


МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ

ПОГОДЖЕНО



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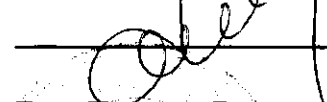
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**СТРАТЕГІЯ ІННОВАЦІЙНОЇ ДІЯЛЬНОСТІ ТА
ПЕРЕДАЧІ ТЕХНОЛОГІЙ У СИСТЕМІ ВИЩОЇ
ОСВІТИ УКРАЇНИ**

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1. The current situation of the transfer of technologies in Ukraine.

The knowledge and technologies of information exchange have so far become the main moving force of modern progress. Modern world is the world of high technologies and communications, the development and use of which stipulate the nation's welfare and achievement. The modern terms of Ukraine's development provide strong necessity of the economic strategy development, which would allow Ukraine to acquire an important place in the global economy. In our opinion, there is no doubt that this strategy must above all lean upon the *innovative component*, as the innovation activity provides for the development of not only technically and technologically new products, but also for new markets, and for involving and applying the nation's creative potential. This is how modern economists describe the character of a new wave of the global economic development and international labour division: according to forecasts of all leading analytical and investment agencies of the world, in 2025 - 2050 the three global economy leaders will be the US, China and the EU.

The most important thing is that the truly innovative tendencies are impossible to form through a centralized decision. There is a need for market mechanisms which would make the development of science and introduction of its achievements economically advantageous both to the analysts and business people. Whereas in national economy such mechanisms are still missing, yet there is a number of limitations for subsequent innovative development of economy. It has recently become especially noticeable.

1. *Financial limitations.* Lately there has been a natural decline of profitability of certain projects, that requires an increase of investments in the fixed assets, as the term of recoupment of a new project has considerably increased. At this time the situation on the capital market had not dramatically changed: the dates of crediting have not increased, and the rates of crediting have been going down very slowly. This causes a lower profitability of Ukrainian business. Also we need to take into account the slow down of global rates of the economic growth which resulted in the redistribution of world streams of direct foreign investments. Thus investments grew short to the USA and Europe, and their place is gradually taken by China.

2. *Unevolved industrial base* which is revealed by an extremely high dependence of economy on the state of affairs in raw material and energy markets. This, accordingly, results in inflation of spendings. Most obviously this situation has been lately presented in the oil, petrol and gas market, when the price increase

on energy resulted in a swift growth of production spending of all industries of the Ukrainian economy, entailing enormous losses and the loss of markets.

3. *The absence of carefully balanced long-term strategy of post-industrial development of Ukraine* which is manifested by the nominal slogans on the eve of elections and in the economic inactivity of the recent years.

4. *In the public economic policy the advantages are mostly given to the direct administrative levers*, while indirect stimuli of investment-innovative development are absent on both macro and micro levels.

5. *Unevenness of territorial development*. Thus, East of Ukraine and partly North are more developed in relation to the basic industrial fields and provide more for the science-involving branches of economy, while West is dominated by agriculture. In a way this also affects investment indexes and competitiveness of the Ukrainian economy.

Taken on the whole these limitations result in a fact that the level of general investments in the national economy appears lower than the level necessary for securing a fast economy growth. Also the following factors do not provide for the economic growth of the country: the unevolved financial sector of national economy; practical dependence for power sources; imperfect and outdated power energy infrastructure; insufficiently computerized national economy; as well unevolved foreign trade infrastructure and unstable national export policy; unsolved intellectual property issues and the like. Also in recent years the decline in the quality of school and university education is noticeable if compared to the previous period. More weakened is connection between university education and the specific problems of economic development.

2. Strategic highlights of the national innovative development

Relying on what has already been said, a successful realization of the requirements mentioned presupposes the solution of the following issues:

- improvement of the system of education;
- realization of the effective innovative and technological improvements;
- creation of a developed and diversified industrial infrastructure, able to accumulate innovative products and technologies;
- reformation of the financial system in the way which will permit it to be able to work with highly technological and developed companies of the new economy.

There are plenty of objective provisions for Ukraine under the conditions of new economic wave to appear as the world's leading nation. These involve a well-educated population, raw material basis, innovations, favourable geographical location, new middle class which is ready to buy new high-quality commodities, and a strong, dynamic enterprise. Presence of these components, and their clever usage must provide the country with a fast growing formation of the future long wave.

Thus, for the successful integration into the global post-industrial world the economic system of Ukraine must meet the requirements:

- necessity to modernize Ukraine's energy and transportation industries which may provide important markets for resource-saving technologies;
- formation of a high quality consumer market. Presently this formation takes place locally, where there is a new middle class. Especially it is notable in services (trade, education, entertainment), with a very high quality demand on the one hand and a very qualified supply on the other. However, it is obvious that on certain conditions the consumer markets of new quality will be formed in production sectors too, as it was on the city construction market.

All this requires the re-evaluation of the public policy priorities oriented on the innovative reconstruction of the economy and predicts substantial reforms of the Ukrainian society, including:

- a) changing the role of the state by adjusting the general economic policy;
- b) creating modern information and telecommunication infrastructure, including the social sphere and education;
- c) perfecting the system of education by refusing to finance these spheres according to the residual principle and by providing implementations of the existing laws that establish the above mentioned norms;
- d) providing for the growth of investments in the information sector of economy;
- e) constructing the carefully balanced, developed and effective innovative infrastructure and development of mechanisms for its effective use;
- f) increasing competitiveness of national economy through developing and using information as the most effective factor of production.

3. The Policy of technology transfers

The government policy of technology transfers must work to provide the effectiveness of technology commercialization. The principles that determine the forms and methods of government participation in the process of technology commercialization must be the following:

- ? public administrators must not interfere with the process of commercialization. The main function of government bodies is not to supervise the progress of innovative projects, but assist the achievements of the participants;
- ? government financial sponsorship is given for implementation of Scientific, Research and Construction Activity; yet Ministry of Education and Science should not claim the intellectual property which is created in the process of realization of the innovative project;
- ? government financing plays as a catalyst for involving the non-governmental investments into the project;

? the innovative projects which apply for accepting the government financial sponsorship are presented for a competitive selection.

State support and process adjustment in the transfer of the double designation technologies are valuable. Therefore both directions of the transfer must be involved: the commercialization of scientific and technical activity results in the military projects obtained in the fulfilment of the governmental defensive programmes in the civilian sector, and the other one, which is related to the transition of technologies from the civilian sphere for development and support on the proper level the defensive industry potential. However, it is necessary to deal with the problems that interfere with the organization of the civilized transfer of double designation technologies:

- arrangement and differentiation of the rights to the intellectual industrial property previously created in the fulfilment of the defensive programmes; development of the proper lawful base and implementation of mechanisms of the contractual distributing of rights into the contractual financing practice;
- creation of the infrastructure of the financial, informational and consultative providing of the transfer of the double designation technologies;
- perfection of the state control mechanisms for strengthening the possibilities in the sphere of selective operative detection, premonition and stopping of unsanctioned transfers (sales) of the double designation technologies in accordance with the requirements of keeping the state and commercial secret;
- professional training and retraining of the higher and middle management of the Ministry of Defence and enterprises of defensive complex with the purpose of development of their possibilities of conducting the transfer of technologies under market conditions;
- formation of a new category of specialists and managers to analyse the hi-tech and services markets; development of methodological vehicle of economic and commercial evaluation of double designation technology and Scientific, Research and Construction Activity which deal with their creation.

In settling the process of technology transfer management, the state legislation act on "Government regulation of the activities in the sphere of technology transfer" accepted on September 14, 2006 may be considered a substantial achievement. This legislation determines legal, economic, organizational and financial principles of government control, and is aimed at providing an effective use of scientific, technical and intellectual potential of Ukraine, proper use of technology in goods production, protection of property rights for domestic technologies on the territory of the countries where they are planned to be used or are already in use, an expansion of international scientific, and technical cooperation in this sphere. However, if disregard the importance of the accepted normative act, its real action may be slowed down by the absence of the proper co-ordinating procedures in

other mutually connected spheres, particularly: by providing a legal base for a transfer of state industrial ownership rights, by the absence of technological infrastructure, and by the shortage of technological management specialists.

The industrial policy in relation to innovations must generate from the dual nature of technological progress and patenting: the monopolistic character of the patent-holder and a dynamic market growth. Overly tough antimonopolistic policy in relation to a patentee may cause a negative stimulus for the innovative investments, and on the other hand, a lax policy will result in strengthening the monopolistic power of the innovator and will increase the level of market concentration. Therefore there must be a balance between the interests of technological progress, and those of a competitive result in the market. In addition, whichever market structure there is, the research results show that spendings on Scientific, Research and Construction Activity allotted by companies, are smaller than the social optimum because of the presence of a considerable satisfactory external effect of innovations even with a good patent defence system. Therefore, an effective development of a market for innovations is impossible without a carefully thought out public innovative policy which is absent in Ukraine today.

An important condition of the internal market of technological innovations development is a presence of an effective national system of the technical regulation, the staples of which are standardization, metrology, certification, and defence of consumer rights. All the elements of this system need improvement for several reasons. In particular, the level of participation of branch ministries and departments in the development of national standards remains unsatisfying. Impermissible is the absence of branch prospective plans of standardization, especially in such industries as engineering, telecommunications, etc. which all have a high export potential. In financing the processes of standardization the money of ministries and departments is not sufficiently used as well as the money of the large corporations which are the main exporters, interested in the competitiveness of their products in world markets.

4. Formation of the national innovative system

Changing to the innovative type economy is a new way of national development for Ukraine so the main task of industrially-innovative policy is a matter of forming the national innovative system that would provide an effective co-operation in the science-business-state triangle, which integrate the scientific, technical, economic, financial and organizational factors of creation and circulation of innovations. An effective functioning of such a system requires not only the presence of potent science and education, but also of a whole complex of other institutional provisions. The most important among them is creation of large industrial corporations able to

provide development and commercial realization of innovations, in the research-requiring spheres of economy through uniting financial resources, research and production potentials.

One of approaches to the formation of the National Innovative System is to carry out the post-Soviet industrial complex transformation by selecting the points of the innovative growth and transformations. In the future, these points must become the supporting areas of the new industrial system formation. Therefore, the task is to create an innovative rearmament system of a whole set of industrial productions. So, the newly formed production becomes a special instrument for transforming an enormous set of different productions into areas and points of growth until the rearmament happens, and afterwards also an instrument of these productions transformation on the basis of new technological products. Such a rearmament system of a set of industrial productions is suggested to be called *meta-industry*. In our opinion, the formation of a *meta-industry* can be considered a necessary condition to restrict the process of leaking of innovative technological developments abroad. To perform the process of the offered rearmament it is necessary to carry out the following procedures:

- to select a breakthrough point for mastering organization's technological culture of production processes for all possible production types - it means a large mass production with product quality parameters to be worked out and not a possibility of manufacturing a separate unique product;

- to trace a connection between the change of the level of technological organization of production and the change of control system;

- to create a system of a double use of technologies to carry out the defensive programmes and civil products of mass demand;

- to form a marketing niche for a particular type of product with profitable sale and production;

- to organize a system of corporate management to provide training of specialists be able to master and develop the new technological principle. Through this the created production process will be designed as a learning organization from the beginning.

Thus, the priority of Ukraine's public policy is developing the National Innovative System, which means dealing with a complex of educational, scientific and technological matters, creation of favourable institutional conditions for innovators and businessmen who would be able to help the country to acquire the leading position and overcome the closed character of development of research institutes and other scientific establishments on the basis of integration within the limits of strategy of structurally-innovative transformations and prospects of scientific development, innovatively-technological sector of industry and enterprise by carrying out a complex of agreed institutional factors, and above all, the formation of the proper constituents of innovative development due to effective government support. Only concentration of scientific,

governmental and business efforts on the optimal ways of dealing with methodological, strategical and tactical problems of the national innovative system formation can enable perspectives for the implementation of the innovative model of the national development, improve the rate of economic growth, speed up and facilitate the process of Ukraine's European integration and bring science play the leading role.

Priorities of technological development

Technological priorities for the state are a number of economically valid ways of scientifically-technological development for a set period of time, realization of which must be aimed at providing national security by satisfying such national necessities as industrial competitiveness, national defensive power, energetic validity of the technological direction and an accordance with the main problems and the prospects of development of Ukrainian society. Besides, technological priorities mean one of the ways to achieve strategic aims of the country's economic development. Foreign experience shows that the priorities in the technological sphere have become the main feature of the new stage of progress of the world's economically developed countries. On this stage a new approach to formation and realization of national scientifically-technological, industrial and innovative development policy took place. It is mainly connected with the processes of selection, development and defence of the state technological priorities and national technological base with the purpose of a short-time providing creation and increase of production volumes of competitive (both on the internal and external market) final products of the civil and military designation, which satisfy the most important national requirements in social, military, proprietary and other spheres of economy, make a critical decision over important problems and tasks of socio-economic development and national security.

It should be noted that at present the practice of lawful regulation of scientific and technological development of Ukraine's economy assumes several legislatively ratified systems of governmental prioritized programmes for developing science and technology, innovative activity and technologies that are characterized by unstable dynamics of acceptance, temporal and essential inconsistency of their structural elements, that shows the imperfection of priority revision mechanism, and consequently, the absence of the valid procedure to monitor the alterations of technological priorities at state level.

Generalized approaches to the process of priority formation enable to state the following: firstly, the essence of most state technological priorities is restricted to the forecasted key technologies of post-industrial development of economy; secondly, creation of the priority is regarded as either its identification with a separate technological direction, or its unification with clearly listed technological items; thirdly, the quantitative

aspect of the structure of the system of technological priorities is determined by a number of limitations, among which are strategic aims, tasks, prospects and resource possibilities. Alongside, the experience of economically developed countries, aimed at methodological principles of maintaining the procedure to form technological priorities, enables to define the following actions:

- making a comparative analysis of the systems of priorities, which exist in this country and in other developed countries;
- detecting scientific priority in the system of primary development goals of a country;
- determining differences in the structures of scientific and technological priorities, state and private sector priorities, and also priorities of government control, depending on the emphasized influential directions in the national innovative sphere;
- singling specific branches of socio-economic development, which will have the greatest demand for the results of scientific activity, taking into account the long-term global, regional and national trends of technological progress, general prognosis and prospects of scientific and technical progress;
- providing a complex approach to solving the problem and taking into account the interests of main subjects of scientific-technological policy, to conduct a clear differentiation of the levels of state technological priorities and their interconnection;
- analysing the real possibilities of implementing a set of prioritized programs, taking into account the presence of viable scientific schools, the quality of material and technical base of universities, the supply of a needed number of informational resources, and the level of competitiveness of products and technologies;
- creating a mechanism of direct and reverse connections between the executive and legislative governmental branches and community, formal and informal consultations between government officers, representatives of scientific and business circles, and expert groups.

Accounting for the cyclic economic development and scientific and technological progress is the necessary condition to increase efficiency of prediction process of perspective directions of national economic and technological development. Therefore the priorities are the elements of a clear synthesis and therefore they: 1) enable to establish necessary connection between industrial spheres and production technologies, and in the long run between the latter and the state technological priorities; 2) their application enables to successfully omit the intra-industry aspect of economic analysis of technological development.

An important constituent of determining the priorities is choosing the so called “crucial technologies”, which, from the economic point of view, are the managing source of maintaining science, engineering, technologies and productions in the prioritized economic fields by effectively using

achievements of scientific and technical progress under the conditions of scarcity of resources. Such technologies are meant to satisfy the primary national requirements in social, military, proprietary and other spheres of economy to settle the prioritized (crucially important) problems of socio-economic development and national security. It should be mentioned, that “crucial technologies” generally mean prioritized “high technologies”, development and implementation of which are a key means to solve the most urgent state matters, which have top global characteristics, or even exceed them, and are able to provide their proprietors and users with leading positions in the world market of scientific products.

Prioritized directions of innovative activity in Ukraine are scientifically, economically and socially valid and lawfully determined directions of innovative activity, aimed at providing the necessities of society in hi-tech, competitive, environmentally safe production, high-quality services and increase the export potential of the state. They include strategic and medium-term priority directions of innovative activity.

Strategic prioritized directions of innovative activity (meant for a long-term prospect, not less than ten years) are the main directions of innovative activity for providing socio-economic growth of the country, developed on the basis of scientifically prognosed analysis of global tendencies in socio-economic, scientific and technological development taking into account possibilities of domestic innovative potential.

Medium-term prioritized directions of innovative activity (meant to be carried out for the next three or five-year period) are directions of innovative update of industrial and agricultural production, and in services to master the production of new goods and services produced with a high scientific input and being highly competitive in home and (or) foreign markets. Such prioritized directions of innovative activity are formed within the framework of strategic prioritized directions of innovative activity on the basis of the newest national and international scientific achievements, analysis of the global and internal markets and country’s resources. The special priority of Ukraine is a harmonious development of human potential, economy and natural environment of the country.

The main theoretical problem in the development of public innovational and technological policy must be the proper estimation (as well quantitative) of structure and operating terms of growth sources for science capacious, hi-tech markets, which are launched through modern economic mechanism of the rent type. The basis for such a policy must become a strategy which transforms a formed entity of most viable, effective, and globally long-term perspective market enterprises of hi-tech production as well as effective state scientific centres in a single national innovational, scientific, technical and technological system, aimed at development, production and sale of leading hi-tech products.

For this purpose it is needed: firstly, to substantiate the choice of main priorities of state support - maximum 5-7 megatechnologies (information

technologies, biotechnology, space, aviation, engineering, etc.), that are able to become „locomotives” for developing large technological clusters as well as for the economy on the whole; secondly, to develop a strategy of systemic unification of three possible types of smaller strategies: national leadership in systemic technologies; partnerships in co-operation with leading foreign companies and leaderships in branches of base technologies; partnerships in base technologies for the production of separate components of the final product.

To implement investment policy, the government funds must be used mainly to create basic and systemic technologies, and also to form and develop innovative infrastructure. The key moments must be creating strategic management system for economic development; constructing an effective cooperation system between state and business structures while making project-based decisions about specific strategic tasks. It's important to consider the markets growth greatly depending on science within the framework of world economy globalization process, where terms are created according to which companies working in a hi-tech sector, on the one side, use the advantages of the process of redistribution of resources for their benefit, and on the other side – speed up this process as a result of their activity.

The influence of accelerated development of science-capacious, hi-tech productions and markets on the growth of GDP depends not only on their quick development, but also on the range of its influence on other spheres of economy due to co-operation links and also on the range of the application of results of development of science-capacious industries in other sectors of economy, that is by „diffusion” of technologies of hi-tech productions. Thus, the proposed mechanism of development of the science-capacious, hi-tech sector will be instrumental in harmonizing technological structure of economy with optimizing steady external ties within the unique structural frameworks and also in forming a mechanism of appropriation of technological rent as an external continuation of national economy that can become a substantial reserve for the GDP growth.

Through supporting fundamental researches the state creates a reserve of new scientific and technological ideas, which, not being claimed by national companies, can become necessary in case of a crucial change in the internal or external situation. That is, the formation of such a knowledge reserve provides for the support and development of spheres of fundamental researches, the financing of which in all developed countries is done mainly by the state. As it is known, fundamental researches require a high input of capital and high expenses when they don't have an obvious commercial effect. Western specialists consider that only 20% to 50% of fundamental developments reach commercial sales.

Following directions are to be joined to the set of first-priority directions of Ukraine's economy technological structure improvement:

- orientation on increase of scale and expansion of composition of perspective technologies on the middle and final stages of technological cycle that insure the increased growth of the added value of primary resources refinement ;

- change of economic and investment policy in the direction of creating investment attractiveness for the middle and final stages of technological cycle;

- liquidation of resource losses (raw material, energy, labour) as a result of inconsistency between the components of technologies, through modernization of operating technologies on the basis of innovations, connected with the previous and future technologies.

To carry out the process of reformation of technological structure, it is necessary to take into account that the economy of Ukraine is not unified in its technological development. The differences between branches on a technical level are so considerable that until now there exists no single technical policy for all spheres of management. Therefore it is needed to develop a public policy, which will help to solve different matters of technological development, which are set to the sectors of domestic economy, belong to different technological levels and touch upon different reproductive problems.

The evolution analysis of development of economic transformations in Ukraine since 1992 proves that absence of a valid strategy of switching to the civilized market relations has resulted in substantial losses of economic and scientific-technological potential, and disorientations of majority of the subjects of economic activity. Therefore for active use of innovations in the national economy following steps are necessary: creation of capacious internal markets of innovative products, prioritized state support of domestic producers in domestic and world markets, increase of innovative technologies in the development of domestic production, formation of a high-quality innovative infrastructure, and also supporting innovations organizationally and economically on all the stages of innovative products cycle of existence. As a result two basic ways of influence of innovations on the technological structure of economy are possible: 1) local improvement of separate areas of manufacturing and technological chains (the additive increase of economic efficiency is ensured); 2) an improvement of manufacturing and technological descriptions of economical structures is balanced, and that will allow to decrease the difference between the technological levels of the linked manufacturing and technological chains (the strengthening of economy's multiplicative effect ensured).

Above all things, it is necessary to concentrate on the development of as many as 10-12 innovative directions, in which our country still remains a traditional world leader. For example, in relation to a military industrial complex: radar units; tank- and armour-building; high-precision weapons; rocket and aircraft building; extra rate data communications and high-frequency communications. Experts suggest giving up other, less successful

directions in industrial military complex on behalf of yet more successful development of the above mentioned directions.

In the sphere of telecommunications and communications, and also in nano-electronics Ukraine is so far traditionally strong. Our wire communication is more than 90%. Therefore it is obviously necessary to develop: extra rate data communication and IP-telephone communications; satellite communications; nano-electronics and production of extra bright light-emitting diodes, microlaser chips, etc.; other „breakthrough” technologies.

In the oil and gas complex it is possible to successfully develop 3 to 5 innovative directions: the use of the newest methods in the sphere of finding rich in oil and gas areas; increase of Operation Efficiency Coefficient gas pumping aggregates; programming and technical support for the control and management processes in gas and oil streams control; materials and technologies which intensify the digging output.

Keeping to specific requirements is a prerogative for successful innovative development of every prioritized direction. The less the government will interfere in their specificity on the stage of implementation of innovative projects, the better and more successful the process of their implementation will be. The main tasks on the innovative way of development are: to help create and comply with the mentioned requirements; to support the internal producers of goods and services at least so that they are known in the world and in the country; to use them with a benefit; and also to create such favourable conditions for the free flow of capitals and investments which will help to distinguish Ukraine's advantage from other countries. The State, as one of the participants of the market, will take part in large innovative projects only in a few prioritized directions and, especially, if without the state interference it will be impossible to enter the world market; or projects, which are important vital interests of not only Ukraine, but other countries too. For example, transnational highways (automobile, railway, air, marine, etc.), shared use of energy highways (electric power, gas, oil), tele- and radio-communications, etc.

Russia's experience may be valuable to study: one of its possible strategies of technological development of economy offers a resource-innovation strategy the basis of which is directing a part of primary resources in the refinement complex at the expense of their additional production or re-orientating exports for the internal needs. This measure, supported by tax and customs mechanisms, causes additional demand for the products of investment spheres, industrial infrastructure, and also for industrial and residential construction. The growth of profits from the increase of employment in these industries will increase demand and cause growth in consumer goods production. The entire production growth will extend the tax base and the inflow of taxes, which will enable to substantially increase state expenses for the development of science, social sphere, strengthening power structures and defensive potential of the

country. Henceforth, the listed changes can serve as a stable pre-condition for the increase in output of leading volumes of products in science-capacious enterprises. Through carrying out the process of resource-innovative strategy the following changes are expected in a medium-term prospect: 1) innovative and investment activity of subjects of economy will increase; 2) structural and technological disproportions will be cut down and general technological level of economy will grow; 3) in the structure of gross release the portion of products of defence and investment complexes will rise from the higher portion of the gross added value (GAV) in comparison with industries of the fuel-commodity block; 4) in the structure of internal consumption of the proportion of domestic products will be substantially increased also due to the substituting of import; 4) in the structure of export, the part of products with the high portion of GAV will rise; 6) the living standards of population will rise substantially (in incomes and the quality of consumption).

In the increase of technological potential the absolute priority must be given to production of new knowledge and innovative ideas, carried out within the framework of fundamental researches of academic and university sectors of science. Taking into account the long-term and strategic character of most developments in this sphere, the state must provide their conduction mainly by using its own finances. This support is needed for future achievements, preservation of unique scientific schools, creation of stable social motivations to use scientific results, increase of prestige of scientific work. But to determine the priorities, it is urgently needed to conduct an objective inventorization of national scientific, inventorial and conversional potential and reserves, and answer a question: in what high-tech sphere the country is really able to master and work on the new products of the 6th or at least the 5th generation, retaining leading positions in the market; in which wider area can Ukraine equal with the leading countries, making the competitive products of the 5th generation; which is the sphere of technologies and products where the country is abysmally falling behind the leaders and is it possibly better not to waste money on the unimportant inventions, but to obtain overseas licenses, technologies, equipments and finished products?

Widespread, among researchers and practitioners, is a belief that the revival of Ukrainian economy, more so if we take into account the unprecedented moral and physical wearing out of capital assets, is better to begin with the restoration of the part which is oriented on the necessities of the internal market, to load up production capacities which are underloaded, and to gradually accumulate capital, and only then to begin mastering modern technologies of the 5th generation, catching up with the world leading countries. One of the negative aspects of such an approach is a fact that it is impossible to make competitive products using old and more than a half used up capital assets. Consequently, if domestic goods are not bought at their high production costs, it is practically impossible to accumulate

capital for the next technological breakthrough. Besides we need to take into account that while trying to catch up with the leading countries it is possible only to fall even more behind.

For that reason it is necessary to stick to the innovation variant of the scientific-technological progress that is aimed at not only high technologies but takes into account the necessity of solving socio-economic issues for raising the living standards of the population. It means that it is possible, through developing goods and services market-based production under comparatively outdated technologies, if there is a demand and the losses are comparatively low, and if through that it is possible to provide for the employment in the medium and low qualifications, to concentrate scarce resources and best workers on the great-scale acquisition of the modern 5th generation technologies and wherever possible to occupy the market niches and remove the imported goods by means of modern import technologies. At the time, it is important to consider that the 5th generation technologies have been functioning since the 1970s and have passed already through half of their cycle and have come into the maturity stage and are approaching their old age. They are unable to bring such a profit they used to at the beginning of the 1990s. So, the technology crisis features are sure to increase and the only way to overcome them is to acquire the 6th generation technologies. For that reason the developed countries are now making a breakthrough to the 6th generation technologies in those directions for which necessary resources and financial funds are needed.

5. Organizing the state stimulation of the innovation activity

For more effective structural state policy specific conditions are needed for stimulating multi-facet development of the intellectually potent personality that presupposes the active state influence on all stages of the personnel resources formation and perfection of the official indirect influence means in the sphere of high-tech priorities and applying on the original stages the necessary mechanism of protectionist measures to support it in the foreign market. In monitoring technology spreading, carrying out most important and complex regulating functions requires to create appropriate organizational subsystems. That concerns expertise, accounting and auditing, information providing. The important direction for transfer of technologies must be creation and development of new organizing structures, communications, data bases and such access to the information on the new technologies that it could enable the effective search for technologies and their promotion to the global and national markets. Improving national share not only in the domestic market development but also in the international trade in technologies require to facilitate the Parliamentary adoption of the State Act of Law “On the state regulations of activity for transfer of technologies” which would define the sense of governmental supervision over transfer of technologies and foreign

technological investments including monitoring implementation of the admitted agreements and their monetary profitability, the official ways to stimulate the transfer of production means and foreign technological investment into prior economy branches.

More effective application of available advanced methods could be achieved through solving organizational tasks of their proper classifying and arranging and filling the gaps in the national legislation in part that concerns the possibilities of transferring the secret technological methods into the civil sphere. For this purpose their complete inventory should be made, precisely the legal arrangement of the intellectual property laws and registering the valid documents for the proper completion of the innovation process.

To provide consistency of the technological development, it is necessary to apply such means and methods of direct and indirect state support for the high-tech productions which could enable mostly to use the inner possibility of these self-organized productions to work under the conditions assumed due to economic independence, freely chosen forms of corporative structure and uniting forces in struggle for markets.

In the sphere of privileged taxation and crediting:

- to make tax free (partly or completely) the received income which should be paid for investments into the national technological development, for the new inventions and technical re-equipment;
- to give investors (in the first place, buyers and consumers, but not manufacturers that proved to be of no use in practice) science capacious production and services of the target investing tax credits on terms of their repayment out of the income received from using these products and services;
- to transfer part of the income received from using the high tech productions to the special assets for developing these productions;
- to free (completely, partly, temporarily) high-tech productions from tax payments into the state and/or local budget in case this measure acts against the production crisis, helps to preserve and create new working places;
- to establish for high tech productions with scientific experimental basis such a plan for taxation main assets, real estate and the like which would enable them to direct additional financial resources to investing into main assets so to support the competitiveness of the national product in the home and global markets.

In budget additional financing:

- to give target budget financing to the enterprises which are making prospective researches and produce scientifically capacious products for the government's needs.

In customs service regulations (customs service preferences):

- customs service protection in the home market for those national manufacturers of goods who are able according to the new concept of quality to present the valid national products for the home market of complex productions.

In the sphere of the amortization policy:

- to employ non-linear (progressive) amortization under which the expenditures on buying the main production means are regarded as amortized at the beginning of their exploitation and not before the term of the project's completion or the term of moral wear –out.

In price formation:

- to establish and employ the regulations of the complete capitalization of expenditures on the scientific research work including those on the buying licenses and patents and the like, and for providing the production process beyond the government order framework.

In the organizational and legislative sphere:

- to allow the high-tech productions which are state-owned to sell legally the remnants of the technological equipment and working areas to maintain their own development;
- to give pay-offs in taxation in case of delay of the payment for the executed state order;
- to create on the commercial basis the state network (with the right to perspective privatization) of the innovative and informative centres for spreading and transferring inventions in the new technologies sphere in other economic branches;
- to remove outdated technologies through the state or the local official establishing the normative terms of their employment according to the purposes of resource preservation and ecology;
- to establish the procedures to guarantee the productions with crucial and key technologies a certain part of the income from exploitation and employment of their produce made on the governmental order;
- to form and stimulate a valid paying demand for goods and services as a basis for renovating the financial, personnel and scientific-productive potential of the high-tech productions;
- to create systems for spreading scientific-technological innovations, to stimulate the transfer of the "double designation" technologies from the industry of defence into the civil production;
- to stimulate the stability of the experienced personnel, its training, retraining and involving young specialists for working with new technologies.

The countries with the high technological level of economic development differ in the development of science, culture and education, that determines the level of any society's civilized looks. Both culture and education mean the result of the human creative activity as their state is mainly defined by science. Creative activity is important in the social activity of the humans and this importance is constantly growing. The frames of the creativity are constantly expanding and its new forms and sorts are constantly appearing. In its turn, this presupposes the growing number of satisfying results of the creative activity which become rather profitable goods to be sold both in the internal and external markets and the demand for them keeps growing. Intellectual property security is a key element of the innovation activity as it allows to compensate in property the incomes from the investments into the scientific research and benefit from the innovations. In early 21st century intellectual property acquired a very important role in accumulating the corporate wealth and development of competitiveness. If in the 1970s-80s patent had a guarding function, then in the 1990s patents became a means of stimulating competitiveness and favoured the innovation processes in new spheres. At present the specifications of a new role of securing the intellectual property are:

- 1) patent system embraces all stages of developing a new product, which follow the fundamental research, marketing included;
- 2) patent statistics serves a basis to coordinate private research projects as it comprises the information both of real achievements and of prospective researches that enables the competitive companies to better dispatch the resources;
- 3) patent security has become one of the strategic purposes of both companies and the state on the whole;
- 4) because of the wide information technologies spread the unification of the national patent systems is now under way and securing the intellectual property exceeds the bounds of the national jurisdiction.

To internationally harmonize the intellectual property security laws is a rational purpose but what is needed is an optimal balance between the stimuli which are necessary for achieving social welfare and the harm caused by accompanying restrictions. It mostly concerns the mutual relations between the developed and the developing countries. In this direction the Verhovna Rada admitted the State Act of Law “ On the state programme for adaptation Ukrainian legislation to the EU legislation” (# 1347-IV November 27 2003).

In perfecting the system of securing the intellectual property and harmonizing the proper national legislation it is important:

- to determine the procedure of national application of the international legislation norms in case of a conflict between the EU legislation norms and the international conventions propositions including those on the intellectual property;

- to legally establish unified terms with their explanations in the primary and secondary additional legal acts concerning the intellectual property security;
- to introduce the unified demands to the translations and make official translations into Ukrainian of the statutory agreements on the EU and other documents which create lawful foundations for regulating European integration, international conventions and other documents in the spheres of the legislative adaptation, including one of the most important, the intellectual property;
- to approve of the estimation methods for the intellectual property objects and to systemize the estimation practices for the intellectual property;
- to establish the specialized patent court and the court in copy rights and adjacent rights;
- to create the organizationally and financially independent from the Establishment the Supreme Court of Appeal.

Clearly determined property rights including the intellectual property are very important if consider the involvement of the patented technologies and investments into the innovation projects. The experience of the developed countries accounts for the peculiar feature of the innovation policy: those are the resources which are to be directed to this purpose. Insufficient security and weak defence of the law objects negatively affects the investors. In this aspect the patent is regarded as an instrument for regulating transfer of technologies and creation of the new productive industries. National integration into the global economy is influenced by the internal factors and should acquire the features of a regulated state process of transformation the regime of trading on the WTO basis. State regulating of the relations in the sphere of intellectual property is directed to solving three main tasks:

- 1) increasing scientific-technological potential of the nation;
- 2) defending national economic interests;
- 3) providing national technological security.

Henceforth, it is important to consider the fact that valid lawful and economic basis in the form of the normative lawful acts determines only the necessary terms for developing market relations in the sphere of industrial property. For successful activity in the market the creators of the objects of the industrial property must have skills and knowledge to work out and implement the marketing complex consisting of 4 elements:

- 1) the industrial property object as a product which is a complex of consuming properties which make it particularly valuable in the exchange;
- 2) price is establishing the cost of the license; the discount; the terms of payment for buying the license; the price-forming strategy;
- 3) division policy;
- 4) promotion of the industrial property object.