application and possible opposition.

Groups eligible for financing: SMEs; scientists/researchers (as individuals); higher education institutions’ research units/centers; other non-profit research organizations (not HEI).

Selection criteria: The candidate’s headquarters must be in the areas under the control of the Republic of Cyprus. The patent application should refer to research projects, which were completed during the last three years.

Amount of financing: 200 000 EUR total budget for the call 2008 (the first call of the measure). Maximum funding per project: €40,000. The funding for the payment of annual patent protection fees will be provided through a De Minimis block grant. It will be provided by RPF after the submission by the beneficiaries of the relevant cost documentation for patent protection. In case the inventor commercializes the invention the amount of the support will be returned to the RPF.

C. Result; strong, week points

Portugal: Industrial Property Use Incentive System (SIUPI)\(^\text{184}\)

A. Short description of policy reasons to adopt the mechanism

SIUPI follows similar measures in earlier PEDIP program. SIUPI falls in the context of the PRIME program, on the modernization of the Portuguese economy.

B. Description of the mechanism

SIUPI is aimed at supporting domestic and international industrial property rights utilization by Portuguese companies, namely patenting. In 2005 support was also extended to the expenditures incurred in connection with the introduction of pharmaceutical products in foreign markets.

Mode of funding: Grants; guarantees; tax incentives (including reduction of social charges).

Eligible costs: Equipment; external expertise (consultants, studies, etc.); other: industrial property registration and maintenance fees.

Groups eligible for financing: All companies; scientists/researchers (as individuals); higher education institutions’ research units/centers; other non-profit research organizations (not HEI); technology and innovation centers (non-profit).

Selection criteria: Projects concerning the demand of national and international patents, utility models and industrial models and designs, as well as those on the maintaining of existing property rights.

Amount of financing:

C. Result; strong, week points

The system was found to be important for promoting patenting, taking into account that this is one of the innovation related aspects where Portugal has a weaker performance. However, the mid-term evaluation also found that SIUPI additionality was relatively low.

PART 2: GOVERNMENT SUPPORT THROUGH INNOVATION AND R&D PROGRAMS


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Czech Republic: National Innovation Policy and Operational Programme Enterprise and Innovation 2007-2013

A. Short description of policy reasons to adopt the mechanism
One of the three national innovation system challenges is the low patenting activity /low commercialization of research results.

In general, the Czech Republic, despite positive developments, still has to make further steps in order to foster innovation and growth. Particularly challenging is the cooperation between universities and industry, the financing of innovative enterprises and start-ups, and the low patenting and commercial exploitation activities.

B. Description of the mechanism
The costs related to patenting are eligible costs in the Czech research programmes. However, there is no programme supporting the patenting activity itself. On the other hand, the situation in this respect may be improved soon. In the study on “Assessment of Priorities and Formulation of Recommendations for Implementation Measures towards Developing Knowledge Economy within Preparation of National Programming Documents of the Czech Republic for 2007 – 2013” published by the Ministry for Regional Development a measure is proposed aimed at increasing patent activity of Czech entities (e.g., firms) abroad and in the CR. It will provide subsidies to cover part of the costs related to patent applications at the Industrial Property Office of the CR and abroad. A part of the measure will also support education and raising legal awareness at universities, research institutions and SMEs, as well as increasing qualification of advisers in industrial law who provide counselling in the field of intellectual property protection. The support to patenting activity is also covered by the National Innovation Policy which proposes to set up a special short-term financing scheme (with a contribution from the state budget) for the support of the IPR protection. In addition, a special measure focuses on support of patenting is proposed in the new Operational Programme Enterprise and Innovation, which is being prepared for the programming period 2007-2013.

C. Result; strong, week points
Strong: The need to increase patenting activities in Czech industry as well as access to early financing (seed capital) of start-ups is acknowledged by the Czech government in the National Innovation Policy and Operational Programmes for Enterprise and Innovation.

Week: The European Trend Chart on Innovation identifies lacking cooperation between universities and the business sector as one of the main barriers to the growth of the competitiveness of the Czech Republic. The absence of intermediaries that are important for commercial exploitation, such as technology transfer agencies or patenting and licensing agencies further reduces the potential effects of public policy intervention. A decentralized system of public support to R&D and innovation and insufficient state support through indirect measures has negative effects on innovation performance. Thus, interaction and coordination between different policy actors and organizations relevant for the performance of the R&D system is rather weak.

Poland 3: Support to applied research projects undertaken by science institutions

A. Short description of policy reasons to adopt the mechanism
It is expected that financing such projects should lead to more effective and more rapid realisation of goal-oriented research projects. Another reason for launching this measure was to support science institutions in obtaining national and international IP protection of their research results. In 2006, the number of granted patents of resident applications was estimated at 1,122.

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185 Information source: “Policy Mix” project, Country Review Czech Republic, March 2007

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**B. Description of the mechanism**

This measure provides co-financing for development research projects for specific sectoral and society needs. Such development projects are understood as projects, the aim of which is to carry out research assignment, which will constitute the basis for practical applications. This measure also **co-finances the costs related national and international IP protection** of research results generated by research institutions as a result of their activities.

Two types of activities can be undertaken in the framework of this measure. First, development research projects are eligible for funding. Second, **research institutions can obtain support related to acquisition of IP protection**.

The measure is composed of two sub-measures:

1. Development projects, which are considered as applied research projects
2. **Support to IP protection for research institutions**

The **Centre of Processing Information (OPI)** is responsible for the implementation of foresight sub-measure, whereas the **Ministry of Science and Higher Education and Ministry of Regional Development** play respectively a role of Intermediary institution and managing authority. In practice, that means that the former participates in the control activities and accepts the projects for support, while the latter adopts all the documents related to this measure and approves the ranking list of projects that will receive the funding. In the case of strategic research projects, the Ministry of Science and Higher Education oversees the implementation, whereas the Ministry of Regional Development plays a role of the managing authority.

The applications are selected based on the following criteria.

**Development projects**

1. Novelty of proposed solutions compared to the existing knowledge
2. Scientific level of the project
3. Socio-economic utility of planned research results
4. Usefulness of implemented technologies which can lead to the increase specific sector competitiveness
5. Demand for project's results
6. Relevance of tasks in relation to research and innovation policies
7. Systemic nature of the project
8. Potential to exploit results by more than one entity
9. Human resources and management capacity
10. Synergies with other projects
11. Importance to international collaboration
12. Intensity of current co-operation with national and international research organisations and companies
13. Participation of young scientists in the project

**IP protection projects**

At least a half of available points can be obtained by providing the following evidence:

1. Project concerns high-technologies as defined by OECD
2. Demand for project's results

The applications can be submitted by the fixed deadlines. The application process is divided into two stages. During stage one, the projects are selected and a ranking list is prepared. The second stage is about validation of this ranking list and then this list is submitted to the Ministry of Science and Higher Education for final decision.

State aid framework: according the Complement of the Operational Program Innovative Economy 2007-2013 there is **no State Aid involved**.

Form of funding: grants.
Eligible costs, where direct funding is provided: labor costs (including overheads), equipment, external expertise (consultants, studies, etc.), costs relating to acquisition of IP protection, other.

Groups eligible for financing: Research institutions.

Selection criteria: At least a half of available points can be obtained by providing the following evidence:
1. Project concerns high-technologies as defined by OECD;
2. Demand for project's results.

Amount of financing: Overall budget in EUR: €373,880,771.

C. Result; strong, week points

After the first round of competitions organized in 2008, there are three new competitions planned for 2009. The following indicators have been selected to measure the progress of achieving the results: the number of supported development projects (200 in 2015); number of support IP projects (500 in 2015); number of implementations (130 in 2015); number of national and international patents (250 in 2015).

Poland 4: Investments related to R&D activities within enterprises

A. Short description of policy reasons to adopt the mechanism

The rationale of this measure is to boost private R&D investment and stimulate design activities. By the end of 2006, GERD per capita was estimated at about €14 per person, and almost 70% of total R&D expenditures in the manufacturing sector were incurred by large companies (> 499 employees) and more than that in the service sector. As regards design, the survey conducted by the Institute of Industrial Design in 2007 on behalf of the Ministry of Economy showed that only one-tenth of companies develop exclusively new design, while the vast majority introduce and modify already existing ones.

B. Description of the mechanism

The main goal of this measure is to support companies seeking to obtain a status of R&D centre, which offers a number of fiscal incentives. Besides that the measure provides support to companies to cover partly the costs associated with the industrial designs and utility models.

Although this is a single measure, there are two different types of projects which are eligible for funding. One of them is supposed to help the beneficiaries in obtaining the R&D status, while the other aims at increasing the companies’ capacities in design. In the case of both, infrastructure and advisory/training types of activities are eligible for funding.

Managing institution/launching agency: Ministry of Regional Development; Intermediary institution: Ministry of Economy; Implementing/funding institution: Polish Agency for Enterprise Development.

Form of funding: grants.

Eligible costs, where direct funding is provided: infrastructure (buildings), equipment, training (including study trips).

Groups eligible for financing: Companies seeking to obtain a status of R&D centre. Infrastructure and advisory/training types of activities are eligible for funding.

Selection criteria:

The following criteria are used during the selection of applications:

Research component:

1. The applicant undertakes R&D activities or incurred such costs in the last 12 months
2. The project is in line with the objectives of the measure
3. The project concerns the new investments
4. The applicant will ensure the sustainability of project results (3 years in case of SMEs, and 5 years for larger companies)

5. The know-how, professional and technical capacity
6. The proposed costs are eligible
7. The ability of co-financing
8. The monitoring indicators are objective and reflect the objectives of the project
9. The neutral impact on the EU horizontal policies

Design component:

1. It is foreseen that the end result of the project will be the implementation of industrial design/utility model
2. The project includes advisory services or has relevant in-house expertise
3. The project is financially sound
4. The project is in line with the project objectives
5. The project concerns the new investments
6. The applicant will ensure the sustainability of project results (3 years in case of SMEs, and 5 years for larger companies)
7. The know-how, professional and technical capacity
8. The proposed costs are eligible
9. The ability of co-financing
10. The monitoring indicators are objective and reflect the objectives of the project
11. The neutral impact on the EU horizontal policies

Amount of financing: Overall budget in EUR: €186,000,000.

C. Result; strong, week points
The following indicators were selected to measure the progress of implementation:

1. The number of supported projects (1200 until 2015)
2. The number of supported companies (1100 until 2015)
3. The number of supported SMEs (200 until 2015)
4. The number of modernized or newly established research laboratories (250 until 2015)
5. The number of supported companies (including SMEs), which introduced innovations (300/100 until 2015)
6. The number of inventions applied for IP protection (100 until 2015)
7. The number of application for industrial design (150 until 2015)
8. The number of application for utility models (150 until 2015)
9. The number of newly established R&D Centers (20 until 2015)
10. The number of companies (including SMEs), which started R&D activities as a result of this measure (30/15 until 2015)
11. The number of new or improved R&D projects undertaken by companies as a result of granted support (250 until 2015)

Belgium: Wallonia - Reimbursable loans for enterprise R&D

A. Short description of policy reasons to adopt the mechanism
Reimbursable loans allow the enterprises to finance their R&D activities while decreasing the risk inherent in this type of activities through a sharing of the commercial (financial) risk associated with the problem. With respect to the innovation challenges faced by the Region, the scheme can be considered to support a diversification of and an increase in the value added and higher technology content of regional products (which are often intermediate goods rather than final goods). It also responds to a recognized need to increase the access to and the level of financial support available for innovation in regional enterprises. In this respect, the

The reimbursable loan scheme can be seen as being downstream of a number of other smaller grants aimed at increasing the capacity of regional SMEs to develop innovation projects and upstream from regional support for commercialization and IP protection, which remains relatively under-developed but has been reinforced through support for venture capital and patenting in recent years.

B. Description of the mechanism
The Walloon Region supports applied industrial R&D projects of regional enterprises, research and experimental development activities, with the aim of developing new knowledge and intellectual property which may then result in a later stage in the design and development of a new product, process or service. The loans may also be used for development activities related to the prototyping, demonstration projects, etc. aimed at a new or substantially improved product, process or service. The support consists in an advance (loan without interest) covering 50% of the costs of the research (70% for a SME, or when the commercial risk of the project is judged to be high). The aid is reimbursed only in the case of success, i.e. commercialization of the project results, through annual payments calculated as a percentage of the turnover generated by the exploitation of the results of the research, with a fixed minimum. The property of the results belongs to the enterprise in case of exploitation, and to the Region in case of non-exploitation.

The company should receive the reimbursable advance 8 weeks after the notification of its award by the Directorate General for Research, Technology and Energy of the Walloon Region (DGTRE). Every 3 months, the company has to submit a report on the state of work progress, and every 6 months, a scientific report along with costs statements. At the end of the research, the company decides whether it commercializes the results or not. In both cases, the company remains the holder of the researches that were carried out. If the company exploits the results, it keeps the full rights. If it chooses not to commercialize them, it has to give the exclusive right to do it (or to let someone do it) to the region. The company reimburses the advance only in case results of the research are commercialized.

Form of funding: Subsidized loans (including interest allowances); Reimbursable loans (pay-back only in case of commercial exploitation).
Eligible costs, where direct funding is provided: labor costs (including overheads), equipment, external expertise (consultants, studies, etc.).
Groups eligible for financing: Applied industrial R&D projects of regional enterprises, incl. SMEs, research and experimental development activities.
Selection criteria:
- The new product, process or service should have a reachable market and with sufficient profitability;
- The industrial application of the study should lead to commercial exploitation in Wallonia in maximum 5 years from the start of the research;
- The SME should be financially healthy and in the position to acquire the necessary funding for the project;
- The research team should be competent and motivated;
- The research and its applications should not have a negative impact on the environment.
Amount of financing: Overall budget in EUR: 49000000.

C. Result; strong, week points
The reimbursable loans were evaluated as part of an integrated evaluation of all the main R&D and innovation subsidies and loans available in the region in 2004. The evaluation included a questionnaire survey of 250 regional "research and innovation intensive" enterprises of which 50% were clients of the DGTRE aid schemes and the other half carried out research without regional financial support in recent years. The evaluation concluded that the reimbursable loans scheme was the major instrument for leveraging additional and intensive industrial research activities in the region. A further analysis of the commercial exploitation and return on investment of the reimbursable loans scheme was recommended.
France: OSEO – former ANVAR

A. Short description of policy reasons to adopt the mechanism

B. Description of the mechanism

OSEO was born in 2005, by bringing together ANVAR (French innovation agency) and BDPME (SME development bank), around a mission of general interest supporting the regional and national policies. Its mission is to provide assistance and financial support to French SMEs and VSEs in the most decisive phases of their life cycle: start up, innovation, development, business transfer / buy out. By sharing the risk, it facilitates the access of SMEs to financing by banking partners and equity capital investors.

OSEO covers three areas of activity:

- **Innovation support and funding**: for technology transfer and innovative technology-based projects with real marketing prospects, including support for patenting.
- **Guaranteeing funding granted** by banks and equity capital investors.
- **Funding investments and operating cycle** alongside the banks.

OSEO head structure is a holding with **public status**. It reports to both the **Ministry for Economy, Finance and Industry, and Ministry for Higher Education and Research**.

OSEO's partners are: banks, financial institutions and equity capital investors; research laboratories, universities, engineering schools, major companies; chambers of commerce and industry, tradesmen's guilds; business start-up assistance and support networks; government agencies and private organisations working to promote the use of information technology by SMEs; European structural funds and Community research programmes...

OSEO covers all areas of France, through its regional network. It works with local communities and in particular with the French regions. It makes its skills and networks available to them, acts on their behalf and in accordance with their economic development priorities.

**OSEO’s Strategic Industrial Innovation Program (ISI)** promotes the emergence of European champions. It supports innovative, ambitious, collaborative projects, which are industry-oriented and led by intermediate companies and SMEs, all advancing state-of-the-art technologies. When successful, these projects have a very promising outcome, as they aim at commercializing the innovations arising from technological breakthroughs, which would not be otherwise carried out without public funding. Funds are allocated in the form of grants and loans, ranging from 3 to 10 M€.

Groups eligible for financing: French SMEs and VSEs.

Selection criteria:
- **Amount of financing**: OSEO’s Strategic Industrial Innovation Program: grants and loans, ranging from 3 to 10 M€.

C. Result; strong, week points

Malaysia: Cradle Investment Program (CIP)

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A. **Short description of policy reasons to adopt the mechanism**

CIP’s ultimate goal is to provide entrepreneurial support to:

- Generate new technology ideas and innovations from individuals, research institutes and institutions of higher learning
- Create employment through technology venture development and commercialization
- Act as a catalyst for new areas of economic growth
- **Address the funding gap and industry expectations between pre-seed, seed funding and later stages of capital funding**
- Create a critical mass of entrepreneurs and technopreneurs
- Build a foundation for technopreneurs to spin off their ventures to commercialization.

B. **Description of the mechanism**

The Cradle Investment Program (CIP) is Malaysia’s first development and pre-seed funding program for technology ideas. It enables budding innovators and aspiring innovative entrepreneurs to make the jump from just having an innovative technology idea to becoming a successful start-up. CIP is approving conditional grants of up to RM 50,000 per tranche per idea (up to a maximum of three conditional tranches) for innovative technology ideas with good commercialization potential, submitted by aspiring groups of technopreneurs.

CIP is currently looking for ideas that fall under the areas of ICT and high growth, including:

- Software and information services
- Internet: e-services, e-commerce and e-content
- Communication and networking mobile data
- High tech consumer and business products
- Electronic and semi-conductors
- Medical devices and advance materials
- Biotechnology and life sciences
- Environmental resources management and renewable energy
- Technology innovation for any industry.

The proposed by CIP products: CIP Catalyst and U-CIP Catalyst cover expanded categories of funded areas, including:

- Development of prototype;
- Proofs of concept;
- Business plans;
- Purchase of market feasibility research;
- **IP (Intellectual Property) search and registration**;
- Surveys on concrete statistical data;
- Product sampling expenses.

The **online submitted applications** are assessed and evaluated by CIP’s analysts before they are subjected to approval by the **Approval Committee**.

**Groups eligible for financing:** Aspiring groups of technopreneurs.

**Selection criteria:** Innovative technology ideas with good commercialization potential.

**Amount of financing:** Conditional grants of up to RM 50,000 per tranche per idea (up to a maximum of three conditional tranches).

C. **Result; strong, week points**
As of May 2008, about 270 technopreneurs have benefitted from the Cradle Investment Program (CIP). They have received RM 50,000 per idea, a total of RM15.7 million from CIP and many have gone on to successful commercialization of their ideas. **42% of the ideas completed have reached commercialization stage** which is believed to be the highest rate of commercialization amongst grants in Malaysia yet.

**PART 3: PRIVATE SUPPORT, PRIVATE - GOVERNMENT SUPPORT**

**Great Britain: British Technology Group (BTG)**

A. **Short description of policy reasons to adopt the mechanism**

B. **Description of the mechanism**

The history of BTG begins in 1948 with the foundation by the UK Government of National Research Development Corporation for commercialization of publicly funded research. In 1992 BTG is privatized and in 1995 BTG plc is listed on the London Stock Exchange.

In 2004 BTG is “Intellectual Property and Technology Commercialization Company” funding IP-related projects. Working with a network of contacts in universities, corporations and research institutions, the company was identifying potentially valuable IP and technologies, then strengthening their patent position and, where commercially justified, investing in further technical development. At the same time BTG analyzed the market opportunity and determined the best route to market. Then they commercialized the technology by:

- Licensing it to a corporation that will complete development and market the resulting product, in return for a combination of a down payment, milestone payments and a royalty on product sales; or
- Asserting patents and negotiating license agreements for products already being marketed; or
- Creating a company around the technology and ultimately sell BTG’s equity in the company to other investors or corporations.

In 2011 it is an international specialist healthcare company, investing in finding and offering patents for realization.

C. **Result; strong, week points**

**Switzerland: ErfindungVerwertung AG (EVA)**

A. **Short description of policy reasons to adopt the mechanism**

Innovation is the key to success and sustained high performance in an increasingly complex and challenging global marketplace. But it can be a long way from having an original idea to bringing a new product to market, and this is where EVA can help with its experience in technology transfer and financial assistance from the development of a comprehensive business plan and finding investors to support the project.

B. **Description of the mechanism**

In 1996, with a mission to facilitate new inventions and innovative developments and products in reaching the marketplace, the company ErfindungsVerwertung AG (EVA) was founded and established a network of experts and investors. (NB. Erfindung = invention; Verwertung = exploitation). The purpose of the company is:

- Injection of seed-money as catalyst in bringing inventions and new technical developments to market.

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191 Information sources: BTG plc Annual report and accounts 2004; BTG Corporate Profile January 2011


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• Provision of the necessary resources for clarification of legal issues and patent rights and for assessment of economic feasibility and market analysis.
• Introduction to potential investors and business partners.
• Assistance with registration of new companies and financial participation as appropriate.

Groups eligible for financing: Projects in Life-Sciences

Selection criteria: Geographically located in North-Western Switzerland

Amount of financing:

C. Result; strong, week points

Austria and other SEE countries: South-East Europe IP Fund (SEE.IP Fund)

A. Short description of policy reasons to adopt the mechanism

Bringing ideas to market requires creativity, strong engagement, expertise and above all finance - whether for a company or for a research institution.

The so-called “Valley of Death” – the fatal gap between proof of concept and the beginning of mass production, where many new companies and R&D results are bogged down – is a reality. It threatens a lot of start-up companies, which are not able to survive, when public research grants stop and it is not possible to attract private capital. It threatens research findings and developments, many of which will have to remain in laboratories and on the pages of scientific publications.

This gap can be covered by means of venture capital. Unfortunately, “innovative projects with the potential to expand into international markets have limited access to growth finance from venture capital. Most venture capital funds in Europe are too small to support the continued growth of innovative companies and do not have the critical mass to specialize and operate trans-nationally”, as the Commission rightly states.

An innovative, globalised market needs such new smart solutions and instruments, which provide access to finance for research and innovation, to ensure that innovative ideas can be turned into products and services that create growth and jobs. These new instruments are the way we can contribute to building up the Innovation Union, which is “a key to achieving the goals of the Europe 2020 Strategy for a smart, sustainable and inclusive growth”.

B. Description of the mechanism

SEE.IP Fund is a new solution for cross-border technology transfer. It is a smart combination of public financial aid and private risk capital. Private investors need more safety – they want to be sure that the idea they are investing in is going to become a successful product, bringing profits. Public participation in the SEE.IP Fund – both on the national and on the European level - is going to assure them of this safety and minimize the risk of project failure – on one hand through improving technology transfer infrastructure and raising awareness regarding intellectual property and on the other hand by appearing as a guarantor for quality and transparency.

SEE.IP Fund would be the first transnational Venture Capital Fund in South East Europe, designed to contribute to the economic integration process, cohesion and competitiveness of the region. It would serve the improvement of the European venture capital market, an EU goal, as stated within the “Innovation Union” Communication.

A multi-step stage-gate (SG) Fund model accounts for different needs and achieves envisaged goals listed above. Invention entries received by the Fund are examined and selected in a four-stage procedure that ensures that an application will be more stringently tested by the Fund the further it goes. This four-step stage-gate model operates as follows:

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193 Information source: SEE.IP Fund Feasibility Study, December 2010
Acquisition and Pre-Selection: this first stage involves a provisional screening of technologies for their possible admittance into the Fund. At this stage, the selection should be done on the basis of evaluation criteria such as general investment eligibility, technology field (area of interest), national support ceiling etc. Some 3,000 to 5,000 entries can be expected to be received.

SG IP Creation: on this stage-gate, the preselected projects undergo further examination and evaluation. Some 300 inventions that have a high potential for innovation and development will be selected to attain soft loans for patent applications (e.g. EP), whereas IPR should yet stay in the ownership of inventors. The financed patent applications will obtain a special certification of the SEE.IP Fund.

SG Development handles technologies that have the greatest potential to be transferred and used for industrial implementation and commercialization. It is envisaged to accept 25-40 projects into this stage-gate. Promising technologies, if corresponding with the evaluation criteria, may be accepted directly into it even when they do not arrive via SG IP Creation. The SEE.IP Fund will invest in the further development of these technologies and prepare them for the industrial implementation or commercialization. The IPRs should be transferred from the inventors to the SEE.IP Fund.

SG Implementation involves technologies that have a potential for commercialization. The financing of new technology will stimulate technology transfer, which can be further boosted by supplementary inbound licensing. This stage-gate is set to handle about 10 projects.

Groups eligible for financing: Inventors, public research institutions and SMEs interested in obtaining financing from the Fund. Projects to be considered for investment will be derived mostly from SMEs, public research institutions and private researchers in countries that participate in the Fund and that act as investors. Projects that originate in countries not involved in the Fund may be accepted for the examination if they offer a considerable potential for transfer and implementation in the participating countries and are thus able to foster economic growth in the South East European region.

Selection criteria: All submitted applications for acceptance in each of the Fund’s “stage gates” undergo an evaluation based on standardized criteria. This evaluation results in a project rating that allows the screening of projects for potential admittance. Selected projects are presented to the Supervisory Board which will then decide on their acceptance or rejection. All subsequent evaluation steps foreseen during project facilitation within the scope of Development and Implementation stages (milestones, market analysis, etc.) are carried out by Fund managers.

Amount of financing:

The Fund can carry up to 100% of the patent application costs for selected projects in a form of soft loans (e.g. in the case of an EP-Application the costs up to validation in the national phases of the selected countries). The amount of financing offered for the patent application process depends on the technology field involved. Priority fields and technology-related financing rates will be determined on one hand by means of an assessment of market demand, carried out by the Fund Management, and on the other hand by the technological priorities, defined by the countries involved. These priority fields and financing rates will be approved by the Supervisory Board. This shall stimulate market-focused IP generation targeted at the commercialization of technologies. The countries participating in the Fund can use this scheme to foster their own national interests by additional funding for the cost of application at a national level. In the case, that the Fund Management should identify middling demand for a technology field in the market and if the country involved wishes to promote this field for macroeconomic reasons of its own, then it can increase the financing rate out of its own budget. Financing may be tied to the obligation to obtain national patenting. This obligation allows a country to offer an incentive not just to its own inventors but also to inventors from other participating countries to go for R&D and patenting while ensuring that the technology will be available nationally.
A private-public partnership is proposed for financing (mixed financing that draws on both public and private means). The Fund in the scale as described within the feasibility study requires a revolving financing volume of about €50 million for five years. Calculations are based on a minimum term of 8 to 10 years, to ensure that even sectors where longer project terms are to be expected (such as pharmaceutics or medicine) will have a genuine chance to profitably complete the technology transfer. However the Fund can be set up also with the smaller amount available which can vary depending on the number of participation countries, scale of the projects etc. but should achieve the critical minimum of €15 million.

C. Result; strong, week points
The project is at Feasibility Study stage.
ANALYSIS OF INTERNATIONAL PATENTING IN UKRAINE

1. Status and dynamics of foreign patenting at Ukrainian institutions and organizations.

The problem formation of the National statistics base of industrial property in Ukraine is acknowledged by all the experts. In particular, it concerns nonconformity of statistical observations of the State Service of Intellectual Property (further – the State Service) and of the State Statistics Committee (SSC) both in quantitative parameters and in tables structure. This complicates the statistical data processing in managerial decisions making.

The data of Table 1 demonstrate that there were almost no national applicants` filings under PCT to the State Service during the independence years, as well as next to zero share of such filings in total number of patent filings for inventions.

Table 1

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Under national procedure</th>
<th>under PCT</th>
<th>Including national applicants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>To State Service</td>
</tr>
<tr>
<td>1992</td>
<td>920</td>
<td>910</td>
<td>10</td>
<td>–</td>
</tr>
<tr>
<td>1993</td>
<td>11684</td>
<td>10596</td>
<td>1088</td>
<td>–</td>
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<tr>
<td>1994</td>
<td>6687</td>
<td>5910</td>
<td>777</td>
<td>–</td>
</tr>
<tr>
<td>1995</td>
<td>5960</td>
<td>5117</td>
<td>843</td>
<td>–</td>
</tr>
<tr>
<td>1996</td>
<td>4893</td>
<td>3985</td>
<td>908</td>
<td>–</td>
</tr>
<tr>
<td>1997</td>
<td>6256</td>
<td>4980</td>
<td>1276</td>
<td>–</td>
</tr>
<tr>
<td>1998</td>
<td>6950</td>
<td>5560</td>
<td>1390</td>
<td>–</td>
</tr>
<tr>
<td>1999</td>
<td>7035</td>
<td>5657</td>
<td>1378</td>
<td>–</td>
</tr>
<tr>
<td>2000</td>
<td>7239</td>
<td>5861</td>
<td>1378</td>
<td>–</td>
</tr>
<tr>
<td>2001</td>
<td>8813</td>
<td>7448</td>
<td>1365</td>
<td>–</td>
</tr>
<tr>
<td>2002</td>
<td>10189</td>
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<td>2003</td>
<td>12605</td>
<td>11322</td>
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<td>2004</td>
<td>5778</td>
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<td>2005</td>
<td>5592</td>
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<td>2006</td>
<td>5930</td>
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<tr>
<td>2007</td>
<td>6163</td>
<td>3766</td>
<td>2397</td>
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<td>2008</td>
<td>5697</td>
<td>3149</td>
<td>2548</td>
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<tr>
<td>2009</td>
<td>4815</td>
<td>2681</td>
<td>2134</td>
<td>–</td>
</tr>
<tr>
<td>2010</td>
<td>5311</td>
<td>2811</td>
<td>2500</td>
<td>n.d.</td>
</tr>
</tbody>
</table>

Source. According to data from the State Service for Intellectual Property and WIPO

Prepared by Khaustov V.K., Project Expert, PhD, Scientific Secretary of Institute for Economics and Forecasting of the NAS of Ukraine.

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Note: * According to РСТ procedures (see relevant section) it is possible to file an international application either to national office or directly to WIPO. The table data reflect that national applicants rather choose to file to WIPO. n.d. – no data.

In 2009, due to the crisis effects the negative declining tendency of researches’ activity in patent filings for inventions remained – there were 4815 filings for inventions to the State Service, meanwhile the national applicants’ activity decreased by 13% compared to the previous year, foreign applicants’ activity in applications for inventions under PCT – by 16%. The share of foreign applicants’ filings was 49% of their total number in 2009 (51% in 2008).

According to the tentative data of the State Service, there was a certain increase of patent filings number in 2010, but quantitatively the data of 2010 did not exceed those of 2008.

The most active among foreign applicants in 2009 were those from the USA (647 applications), Germany (417), Switzerland (211), France (158), Russian Federation (99), Japan (93), the United Kingdom (81), Sweden (74), Belgium (72), the Netherlands (60), and Italy (56).

The distribution (by countries of origin) of applications for inventions filed by foreign applicants under the national procedure and under PCT is presented in Table 2. The data show significant patenting activity of foreign applicants under PCT, that of the local applicants – predominantly under the national procedure.

Table 2

<table>
<thead>
<tr>
<th>Country</th>
<th>National procedure</th>
<th>PCT procedure</th>
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</thead>
<tbody>
<tr>
<td>Total</td>
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<tr>
<td>Australia</td>
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<td>-</td>
</tr>
<tr>
<td>Belgium</td>
<td>7</td>
<td>7</td>
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<tr>
<td>Bulgaria</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Belarus</td>
<td>22</td>
<td>21</td>
</tr>
<tr>
<td>Canada</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Switzerland</td>
<td>16</td>
<td>8</td>
</tr>
<tr>
<td>China</td>
<td>3</td>
<td>-</td>
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<tr>
<td>Czech Republic</td>
<td>-</td>
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<tr>
<td>Germany</td>
<td>52</td>
<td>67</td>
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<td>Denmark</td>
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<td>Finland</td>
<td>-</td>
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<tr>
<td>France</td>
<td>75</td>
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<tr>
<td>United Kingdom</td>
<td>-</td>
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<td>Hungary</td>
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<td>Ireland</td>
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<td>Italy</td>
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<tr>
<td>Japan</td>
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<tr>
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<tr>
<td>Luxemburg</td>
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<td>Netherlands</td>
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</tbody>
</table>

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Statistical reporting in Ukraine (The State Service of Intellectual Property and the State Statistics Committee) does not allow evaluation of patenting dynamics abroad. In particular, the yearly reports of the State Service do not identify countries to which the applications are filed only stating countries of applications origin. (see Table 2). In 2007, the SSC ceased publishing data on applications for titles of protection for inventions filed to Patent Offices of foreign countries (Table 3), herewith the SSC makes no division by the filing procedures (national of the country-recipient or PCT). The data of Table 3 demonstrate the predominant filing to Russia and isolated cases of filing to Patent Offices of other foreign countries.

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
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<tr>
<td>Total</td>
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<td>164</td>
<td>160</td>
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<td>Armenia</td>
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Source. According to data from the State Service for Intellectual Property

This publication has been produced with the assistance of the European Union. The contents of this publication are the sole responsibility of the Innopolicy Project and can in no way be taken to reflect the views of the European Union.
Table 4 provides data from SSC, proving gradual reduce of creators’ number and descending dynamics of filings number and titles of protection granted for inventions. Herewith, the procedure according to which applications for inventions were filed (international or national) is not stated in the SSC data.

Table 4

Main indicators of enterprises’ and organizations’ activities on industrial property objects creation

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State and dynamics of foreign patenting are determined by comparative analysis data of WIPO statistical base. Despite the longstanding increase of growth rate of international patent filings for inventions and obtained patents for inventions, the current global financial crisis influenced the dynamics of patent activity basic indicators. It’s estimated that in 2009 the total number of international patent applications filed under the WIPO Patent Cooperation Treaty (PCT), decreased by 4.5% to 155,900. The recession in filing under PCT was not as sharp as predicted - the results of the year are at the level of 2007. Experts believe this to be the evidence of wide recognition of the fact that a sense of business expediency, regardless of economic conditions, is expressed through extension of commercially attractive technologies protection at the international level.  

Table 5 shows the dynamics of filing under the PCT; data ranked by results of 2010 for selected countries. The selection covers all countries in the rating up to Ukraine, as well as all countries of Europe and the CIS included in the statistics base of WIPO.

Among the countries that showed the highest growth rates of international filings in 2009 as compared to 2008 are three countries of the rating fourth ten - Portugal (+164%), Poland (+133.6%) and Slovenia (+131.8%); China's rapidly increasing patenting pace (+129.7%), thus having joined the top five largest users of the PCT in 2009.

Positive dynamics of international filing in recessionary 2009 was recorded in some East Asian countries: in Japan, being the second largest user of the PCT, the growth rates were 3.6%; in the Republic of Korea (the fourth largest user of the system) there was a 2.1% increase. The largest decrease rates of international filings were demonstrated by: Barbados (-61%), Ukraine (-29.3%), Russia (-29.1%), India (-28.9%), and New Zealand (-26.5%). Significant decline was recorded in a number of industrialized countries: Israel (-17.2%), Canada (-11.7%), the United States (-11.4%), Sweden (-11.3%), Germany (-11.2%), and Italy (-5.8%).

Analyzing the number of applications filed it should be noted that the patent system use is over-concentrated: more than 80% of all patent applications were filed by 5% institutions (the USA, Japan, China, South Korea and the European Patent Office).

Ukraine rounds out the fourth ten countries patenting under the PCT, but the filings number is by hundreds times less than in the USA, Japan and Germany, and ten times less if compared to Russia.

In 2010, the number of international patent applications filed under the PCT increased by 4.8%. The most significant growth was marked in China (+56.2%), Republic of Korea (+20.5%), and Japan (+7.9%); it partially compensated the mixed figures in European countries and the continued reduction in the United States (-1.7%).

The rapid growth in East Asia reflects the increasing economic diversification of innovation activities. This trend has lots of implications, one of which is increasing number of languages used by patent offices as a basis for determining inventions patentability.

Preliminary data indicate that in 2010 almost 164 thousand international patent applications were filed thus slightly exceeding the pre-crisis level (Table 5).

Data of Table 5 allow identifying different growth rates of international filings during 2000-2009. Thus, while the overall number of filings increased by 1.7 times, in the leading Asian countries this figure amounted to: for China - more than 10 times, the Republic of Korea - 5.1 times, Japan - 3.1 times.

---

Despite the decline by 1.7% in 2010, the United States having 44,844 international filings remain the largest user of the PCT. They are followed by Japan (32,181 filings) and Germany (17,559). In 2010, China (12,292) got ahead the Republic of Korea (9,668) and became the fourth country by the number of filings under the PCT. For the first time since independence the Ukrainian inventors (place of residence of the first applicant) filed over 100 applications under the PCT. Most CIS countries file up to ten applications.
Table 5
Dynamics of patent filings under РСТ in 2000-2010.

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Country
Total
USA
Japan
Germany
China
Republic of Korea
France
Great Britain
Netherlands
Switzerland
Sweden
Canada
Italy
Finland
Australia
Spain
Israel
India
Denmark
Austria
Belgium
Norway
Russian Federation
Singapore
Brazil
Turkey
Ireland
Malaysia
New Zealand
South Africa
Luxemburg
Poland
Mexico
Hungary
Czech Republic
Slovenia

2000
93 239
38 010
9 574
12 580
780
1 578
4 140
4 805
2 933
1 997
3 090
1 801
1 390
1 582
1 573
555
961
190
795
483
582
528
530
222
178
72
243
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258
387
138
109
73
136
94
39

2001
108 229
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11 911
14 035
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5 499
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3 422
2 114
1 623
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617
1 306
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618
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554
289
173
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417
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127
82
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Note: the Table is based on data on international filings distributed by place of residence of first applicant.
2.1 Patenting efficiency indicators

Recently, the WIPO have published reports defining certain indicators of patenting development worldwide and in specific countries. Among such important indicators is the number of patent applications for inventions filed by residents per 1 mln population. We have ranged and compiled relevant data of leading countries (Table 6): the list of 27 countries is rounded out by Ukraine, China and Belarus with indicators close to 100 filings. Herewith, this indicator has a stable ascending tendency for China, Belarus and Russia, and for Ukraine – fluctuating and descending. The absolute leaders are Japan and Republic of Korea with over 2.6 thousand filings. The USA are lagging behind the leaders by over 3 times, Germany – by over 4 times.

Table 6

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Source: Number of resident patent filings per million population. WIPO Statistics Database and World Bank (World Development Indicators), June 2009; http://www.wipo.int/

Another important indicator determining to some extent patenting effectiveness is the number of patent filings per $1 bln GDP (Table 7). Our rating of leading countries in this indicator shows quite a high Ukraine’s position (11). The characteristic of the majority leading countries of the world of this indicator is the ascending tendency with some deviation from the trend. For Ukraine this indicator has several specific periods: growth till 2001 and decline since 2004. The three leaders in patent numbers include Moldova (together with Republic of Korea and Japan).
Enhance Innovation Strategies, Policies and Regulation in Ukraine - EU Project EuropeAid/127694/C/SER/UA

Table 7

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Source: Resident patent filings per $1 bln GDP: WIPO Statistics Database and World Bank (World Development Indicators), June 2009; http://www.wipo.int/

It is acknowledged that S&T results patenting plays an important role in the process of innovations creation and new technologies dissemination. In this connection the WIPO considers the indicator of resident patent filings number per $1 mln R&D expenditures. It should be noted that Ukraine ranks 12 in the rating formed by us (Table 8).

Table 8

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2.2. Patent-informational approaches to justification of the priority directions of S&T development and international patenting support
Patent-informational approaches to selection and justification of priority directions of S&T development are formed in modern scientific literature\(^{[2]}\). Developing such approaches to be used in Ukrainian economy technological development priorities forecast we have formulated the following methodological principles.

Patent-informational approaches are based on the research of IPR objects potential, patents in particular. Methodology is based on a conceptual principle that patent-informational activity reflects the potential of S&T areas development. The possibility to use patent information as a source of S&T areas identification by innovation patent-informational activities analysis results reflects the social, scientific, technical, technological needs of humanity.

Patent-informational activities measured by relevant indicators have to become one of the criteria for selection of priority directions in international patenting support and industrial property protection from the standpoint of the national interests. Among these indicators - quantitative evaluation and determination of patenting trends by types (classes) of science and technology, indicators of industrial property objects distribution by sectors, etc.

It is necessary to make a comparative analysis of the classification of existing or potentially forecasted priority directions and critical technologies, as well as categories of the International Patent Classification (IPC). According to the results the following conclusions are possible: if the categories of technological development priorities and those of the most patent-informational active fields match, then the priorities really reflect the trends and possibilities of the country; if significant differences found, we need a more thorough analysis to determine areas of innovative activities promotion.

Application of this approach requires analysis and assessment of technological development level. New generation technology is preceded by a long period of scientific development of technological idea, which ends in inventions patenting, industrial designs and utility models manufacture.

Reproductive system of a new, sixth technological mode is being formed now. Its "core" are nanoelectronics, molecular- and nanophotonics, nanomaterials and nanostructured coatings, optical nanomaterials, nanoheterogenic systems, nanobiotechnologies, etc.\(^{[23]}\). Ukrainian scientists forecast the sixth technological mode to be based on "biotechnology, nanotechnology, photonics, optoelectronics, aerospace, alternative energy sources, etc."\(^{[34]}\)

These technologies will determine the global economic development over the next two to three decades. The main industries of the sixth mode remain the leading sectors of the fifth mode, including electrical engineering, aviation, space rocket, nuclear, and instrument making, machine-tool manufacture, education, communication, IT sector, pharmaceuticals, seed farming and others. Revolutionary changes are occurring in health care (due to the use of cellular technologies and diagnostic methods for genetically caused diseases) and agriculture (due to the use of molecular biology and genetic engineering achievements), as well as in creation of new materials with predetermined properties. It is expected that nanotechnology will provide the rising in chemical and metallurgical industries, construction, shipbuilding and car industry.

The new mode is developing despite the crisis. Nano-, bio-, IC technologies transform the industry, increasing efficiency, reducing material consumption and energy intensity by 3 to 5, even by 10 times in some sectors.


\(^{[34]}\) Strategic challenges of XXI century to Ukrainian society and economy. In 3 books / Editors: Member of the NAS of Ukraine Geyets V.M., Member of the NAS of Ukraine Semynozhenko V.P., Associate of the NAS of Ukraine Kvasnuyk B. B.1. Knowledge economy – Ukraine modernization project // Editors: Member of the NAS of Ukraine Geyets V.M., Member of the NAS of Ukraine Semynozhenko V.P., Associate of the NAS of Ukraine Kvasnuyk B. – K.: Feniks, 2007. – P 18.
Qualitative leap will take place 5-7 years after the leading world economies restructuring. According to the USA Science Foundation forecast nanotechnologies market turnover will reach 1-1.5 trillion by 2015\textsuperscript{[45]}.

Technology modes substitution period creates a window of breakthrough opportunities for countries lagging behind. In this way the breakthroughs of the last century happened: Japan and Western Europe were rebuilt based on the fourth technological mode, which rapid growth made them the world leaders.

The key factor outrun development and a new technological mode core formation (bio- and laser technologies, nanomaterials, health care, telecommunications, and agriculture reformation, aviation, shipbuilding, instrument making and many other industries) can give impetus to Ukrainian economy restructuring.

In this connection it should be noted that the current international patent classification changes according to technological modes changes, and its structure reflects the priorities of patenting.

The decline and increase in the number filings under PCT in 2009 as compared to 2008 varied depending on technology fields (Table 9). The largest decline (above average) was observed in the following areas: computer technology (-10.6%); furniture, games (-9.4), IT management methods (-9.2), food chemistry (-9.0), pure organic chemistry (-8.7), pharmaceuticals (-8.0%), medical equipment (-5.9%). The largest growth occurred in the areas of micro-structural and nanotechnologies (+10.2%), semiconductors (+10%) and thermal processes and vehicles (+7.2%).

Given that the data of 2009 disturb slightly the positive dynamics of filings increase, we have analyzed the patents filings structure in 2008 and calculated the filings number growth in 2009 and 2008 against 2004.

### Table 9

Main fields of technology according to IPC, where applications were published under PCT in 2004-2009 number of applications

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<tbody>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Electrical machinery, apparatus, energy</td>
<td>6 543</td>
<td>7 826</td>
<td>9 017</td>
<td>10 055</td>
<td>11 303</td>
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<tr>
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<td>8 471</td>
<td>9 511</td>
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<td>9 343</td>
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<td>7 289</td>
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<td>215.0</td>
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<td>1 544</td>
<td>1 721</td>
<td>1 765</td>
<td>1 892</td>
<td>1 809</td>
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<td>116.5</td>
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<td>10 455</td>
<td>12 209</td>
<td>13 516</td>
<td>14 048</td>
<td>12 560</td>
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<td>157.1</td>
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<td>2 075</td>
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<td>2 947</td>
<td>2 677</td>
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<td>5 941</td>
<td>6 409</td>
<td>6 897</td>
<td>7 588</td>
<td>174.3</td>
<td>191.8</td>
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<tr>
<td>9 Optics</td>
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<td>9 158</td>
<td>9 070</td>
<td>145.6</td>
<td>144.2</td>
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</table>

\textsuperscript{[45]} The same source
The majority of filings under PCT published in 2008 (Table 9), belonged mainly to the sectors of the 5th technological mode: computer technology (14,048 K), pharmaceuticals (13,254 K), medical technologies (12,852 K), electrical equipment, apparatus, energy (11,303 K), pure organic chemistry (9,680 K). However, the biggest increase in 2008 against 2007 was recorded in such classes as: IT management methods (22.7%), microstructural and nanotechnologies (20.7%), mechanical elements (13.7%), machinery (13.3%) and environmental technologies (13.2%). Moreover, the growth of classes that will determine the sixth technological mode is much higher than that of other classes. It can also be stated that "high tech" industries draw the most attention of inventors.
The largest increase in 2008 against 2004 was registered in these classes: "microstructural and nanotechnology" (+246.8%), "digital communication" (+209.5%), "computer technology" (+175.8%), "semiconductors" (+174.3%), "thermal processes and apparatus" (+173.4%), "electrical equipment, apparatus, energy" (+172.7%), "engines, pumps, turbines" (+160.8%), "environmental technology" (159.5%), "basic materials chemistry" (+157.7%), "IT management methods" (+55.2%), "pharmaceuticals" (+152.7%). Remarkable is the outrun growth (almost by 2.5 times) of filings in the basic sector of the sixth technological mode - nanotechnologies, as well as in areas making the infrastructure of this mode, including digital communications, computer technology, IT management methods. Based on WIPO data on overall filings quantity by specific countries and IPC classes we have compiled a table to determine patenting priorities in Ukraine[6]. According to Table 10 in 2002-2006 most patent applications were filed in the class "Electrical technology" (subclasses "computer equipment", "electrical equipment" and "telecommunications") and subclass "medical technology" of class II. Ukrainian patenting priorities only coincide with the world ones in subclass "medical technology", the other priorities belong to technologies of third or fourth modes ("materials, metallurgy," "measuring," "civil engineering"), and inventions in subclasses "nanotechnologies", "IT management methods", "digital communication" are almost not patented. Moreover, the number of filings in 2003-2007 in all subclasses was significantly lower than in 2002-2006.

Table 10

<table>
<thead>
<tr>
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<tbody>
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<tr>
<td>Electrical machinery, apparatus, energy</td>
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<tr>
<td>Audio-visual technology</td>
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<td>Telecommunications</td>
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<tr>
<td>Semiconductors</td>
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<td>1111</td>
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<td>255</td>
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<td>2 514</td>
<td>1757</td>
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<tr>
<td><strong>III - Chemistry</strong></td>
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<td>Organic fine chemistry</td>
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<tr>
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<tr>
<td>Materials, metallurgy</td>
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<td>1200</td>
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</table>

In addition, there are certain differences in the applications proportion filed under the PCT in classes of equipment in Russia and Ukraine (Table 11). In most subclasses filings number in Russia exceeds that of Ukraine by 5.5-7 times. But in subclass "biotechnology" Ukraine is Russia's inferior by almost 29 times, in subclass "microstructural and nanotechnologies" – by 21.5 times, in subclass "digital communication" – by over 19 times, in subclass "food chemistry" – by more than 13 times, in subclass "telecommunications" and "basic communication processes" - by 12 and 10 times respectively.

Table 11

Patent filings by field of technology in Ukraine and Russian Federation in 2002-2006

<table>
<thead>
<tr>
<th>II - Mechanical engineering</th>
<th>Ukraine</th>
<th>RF</th>
<th>Correlation RF/Ukraine</th>
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<tr>
<td>Handling</td>
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<tr>
<td>Machine tools</td>
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<tr>
<td>Engines, pumps, turbines</td>
<td>961</td>
<td>768</td>
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<tr>
<td>Textile and paper machines</td>
<td>181</td>
<td>137</td>
<td></td>
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<tr>
<td>Other special machines</td>
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<td>1174</td>
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<tr>
<td>Thermal processes and apparatus</td>
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<td>433</td>
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<tr>
<td>Mechanical elements</td>
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<td>517</td>
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<tr>
<td>Transport</td>
<td>628</td>
<td>524</td>
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</table>

The analysis of patenting dynamics in Ukraine according to IPC allows to reaffirm the message of statistical information problems.

It should be noted that the State Service of Intellectual Property summarizes data on patent filings using a completely different approach (Table 11f and 11b). In addition, the State Service in the annual reports identifies priorities for patent filings for inventions not distinguishing procedures (national or PCT); and does not identify residents and nonresidents when differentiating procedures. Generally, the priorities for foreign applicants are the classes of “organic chemistry”, “medicine or veterinary; hygiene” and “agriculture...”.

Table 11a

<table>
<thead>
<tr>
<th>IPC symbol</th>
<th>Symbol title</th>
<th>Number of filings</th>
<th>National filings</th>
<th>Foreign filings</th>
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<tr>
<td>C07</td>
<td>Organic chemistry</td>
<td>580 (12%)</td>
<td>35 (1,4%)</td>
<td>545 (22,9%)</td>
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<tr>
<td>A61</td>
<td>Medicine or veterinary; hygiene</td>
<td>566 (11,8%)</td>
<td>196 (8%)</td>
<td>370 (15,6%)</td>
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<tr>
<td>A01</td>
<td>Agriculture; forestry, cattle farming; hunting; fishing</td>
<td>270 (5,6%)</td>
<td>103 (4,2%)</td>
<td>167 (7%)</td>
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<td>Subclass</td>
<td>National procedure</td>
<td>PCT procedure</td>
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<td>3149</td>
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<td>207</td>
</tr>
<tr>
<td>2 Food; tobacco</td>
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<td>108</td>
<td>121</td>
<td>133</td>
</tr>
<tr>
<td>3 Household or consumer goods</td>
<td>A 41 -A 47</td>
<td>33</td>
<td>23</td>
<td>32</td>
</tr>
<tr>
<td>4 Health; life-saving; leisure</td>
<td>A 61-A 63, excluding A 61K</td>
<td>223</td>
<td>213</td>
<td>199</td>
</tr>
<tr>
<td>5 Medicines for therapeutic, dental or sanitary purposes</td>
<td>A 61K</td>
<td>114</td>
<td>127</td>
<td>130</td>
</tr>
<tr>
<td>6 Separation; mixing</td>
<td>B 01-B 09</td>
<td>144</td>
<td>160</td>
<td>185</td>
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<tr>
<td>7 Formation (of metal)</td>
<td>B 21-B 23</td>
<td>135</td>
<td>149</td>
<td>151</td>
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<tr>
<td>8 Formation (materials processing)</td>
<td>B 24-B 30, B 32</td>
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<td>9 Printing</td>
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<td>10 Transportations</td>
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<td>203</td>
<td>248</td>
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<td>11 Microstructural and nanotechnologies</td>
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</table>


When filing under the national procedure the priority classes are: "Apparatus (measuring, optics, photography)", "Chemistry (inorganic)" and "Health; life-saving; leisure". When filing under the PCT the priority classes are: "Chemistry (organic)" and "Medicines for therapeutic, dental or sanitary purposes".

Table 11b
Regarding the patent activity of national and foreign inventors under the PCT, the following trends can be outlined (see Table 12). First, the growth pace in pre-crisis five years period is only 1.86 times. Second, there are certain differences in IPC subclasses with the biggest growth rates, in particular: "Formation (processing of materials)" and "Chemistry (colorants, animal or plant oils)" - by 3.9 times, "Metallurgy" – by 3.2 times, "Chemistry (organic)" - 3.1 times, "Drilling, mining" - 2.75 times, "Electrics (electronic circuits, communication equipment)" and "Chemistry (colorants, animal or plant oils)" - by 3.9 times, "Metallurgy" – by 3,2 times, "Chemistry (organic)" - 3.1%. And finally, the classification of subclasses in the national statistics does not allow identification of patent activity by the technologies of the 5th and 6th mode.

Table 12

Inventions filings (distribution by IPC) under PCT

315
Enhance Innovation Strategies, Policies and Regulation in Ukraine - EU Project EuropeAid/127694/C/SER/UA

### Table: Classification of patents

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<td>361</td>
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<td>5</td>
<td>4</td>
<td>7</td>
<td>12</td>
<td>3</td>
<td>60.00</td>
<td>0.12</td>
</tr>
<tr>
<td>26</td>
<td>Apparatus (measuring, optics, photography)</td>
<td>27</td>
<td>33</td>
<td>18</td>
<td>47</td>
<td>46</td>
<td>170.37</td>
<td>1.92</td>
</tr>
<tr>
<td>27</td>
<td>Apparatus (watches, regulation, calculation)</td>
<td>24</td>
<td>18</td>
<td>19</td>
<td>16</td>
<td>41</td>
<td>170.83</td>
<td>1.71</td>
</tr>
<tr>
<td>28</td>
<td>Devices (musical instruments, data storage)</td>
<td>8</td>
<td>10</td>
<td>9</td>
<td>17</td>
<td>12</td>
<td>150.00</td>
<td>0.50</td>
</tr>
<tr>
<td>29</td>
<td>Nuclear equipment</td>
<td>5</td>
<td>4</td>
<td>6</td>
<td>4</td>
<td>9</td>
<td>180.00</td>
<td>0.37</td>
</tr>
<tr>
<td>30</td>
<td>Electrics (electric equipment)</td>
<td>31</td>
<td>15</td>
<td>19</td>
<td>24</td>
<td>63</td>
<td>203.23</td>
<td>2.63</td>
</tr>
<tr>
<td>31</td>
<td>Electrics (electronic circuits, communication equipment)</td>
<td>54</td>
<td>60</td>
<td>143</td>
<td>105</td>
<td>129</td>
<td>238.89</td>
<td>5.38</td>
</tr>
<tr>
<td>32</td>
<td>Other (not classified)</td>
<td>12</td>
<td>13</td>
<td>17</td>
<td>14</td>
<td>39</td>
<td>325.00</td>
<td>1.63</td>
</tr>
</tbody>
</table>

Source: Official data of the State Department of Intellectual Property.

The State Statistics Committee of Ukraine, as already noted, does not establish patenting procedures. Analyzing the State Statistics Committee data on applications for titles of protection for inventions filed to the State Department of Intellectual Property by type of activity one should note that about 80% of all applications are filed by inventors of research and educational areas (Table 13).
### Table 13

<table>
<thead>
<tr>
<th>Overall economy</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, hunting and forestry</td>
<td>1</td>
<td>-</td>
<td>13</td>
<td>2</td>
<td>10</td>
<td>8</td>
<td>3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Industry</td>
<td>400</td>
<td>482</td>
<td>637</td>
<td>387</td>
<td>341</td>
<td>306</td>
<td>279</td>
<td>229</td>
<td>126</td>
</tr>
<tr>
<td>including Mining industry</td>
<td>22</td>
<td>20</td>
<td>12</td>
<td>8</td>
<td>17</td>
<td>23</td>
<td>11</td>
<td>19</td>
<td>3</td>
</tr>
<tr>
<td>including Mining of energy materials</td>
<td>18</td>
<td>14</td>
<td>8</td>
<td>17</td>
<td>23</td>
<td>11</td>
<td>19</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>Mining of minerals (excluding fuel and energy minerals)</td>
<td>4</td>
<td>6</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Processing industry</td>
<td>364</td>
<td>452</td>
<td>608</td>
<td>368</td>
<td>315</td>
<td>275</td>
<td>265</td>
<td>208</td>
<td>122</td>
</tr>
<tr>
<td>Food, beverages and tobacco production</td>
<td>32</td>
<td>35</td>
<td>29</td>
<td>24</td>
<td>17</td>
<td>21</td>
<td>11</td>
<td>7</td>
<td>53</td>
</tr>
<tr>
<td>Light industry</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Wood and wooden goods production</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Paper industry; publishing</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Production of coke and oil refining</td>
<td>22</td>
<td>25</td>
<td>20</td>
<td>11</td>
<td>4</td>
<td>2</td>
<td>5</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Chemical and petrochemical industry</td>
<td>45</td>
<td>41</td>
<td>68</td>
<td>48</td>
<td>17</td>
<td>21</td>
<td>19</td>
<td>16</td>
<td>7</td>
</tr>
<tr>
<td>Production of other non-metal mineral goods</td>
<td>-</td>
<td>8</td>
<td>9</td>
<td>12</td>
<td>3</td>
<td>8</td>
<td>3</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Metallurgy and production of finished metal goods</td>
<td>79</td>
<td>117</td>
<td>178</td>
<td>84</td>
<td>65</td>
<td>64</td>
<td>61</td>
<td>61</td>
<td>8</td>
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<tr>
<td>Machine building</td>
<td>174</td>
<td>220</td>
<td>298</td>
<td>187</td>
<td>199</td>
<td>161</td>
<td>169</td>
<td>110</td>
<td>47</td>
</tr>
<tr>
<td>including Production of machinery and equipment</td>
<td>94</td>
<td>136</td>
<td>143</td>
<td>92</td>
<td>91</td>
<td>84</td>
<td>79</td>
<td>67</td>
<td>28</td>
</tr>
<tr>
<td>Production of electric, electronic and optical equipment</td>
<td>31</td>
<td>39</td>
<td>95</td>
<td>52</td>
<td>65</td>
<td>48</td>
<td>50</td>
<td>22</td>
<td>8</td>
</tr>
<tr>
<td>Production of vehicles and apparatus</td>
<td>49</td>
<td>45</td>
<td>60</td>
<td>43</td>
<td>43</td>
<td>29</td>
<td>30</td>
<td>21</td>
<td>11</td>
</tr>
<tr>
<td>Production and distribution of electricity, gas, water</td>
<td>14</td>
<td>10</td>
<td>4</td>
<td>11</td>
<td>9</td>
<td>8</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Construction</td>
<td>6</td>
<td>4</td>
<td>6</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>-</td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>Trade; cars, home appliances and personal use items repair</td>
<td>-</td>
<td>1</td>
<td>12</td>
<td>33</td>
<td>30</td>
<td>21</td>
<td>11</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>Hotels and restaurants</td>
<td>-</td>
<td>-</td>
<td>12</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Transport and communication</td>
<td>5</td>
<td>4</td>
<td>6</td>
<td>3</td>
<td>6</td>
<td>29</td>
<td>11</td>
<td>26</td>
<td>2</td>
</tr>
<tr>
<td>Financial activities</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Real estate, rent and services to legal entities</td>
<td>1725</td>
<td>2000</td>
<td>2446</td>
<td>1340</td>
<td>1020</td>
<td>853</td>
<td>867</td>
<td>649</td>
<td>556</td>
</tr>
<tr>
<td>including R&amp;D</td>
<td>1699</td>
<td>1966</td>
<td>2417</td>
<td>1327</td>
<td>987</td>
<td>815</td>
<td>851</td>
<td>634</td>
<td>538</td>
</tr>
<tr>
<td>State governance</td>
<td>2</td>
<td>3</td>
<td>7</td>
<td>26</td>
<td>3</td>
<td>17</td>
<td>9</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Education</td>
<td>2645</td>
<td>3159</td>
<td>3852</td>
<td>1631</td>
<td>1059</td>
<td>885</td>
<td>870</td>
<td>900</td>
<td>705</td>
</tr>
</tbody>
</table>
Similar conclusions can be drawn when analyzing the distribution of applications for titles of protection filed to Patent Offices of other countries by economic activities types - the largest share belong to R&D and education (Table 14).

<table>
<thead>
<tr>
<th>Number of applications for titles of protection filed to other countries’ Patent Offices (distribution by type of economic activities)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>Overall economy</td>
</tr>
<tr>
<td>Industry</td>
</tr>
<tr>
<td>Mining industry</td>
</tr>
<tr>
<td>Mining of fuel and energy minerals</td>
</tr>
<tr>
<td>Processing industry</td>
</tr>
<tr>
<td>Food, beverages and tobacco production</td>
</tr>
<tr>
<td>Chemical and petrochemical industry</td>
</tr>
<tr>
<td>Chemical production</td>
</tr>
<tr>
<td>Gum and plastic goods production</td>
</tr>
<tr>
<td>Metallurgy and production of finished metal goods</td>
</tr>
<tr>
<td>Machine building</td>
</tr>
<tr>
<td>Production of machinery and equipment</td>
</tr>
<tr>
<td>Production of electric, electronic and optical equipment</td>
</tr>
<tr>
<td>Production of vehicles and apparatus</td>
</tr>
<tr>
<td>Production and distribution of electricity, gas, water</td>
</tr>
<tr>
<td>Construction</td>
</tr>
<tr>
<td>Trade; cars, home appliances and personal use items repair</td>
</tr>
<tr>
<td>Transport and communication</td>
</tr>
<tr>
<td>Financial activities</td>
</tr>
<tr>
<td>Real estate, rent and services to legal entities</td>
</tr>
<tr>
<td>including</td>
</tr>
<tr>
<td>R&amp;D</td>
</tr>
<tr>
<td>Education</td>
</tr>
<tr>
<td>Healthcare and social assistance</td>
</tr>
</tbody>
</table>

The given data on IPR objects creation processes dynamics in Ukraine demonstrate that intellectual property management at the state and separate industries level is inefficient and not corresponding to the modern priorities of technological development.

2.3. Problems of support to foreign patenting in Russia

In our opinion, the considered below problematic issues of foreign patenting in Russia and their solutions are characteristic for the Ukrainian system of industrial property protection. The measures of problematic issues settlement proposed by the Russian scientists could be adapted to the situation in Ukraine.

In 2007, 692 applications in Russia were filed under PCT, 537 applications – to the U.S. Patent Office, 146 applications – to the European Patent Office. The indicators of granted documents are as follows: 291 U.S. patents, 45 EPO patents, 94 EAPO patents granted in 2007. Indicators of patenting abroad have remained stable over the last decade, showing only minor changes to one or another side.

Data on foreign developments patenting in Russia are very demonstrative against these figures. The bulk of patents are owned by applicants from the USA, who received 888 RF patents in 2007, and from Germany, having received 697 RF patents the same year. Although the indicators of foreign patenting in Russia exceed those of the Russian patenting abroad by several times, absolute Russian indicators are very low, demonstrating a low degree both of technological integration of Russia and developed countries, and Russia’s involvement in global economic relations.

Low interest of patented modern technologies owners to implement their developments in Russia is proved by the following data. In 2007, foreign applicants received 4597 RF patents (that is about 20% of the total number of patents granted in the RF), while developed countries are characterized by a different proportion. Thus, the share of foreign patent owners have recently been around 48-49% of overall patents granted in the USA (77,756 out of total 157,283 patents were granted to foreign patent owners in 2007, in 2006 - 83,949 of total 173,772 respectively).

Currently there exist the following options for foreign patenting depending on the composition of authors, applicants / patent owners, priority data:

– patents of purely Russian origin, when a Russian applicant patents Russian authors’ development abroad indicating Russia as the country of priority;
– patents of a Russian applicant, but with foreign or mixed inventive entity and indication of Russia as a the country priority;
– patents of a foreign applicant, but with Russian or mixed inventive entity and indication of Russia as a the country priority;
– patents of a foreign applicant, but with Russian or mixed inventive entity and indication of Russia as a the country priority;
– patents of a foreign applicant, but with Russian or mixed inventive entity and indication of Russia as a the country priority;
– patents of Russian and foreign applicants (mixed applicants), where the inventive entity can both be entirely Russian and foreign, as well as mixed with an indication of Russia as the country priority;
– patents of Russian or mixed applicants, with foreign or mixed inventive entity not indicating Russia as the country of priority, but including Russia to the list of countries when patenting under PCT;
– patents of foreign applicants with Russian or mixed inventive entity not indicating Russia as the country of priority, but including Russia to the list of countries when patenting under PCT;
– patents of Russian or mixed applicants, with Russian, foreign or mixed inventive entity not indicating Russia as the country of priority, and not including Russia to the list of countries when patenting under PCT;
– patents of foreign applicants, with Russian or mixed inventive entity not indicating Russia as the country of priority, and not including Russia to the list of countries when patenting under PCT.

The bulks of foreign patents for Russian developments have formed in two major centers of scientific and technological development - the USA and the EU countries covered by European Patent Office. The analysis of composition of EPO and USA patents of Russian origin by different methods of technologies dissemination depending on its "driving force" - applicants / patent owners and authors – revealed that 64% of foreign patents for
inventions involving Russian authors belong to foreign patent owners, 30% to Russian owners, 19% of them being physical persons, 11% - Russian legal entities, and 6% are co-owned by Russian and foreign patent owners.

Thus, only one tenth of the Russian inventions entering global patent markets are owned by Russian legal entities - the developers of new technologies. For these organizations patenting abroad is primarily informing the business of the relevant state about a development that can be implemented in practice in the interests of the rights holder. Among these organizations are well known developers of new technologies, such as institutes of the Russian Academy of Sciences (RAS), Institute of Petrochemical Synthesis of the RAS, Institute of Catalysis of Siberian Branch of the RAS, rocket and space corporation "Energy" occupying strong positions in the international labor distribution in their technological areas and their developments being widely used abroad, as well as some Russian small innovative firms. Low activity index of Russian legal entities demonstrates weakness and low innovation capacity of most Russian companies, or not attractive and not competitive developments that can not be realized abroad through the sale of licenses, or cannot be represented to foreign patent markets on their own, without state or sponsors support.

As regarding the performance of individual developers, that patent their inventions abroad on an individual basis, these are usually specialists who have shown themselves as professionals in Russia. They filed applications while on business trips or working under contracts, or being emigrants. Patenting indicators of such category are actually the quantitative characteristics of the "brain drain" process. The absence of real prospects for Russian researchers to use their developments in Russia makes them turn to foreign partners both in their efforts of developments implementation and for better performance of their research activities, and contributes to knowledge "gray" export.

Speaking about the patenting of developments created by Russian specialists for foreign firms, it is important to note that Russian priority is only indicated in about 25% cases of patenting. These are the performance indicators of the Russian subsidiaries of transnational companies, and the results of work ordered and granted by foreign companies. Among them are big Korean companies (Samsung Electronics Co., Ltd., Plasma Tech. Co., Ltd., Samjin Co., Ltd., Orion Electric Co., Ltd., etc.), the U.S. companies (General Electric Company, Cytran, Inc., McDonnell Douglas Corporation and others), and a number of Japanese companies. Organizing research and legally protecting their results in Russia, these companies (and their list can be extended) are open for strategic partnership and can play a positive role in relevant Russian industry sectors modernization problems solving, "implementing" their developments results at specific industrial enterprises in Russia. These companies “rent” human capital, which is presently moving freely and creating companies’ intellectual assets protected by patents.

Thus, in practice there are a lot of cases deviating from the variant targeted by legislative regulation. Indication of applicant / patent owner location together with the country of priority in bibliographic data results in different foreign patenting processes, including "curve" of technology and RF patent law violations.

Due to the widely spread Russian and foreign companies and specialists collaborative works many problems related to the legal protection of these works results emerged. Under this form of patenting there are facts indicating unequal partners’ positions. Oftentimes Russian organizations performing collaborative works with foreign partners do not exercise legal protection of their results in Russia.

A brief description of the foreign patenting process current state allows the following conclusions.

Foreign patenting being a form of dissemination of technologies created in Russia characterizes the level of innovation development in the country, as well as business activity of developers and owners. Marketing of intellectual property objects pertaining to civil technologies on the global market can be an important factor in changing the structure of Russian exports toward high-tech products with the relevant financial implications.

Though having a significant S&T potential Russia is currently lagging behind the industrialized countries in S&T results marketing on the global market, and does not adequately capitalize on S&T results commercialization. The level of Russian economy technological integration into the global one is low, and at the same time there is a problem of technology drain. Such situation can be explained by the specificity of Russia’s socio-economic development in recent years and by relevant shortcomings of the current formal mechanism in this sphere.
The problem of rights and interests balance of all legal entities involved in intellectual activities results creation, including the state, is still not finally settled in Russia. No harmonized solution of rights for S&T results formalization contributes to Russian technologies outflow abroad, and this is by no means always a legal process.

With competitive level of "human capital" development in the world and in times of economic openness it is only possible to prevent technologies drain from the country by legal regulation of rational, equitable order of rights acquisition for S&T results created both involving public funds (budget and non-budgetary funds) and private investment that provides a balance of interests of all legal relations participants: authors and employers, contractors and consumers of S&T results, public clients and private investors.

Currently there is no system of state control and statistics on technology transfer to other countries, as well as licensing system of Russian technologies transfer abroad. In addition, there is no information on the terms of transfer of rights to use national industrial property objects, which significantly reduces the awareness level of one of the most important innovation activities areas in the country.

In this regard, improvement of legislation and practice of rights for S&T results (including those obtained at the expense of the federal budget) transfer abroad is today an indispensable condition for successful socio-economic development, competitiveness improvement of Russian enterprises of all ownership, and effective use of national scientific and technical capacity, primarily through broad commercialization of technologies on global markets and legal protection of domestic exports of high-tech products, which include intellectual property created by Russian experts in Russia and abroad.

To judge by numerous appeals to Rospatent and the Ministry of Education and Science of the Russian Federation, the opinion about the necessity of government support to foreign patenting is widespread among the inventors. It is motivated, firstly, by a relatively high foreign patenting procedures cost for applicants and, secondly, concern for the wider global dissemination of S&T results obtained in Russia, and thereby for the Russian state image improvement. In addition, it is desired to bring the indicators of Russian patenting abroad to the level of developed economies, which demands their increase by several times. To achieve these intentions it is proposed to organize budget funds for foreign patenting support.

One of the proclaimed directions of the state innovation policy is development of state support to competitive innovative products export with protected rights for intellectual property objects obtained under federal budget funding. Approaches to this problem solutions suppose the creation of currently missing infrastructure to support these activities.

One of the infrastructure components in terms of foreign patenting could be the Support Fund for foreign patenting of developments made at the expense of the federal budget by both state enterprises and firms of other ownership forms. This Fund could undertake facilitation of Russian patentable developments (created at the expense of the federal budget) effective promotion abroad. The Fund should be able to attract experts to assess the likelihood of materials submitted by applicants.
Analysis of forms of state support to national inventions patenting in the EU Member States and other foreign countries shows the prevalence of foreign patenting state support programs in developed EU countries and in Eastern European countries that recently joined the EU. Foreign patenting support in the EU Member States under the program documents of these countries is an important means of enhancing the countries’ technological development, increasing exports of science-intensive products.

Ukraine, as regards patent filings to foreign countries, ranks 39 in the world (data on filings under the PCT) with 400-300 times less applications than in the USA and Japan, 70-30 times less than in most European countries and 10 times less than in Russia. This is directly reflected in the low share of high-technology exports of Ukrainian companies. Lack of funds for foreign patenting leads (even in case of filing an application) to patents being largely obtained by foreign organizations that provide financial support to patenting.

In 2001, the Decree of the President of Ukraine № 285 «On the Measures on Intellectual Property Protection in Ukraine» was adopted dated April, 27, 2001, providing for introduction of state support mechanisms for domestic intellectual property objects patenting in foreign countries.

But for already 10 years since the Decree adoption the functioning support mechanisms of foreign patenting in Ukraine have not been implemented.

In 2006, the Law of Ukraine “On Technology Transfer” was adopted where the functions of a dedicated body in the sphere of technology transfer included «on the suggestions from technologies and their components rights holders, (the dedicated body) takes measures on ensuring of inventions (industrial designs) foreign patenting financing by the funds stipulated for these purposes in the State Budget of Ukraine, and organizes attraction of other inflows for foreign patenting funding» (Article 6).

However, no corresponding foreign patenting expenditures from the State Budget for the said purposes have been hitherto stipulated in the State Budget. Preparation of the draft of Resolution of the Cabinet of Ministers of Ukraine on the procedure of foreign patenting and introduction of a specialized budget programme for this purpose was only initiated in 2011 by the State Agency for Science, Innovations and Informatization of Ukraine.

1. Experience of the EU Member States

For the EU Member States characteristic is the introduction of special government programs to support inventions patenting in foreign countries. Usually such programs cover 90 percent of patenting costs with step-by-step expenditures financing. Recipients of grants are research institutions and universities. Sometimes these programs apply to small companies (Poland, Ireland, Finland, Hungary, Greece, Austria, India, Italy, Germany, Cyprus, Portugal, etc.).

In addition, a number of countries provide for foreign patenting cost within budgets for scientific and research projects (Czech Republic, Poland, Belgium, France, Malaysia, etc.)

There is also a system of private support to foreign patenting (UK, Switzerland, Austria, etc.).

The recommendations are prepared by the Project Experts (Khaustov V., Ukraine, Terziev M., Bulgaria, Kapitsa Y., Ukraine) and discussed during the International seminar “Peculiarities and practice of Ukrainian inventions patenting in the EU Member States, other countries, and under international treaties” (March, 23-24, 2011; Kyiv) and International conference «Intellectual property rights protection in Ukraine and the European Union: policy, legislation, practice» (June, 15-16, 2011; Kyiv).
2. Ukrainian inventions patenting in foreign countries

Data of the World Intellectual Property Organization (WIPO) and statistical data in Ukraine indicate a small number of national applicants filing under the PCT since 1991, and next to zero proportion of such filings in the total number of patent filings for inventions.

Current statistical reporting of Ukraine (State Statistics Committee of Ukraine, State Service of Intellectual Property) does not enable assessing the foreign patenting dynamics.

In particular, the State Service annual reports do not specify countries to which invention applications are filed, stating only the country of application origin. In 2007, the State Statistics Committee of Ukraine stopped publishing data on applications for titles of protection for inventions filed to patent offices of foreign countries. Moreover, the SSC does not distinguish the filing procedure (national or PCT). The available data demonstrate predominance of filing to Russia and isolated cases of filing to patent offices of other foreign countries.

Ukraine rounds out the fourth ten countries patenting under the PCT, but the filings number is by hundreds times less than in the USA, Japan and Germany, and ten times less if compared to Russia. According to preliminary data, in 2010 the Ukrainian inventors (place of residence of the first applicant) filed over 100 applications under the PCT for the first time since independence.

Recently, the WIPO have published reports defining certain indicators of patenting development worldwide and in specific countries.

Among such important indicators is the number of patent applications for inventions filed by residents per 1 mln population. The list of 27 countries is rounded out by Ukraine, China and Belarus with indicators close to 100 filings. Herewith, this indicator has a stable ascending tendency for China, Belarus and Russia, and for Ukraine – fluctuating and descending. The leaders are Japan and Republic of Korea with over 2.6 thousand filings.

According to WIPO the majority of filings under PCT published in 2008 belonged mainly to the sectors of the 5th technological mode: computer technology (14.048 K), pharmaceuticals (13.254 K), medical technologies (12.852 K), electrical equipment, apparatus, energy (11.303 K), pure organic chemistry (9.680 K). The biggest increase in 2008 against 2007 was recorded in such classes as: IT management methods (22.7%), microstructural and nanotechnologies (20.7%), mechanical elements (13.7%), machinery (13.3%) and environmental technologies (13.2%). Moreover, the growth of classes that will determine the sixth technological mode is much higher than that of other classes.

Ukrainian patenting priorities only coincide with the world ones in subclass "medical technology", the other priorities belong to technologies of third or fourth modes ("materials, metallurgy," "measuring," "civil construction"), and inventions in subclasses "nanotechnologies", "IT management methods", "digital communication" are almost not patented. Moreover, the number of filings in 2003-2007 in all subclasses was much lower than in 2002-2006. In most subclasses filings number in Russia exceeds that of Ukraine by 5.5-7 times, but in subclass "biotechnology" Ukraine is Russia’s inferior by almost 29 times, in subclass "microstructural and nanotechnologies" – by 21.5 times, in subclass "digital communication" – by over 19 times, in subclass "food chemistry" – by more than 13 times, in subclass "telecommunications" and "basic communication processes" - by 12 and 10 times respectively.

3. Suggestions on creation of support system for inventions patenting in foreign countries

3.1. Framework measures

a) it is necessary to settle issues concerning the acquisition and distribution of intellectual property rights for objects created at the expense of the state budget funds.

For this purpose it is necessary to prepare a draft Law assigning rights for the IP objects not being a state secret (according to the experience of EU member states, Russia, USA) to institutions performing
R&D financed by the state budget. The draft Law should envisage free license for public use of inventions from such organizations, as well as the licensing procedure for IPR objects rights to which are assigned to public authorities.

It is worth mentioning, that in 2001 the Decree of the President of Ukraine «On Measures for Intellectual Property Protection in Ukraine» envisaged preparation and submission to the Verkhovna Rada of Ukraine a draft law on intellectual property rights acquisition for objects created at the expense of the state budget funds and the state specialised funds.

b) it is important to introduce measures to support innovation and inventive activities in the fields of industry of Ukraine of the 5th and 6th technological modes.

In this connection it is appropriate to prepare and submit to the Verkhovna Rada of Ukraine amendments to the Law of Ukraine "On the Priority Directions of Innovation Activities in Ukraine" providing for adjustments of priority directions of the 5th and 6th modes` innovative development with effective mechanisms for these directions development.

c) it is necessary to introduce state statistical reporting with the outlining of patenting countries, international patenting organizations (WIPO, EPO).

3.2. Foreign patenting support measures

The objectives of the foreign patenting support measures are:

- to promote protection of inventions in foreign countries aimed at hi-tech export development;
- to increase the commercialization of publicly funded research, to facilitate technology transfer from research institutions to industry through support for IP protection;
- to fill the gap between research and innovation, invention and new business, proof of concept and beginning of mass production.

A) The Ukrainian Government is recommended to create a Foreign Patenting Fund to finance international patenting of selected Ukrainian inventions of institutions and organizations through state support in the form of grants with funding covering 80% of patenting expenditures (Poland, programme Patent Plus - up to 90% expenditures cover).

The closest recommended examples from the international practice in terms of the implementation mechanism are: Patent Plus Program (Poland), Patent Fund for Researchers in Higher Education Institutes (Ireland), Foundation of Finish Inventions program (Finland), Support to IPR Protection for Hungarian Inventions Abroad (Hungary) and SEE.IP Fund (Austria and South-Eastern Europe countries).

The state support (taking the UE Member States experience) is recommended to be provided for foreign patenting of the inventions created at research institutions, higher educational institutions for the expenses of budget funds.

Preference should be given to stage (phased, step by step) financing as it corresponds to the stages in the patenting process in each of which the commercialization potential of the invention may change (examples: Ireland, Finland, Germany, Cyprus, SEE IP Fund).

The said measure needs to be elaborated and implemented under the leadership of the Government as a measure with strategic significance for the country.

The organizational support system will comprise:

- legislative/regulative aspect;
- established procedures (including computerized online procedures);
- standard documents and forms package;
- one-stop-shop portal for the applicants/beneficiaries;
- IT support (web portal, registers, electronic document and business process management);
- approved and publicly announced set of evaluation/selection rules and criteria, tools for reporting (example: Belgium/Wallonia) and
- monitoring the patenting process and for controlling the appropriate spending of the allocated financial resources. Performance and cost benefit analyses should be undertaken each year in order to support the decisions about the feasibility, profitability and functioning term of the Fund.

The Patent Fund may establish patenting support services for the beneficiaries, using a list of agreed consultants on international patenting, IPR valuation, IPR management, legal, financial, and administrative matters related to the functioning of the Fund (examples: Austria, Germany, France, SEE.IP Fund).

**Selection criteria and procedure:**

The procedure and criteria for evaluation and selection of inventions for financing are of uppermost importance for the correct functioning of the mechanism. A permanent or temporary body of independent experts needs to be established for this purpose. It may be a Selection/Evaluation Committee (Hungary, Greece), Technology Transfer Office (Ireland), Foundation (Finland, Cyprus), or Patent Fund’s Supervisory Board (SEE.IP Fund).

The selection criteria should be standardized and publicly available; they may be advertised via targeted public outreach campaign. The evaluation criteria will depend on the specific Ukrainian needs and will have to be elaborated accordingly. It is suggested that the following criteria applied in the surveyed countries be included in the selection criteria list for Ukraine:

- Potential for commercialization (opportunities, feasibility, strategy, plan, due diligence);
- Justification of costs: requested funding compared to expected results;
- Patentability of the invention; likelihood of obtaining IPR protection in the countries specified;
- Ability to obtain profit from international sales of licenses;
- Priority application and prior art search report;
- No negative impact on environment.

In order to create a system of state support to patenting in foreign countries, it is appropriate draft a Decree of Cabinet of Ministers of Ukraine concerning patenting support mechanisms, creation of a Fund of foreign patenting and introduction of patenting budget support programme.

**B) It is recommended to establish a foreign patenting support system for SMEs and other enterprises within PPP framework** as an opportunity to: obtain partial (up to 30-50 percent) grant cover for patenting costs, loans for patents without paying the interest, provide guarantees to banks that credit patenting abroad, etc. (examples SEE.IP Fund, OSEO, France; BTG, the UK, etc.).

The above activities should be performed by a dedicated financial-credit institution, as well as through introduction of the state program on foreign patenting support.

Patent Fund could also periodically publish a list of inventions having received funding and distribute that list to interested private investors and industrial companies that might be interested in technology licensing or investing in its further development.
It is appropriate to:

- draft amendments to the Law of Ukraine "On Innovation Activities" providing measures of foreign patenting state support for enterprises;

- provide financing of Ukrainian inventions foreign patenting expenditures under the state PPP programmes in innovations field.