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## A NEW ECONOMIC MECHANISM IS A PREREQUISITE FOR THE INNOVATIVE DEVELOPMENT OF THE STATE

### НОВИЙ МЕХАНІЗМ ГОСПОДАРЮВАННЯ – НЕОБХІДНА УМОВА ІННОВАЦІЙНОГО РОЗВИТКУ

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The article is devoted to the review of economic system as an organic integrity that develops according to its internal objective laws. The article substantiates the innovative development as an essential condition for surviving in global economic space, analyzes the innovation state of economy in pre-war Ukraine, determines the reasons for the low-level development of new technologies in the country, that are hidden in the weak technical equipping of the working population, presents the data about rapid physical and moral depreciation of the material and technical base in all the spheres of national economy in the country. The problem of business entities lack of economic interest to invest in innovation is also considered, primarily due to the fact that venture investments are meant, that is, investments with a high degree of risk, limited financial capability of potential investors, as well as insufficient assistance from the state due to the imperfect economic and financial policy, being the result of the underdeveloped economic mechanism as such. The article reviews the evolution of the formation of a modern efficient economic mechanism, where the state cooperates with corporations and other economic entities that can be seen in the combination of planning in the form of various techniques and existence of the market and economic interest of its subjects. The world experience of state support and implementation of new technologies that increase the labour productivity is studied, and the economic mechanism of different countries is considered, that stimulates the transition of the economy to an innovative model of development, which is extremely important in the post-war period for the formation of many elements of the economic system from the ground up. As recommendations, the article highlights the necessary actions on the part of the state for the transition to a new economic mechanism and the main directions of innovation policy in Ukraine. The importance of the formation of new institutions that will promote the development of new technologies in the country and the formation of innovative infrastructure, as well as the adaptation of the financial system to support these institutions, is noted. The importance of providing state protection of intellectual rights as one of the crucial conditions for the innovation development in Ukraine is highlighted.

**Keywords:** innovative development, investment capability, venture investment, economic interest, world experience, economic mechanism, institutionalism, cooperation of the state and economic entities, state support, tax benefits.

Статтю присвячено розгляду економічної системи як органічної цілісності яка розвивається по своїм внутрішнім об'єктивним законам. Обґрунтований інноваційний розвиток як необхідна умова виживання в глобальному економічному просторі, проведено аналіз інноваційного стану економіки України довоєнного часу, визначено причини низького рівня розвитку нових технологій у країні, які криються у слабкій технічній озброєності зайнятого населення, де представлено дані про стрімкий фізичний та моральний знос матеріально-

технічної бази в усіх сферах народного господарства країни. Також розглянуто проблему відсутності економічного інтересу у суб'єктів господарювання до інвестицій в інновації, перш за все через те, що маються на увазі венчурні інвестиції, тобто вкладення з високим ступенем ризику, обмежені фінансові можливості потенційних інвесторів, а також недостатня допомога з боку держави через недосконалу економічну та фінансову політику, що є результатом нерозвиненості механізму господарювання як такого. Розглянута еволюція становлення сучасного ефективного механізму господарювання, де держава співпрацює з корпораціями та іншими економічними суб'єктами, що можна побачити у поєднанні планування у вигляді різноманітних методик та існування ринку та економічного інтересу його суб'єктів. Досліджено світовий досвід державної підтримки та впровадження нових технологій, що сприяють збільшенню продуктивності праці, а також розглянуто механізм господарювання різних країн, що стимулює переходити економіки на інноваційну модель розвитку, що вкрай важливо, у період після війни, для становлення багатьох елементів економічної системи з нуля. Як рекомендації у статті виділено необхідні дії з боку держави для переходу до нового механізму господарювання та основні напрямки інноваційної політики в Україні. Позначено важливість формування нових інститутів, які будуть сприяти розвитку нових технологій в країні та формування інноваційної інфраструктури, а також адаптування фінансової системи до підтримки цих інституцій. Виділено важливість забезпечення державного захисту інтелектуальних прав як однієї з важливих умов розвитку інновацій в Україні.

**Ключові слова:** інноваційний розвиток, інвестиційні можливості, венчурні інвестиції, економічний інтерес, світовий досвід, механізм господарювання, інституціоналізм, співпраця держави та економічних суб'єктів, державна підтримка, податкові пільги.

**Formulation of the problem.** In the global economic system innovations are the dominant factor of increasing economic competitiveness and social progress. This is why the gradation of countries by “steps” of economic development is strictly ordered in accordance with the technological level, which is the integral result of innovation activity in economy [1].

Innovative orientation of the economic development nowadays has become not only the worldwide trend but also an indispensable condition of surviving in the global economic space. Innovations encompass all the areas of people's activity, and knowledge, science, commercialized research outputs become a new, the most productive, factor of manufacture, that change the essence of indirect economic relations. This makes it necessary to reconsider the role of innovative activity, which is no longer just a source of providing the competitiveness of an individual economic entity but is emerging as the priority direction of state regulation as the basis of achieving the economic development stability.

It is known that the current economic system as organic integrity is developing according to its own objective economic laws, where subjects of the system are in search of earning a return of investment. In doing so, the investor determines for himself the ratio between the profitability of his investments and the risk of their loss, where, as is known, there is a directly proportional dependence. That is to say, that with the higher cost-effectiveness of the project the risk of receiving the negative profit on it increases as well. This dependence is what lies behind the problems of innovation development in the

country, which, on the one hand, involves a high degree of risk to the investments; on the other hand, precisely because of the high risk of new technologies innovations contribute to a significant increase in profitability.

Thus, for example, if you take an investment fund portfolio consisting of a hundred start-ups, one of main characteristics of which is the development and use of innovations in their activities most of its income will come from one enterprise. Thereafter, the profits will come from about nine other successful companies, though not corporations. These ten successful start-ups will compensate for ninety failures. This example allows us to conclude that with sufficient investment, despite the high risk of bankruptcy (ninety out of a hundred), ten successful projects still compensate for all losses as well as provide opportunities of earnings much higher than investments in traditional industries.

Our country in terms of increasing debt burden on the State Budget with its current deficit needs a source to cover this deficit, but it also needs to create conditions for attracting investment into risky projects. It is important to bear in mind that in the course of operation of the given economic system there exist and often escalate contradictions between the economic entities, that are of private concerns and strive for a stable profit, and the state, that is of public interest, whose principal task is to eliminate inequality having been formed and is still worsening for already several centuries, that leads to enlarging the gap between the wealthy holders of large capitals and the poor people, the major part of which have just the ability to work and no means of production.

The problem of deepening of inequality is taken up by world scientists, such as the Nobel Prize winner in Economics Joseph Stiglitz [2] and Thomas Piketty [3]. In their research, having analyzed the huge amount of information, the scientists have discovered terrible data, where ten percents of people possess ninety percents of the capital, and vice versa, ninety percents of people possess only ten percents of the capital. Moreover, the laws of the modern economic system as well as the opportunities for increasing the capital greatly via the financial market simply encourage the concentration of wealth in hands of a tiny percentage of the population to keep growing. If the state does not interfere with the process the risk of political disorder and total impoverishment of most of the world's population can't be excluded.

The resolution of this contradiction and a crucial condition for the formation of innovative society in Ukraine in particular is the transition to a new economic mechanism that promotes a combination of interests of all the economic entities, rather than the subordination of some interests by the others. This will improve, on the one hand, the economic efficiency, and, on the other hand, the social justice, and, consequently, the social stability.

**Analysis of studies and publication.** The problem relevance raises a special interest of many near and far abroad authors. The national researchers, V. M. Geetz [4], I. A. Shovkun [5], V. I. Usik [6], A. V. Skripnik [7], P. S. Yeschenko [8], A. M. Vdovichenko, O. V. Kalinchak, M. A. Kuznetsova [9], etc., are no exception as well.

**The pieces of a common problem unresolved before.** In their research, the authors focus on the limited financial resources for the development and implementation of innovations, as well as the underdeveloped institutional infrastructure. In our opinion, for actual activation of innovative processes in the country there is a need for a more global solution – the transition to an economic mechanism that stimulates innovation development.

**The article objective:** to analyze the innovative condition of the state economy, to identify the main reasons for its low rate, to review the world's experience of innovation development support, the economic mechanism promoting the transition of economy to the innovative development model, and to present the main ways of improving the innovative policy in Ukraine.

**The presentation of the basic research material.** The greatest work in economic theory is

recognized as the K. Marx' [10] "Capital", in which the author has concealed the deep meaning in the very name of the subject of science having given it quite a narrow definition "production relations" instead of the more precise and covering all the stages of relations: production, distribution, exchange and use of material goods, i.e. "economic relations", "capitalistic relations" or any other wider concept. Thus, pointing that it is with manufacturing the realization of a product begins and the development of other spheres of activity is impossible. The main thing that Marx managed to prove is that it is in producing, and not in any other sphere, the surplus value is created. From which it can be concluded that an alternative provision of the economic growth of the country and increase income of the economic entities, other than via stable development of the national production, does not exist.

At the same time, efficient production nowadays is unable to function without the creation and use of new technologies providing an increase in labour productivity, an increase in competitiveness of the national products that leads to an even greater economic impact, for which every economic subject strives. For this very reason developed countries, global corporations generously sponsor R&D and the innovation production itself possessing tremendous financial capacity.

Meanwhile, a characteristic feature of innovation development in Ukraine is the low degree of innovation activity of economic entities. Thus, in our country the share of the enterprises implementing innovations is 12–14% of the total number of companies, which is 3-4 times lower in comparison with innovatively developed economics. The innovation activity in Ukraine in 2012 was carried out by one in five enterprises, i.e. 17,4%, while in Germany – more than 70%, in Luxembourg – more than 60%, in Belgium, Portugal and Ireland – more than 50%, in Hungary, Lithuania, Bulgaria – about 30%, whereas the share of sold products by innovative enterprises in Ukraine has been lately 3–5%.

One of the reasons of a low-level innovation index in Ukraine is a poor technical equipment of working population, this is confirmed by the data about rapid physical and moral run-out of the material and technical base in all areas of national economy of the country. During 2006–2009 the deterioration rate of economic main fund in Ukraine increased from 51,5% to 74,9%, including transport and communications – from 60,4% to 94,4%, and mechanical engineering – from 63,7% to 83,4%.

The fund depreciation exceeding 50% of its total value is common for most sectors of process industry as well [14]. It is quite clear that at this rate of the main fund deterioration it is about energy-, material- and labour-intensive equipment that is used and requires ever-increasing repair costs. Producing under such conditions becomes ecologically dangerous for the environment, the human life, and is the cause of the decline in corporate efficiency and the growth of unprofitability. Therefore, if the situation in real economy remains unchanged it will cause man-made disasters that will lead to a further lagging behind the level of developed countries, a loss of sovereignty and independence.

As for the state, it has virtually withdrawn from financing the innovation activities, while the opposite is true in developed countries where the state invests more and more in science and research. During the last 10 years the investment in R&D in the USA has increased by 46%, in Japan – by 27%, in EU countries – by 18%. As a result the rate of GDP science intensity in developed countries reaches from 2 to 4%, and in Ukraine – 0,75%. It is reflected, among other things, in the low average salary of researchers that was 3790 UAH in 2012, which is considerably less than the salary of foreign researchers [15].

The research of innovation capacity data shows a range of problems, among which it is important to identify the primary ones. In developed Western countries there has long been a combination of state regulation and the private interest of large corporations – the dominant and main market players. It is the corporations that, while planning their activity and managing the market by means of the most advanced marketing methods, financing it in an amount up to 70% of their own income, deny the free play of market forces. The Western world has already faced the consequences of functioning of the traditional market during the Great Economic Depression. Right after this deepest crisis that resulted from the failure of the system of state non-interference with economic processes, the formation of a new economic mechanism began, in which the state started taking over a number of essential economic and social functions. This tendency has become characteristic of other countries, too. As if in opposition to objective processes, Ukraine, guided by recommendations of the western advisers, began to “implement” the economic methods being typical for free competition market, where the state, according to the figure of speech of A. Smith, acted as “night watchman”. It didn’t take long for the results

to come. Ukraine has not got rid of them even today. The denationalisation model launched by the authorities at that moment allowed the individuals, close to them, to privatise large enterprises, to which rest houses, hostels, pioneer camps, kindergartens, stadiums, etc., belonged. This privatization has created a range of oligarchs who are now intertwined with government and actively lobby for their economic interests at all levels: within the country and on the world market. Ownership of metallurgical and raw material enterprises, using cheap labour force and maintaining energy dependence at low scientific and technological capacity allow getting high profits. In this situation, the owners of these businesses have no economic interest in investing into innovation. They are satisfied with the proven way of producing energy- and labour-intensive products, as well as raw materials. Therefore, they don’t care about the national science, its innovations and technologies. The low wages of workers and scientists allow them to compete on the world market. For these and other reasons about 20% of scientific potential of Ukraine works for foreign contracts.

Another problem exists as well, that affects the level of innovation activity and is related to the low level of capital accumulation. If to consider new technologies as an option for deploying capital without specifying the nature of its origin, then there are always alternative deployment options, comparison with which gives an opportunity to evaluate all the advantages and disadvantages of the option under investigation by the risk-to-return ratio of the innovation. Thus, if to compare, the average level of profitability in traditional economics is 15–25%, while in innovation production and implementation it may reach from 45% up to 100%. Herewith, the risk related to producing and promoting the new technologies is from 70% to 95%. This enables to conclude that the high degree of capital accumulation of economic subjects affects the actual ability to finance innovation. For instance, while for an average Ukrainian investor 1 million dollars is a bundle, considering the existing investment risk, for a Western investor, with much larger hand-held capital, this is a relatively small amount of money, which he can afford to be invested in high-risk projects promising to find at least one of them, which is the breakthrough, with dozens or even hundreds percents of profitability and a chance to be the first in the new market.

The problem of investing into innovation is also related to the ineffective financial policy in the country. In the conditions of trading balance

shortage, instability of banking system, that has a low trust level of business and population, and uncontrolled inflation the state financial policy is based on the principles of economic austerity. Since private investors refused to invest in actual economy, the resources of international financial institutions are actively used in the country. As a result, the debt bondage of Ukraine is constantly growing. Its own debt obligations to the national investors are neutralized by inflation, and the debts to external creditors used for wasting only increase inflation. Meanwhile, the current situation in Ukraine should be considered, which, due to the political instability, is raising the risk of investment, that results in fall of purchase capacity of the national currency and growth in demand for the foreign currency. Owing to this, we can see the capital export from the country (10–11 billions of dollars per year) [16]. Furthermore, economic entities actively use a scheme of reducing the tax payments to the state budget, which is called “tax dumping” and is realized via the financial off-shore facilities. Thereby, the state under-receives real investment into the national economy, as well as loses subsequent taxes from unrealized business, which significantly worsen the economic situation and reduce opportunities for realizing social programs by state itself. So that the conclusion follows, that available national financial reserves of future investment are not involved on the internal market, and the borrowed funds are used ineffectively. It means that debt reduction may be achieved only on the basis of the model of economic growth, which through increased labour productivity allows to pay off with creditors in time, compensate the state's debts and give a boost necessary for economic development.

Considering the current situation in Ukraine, we can expect further technological backlog of our country and loss of opportunities for entering the world market with competitive products. While the state is entwined with business, performed by the oligarchic clans, it is impossible to adopt and use the mechanisms stimulating innovation development, in which the representatives of raw material companies are not interested.

In such cases it is advisable to refer to the global experience in state support for development and implementation of new technologies that will help increase labour productivity.

Thus, for example, in Finland the stimulation and support for innovation are based on three mechanisms. Firstly, all the universities of the country have the research status. In addition,

since 2010 they have been given concessions for equipment importation and opportunities for taking possession of immovable property, that shows the consolidation of total financial and research autonomy of the higher education institutions. A powerful tool for stimulating innovation is also the Finnish Funding Agency for Technology and Innovation TEKES, which coordinates the policy in the field of R&D by planning the financial costs. The annual budget of TEKES is almost 600 million euros. At about 40% of the assets are allocated to universities, and 60% – to private companies. And, finally, the third “whale” of innovation development in Finland is the National R&D Fund SITRA – an independent public foundation, which operates under the supervision of the Finnish Parliament. One of the SITRA's objectives is to organize the training of specialists in the field of corporate investment and to provide corporate financing to the technology companies at early stages of their development inclusive with the purpose of commercialization of innovations.

In France, the policy of supporting innovation is built on the combination of direct and indirect implementation methods. The direct financial support is provided as an interest-free loan for up to 5–6 years. Whereas, the loan is to be returned only if the project is successful. According to the experts, on average, between 40% and 50% of the loans provided are repaid. As a way of indirect support “tax holidays” are used, that is a temporary exemption from income tax or its partial lowering applied to the newly created small and medium scientific-research companies, with a reduction by 50% of the amount of income tax paid by them during the first five years of operation. If in the knowledge-intensive manufacturing sector the costs of research and development of new enterprises are higher than 15% of turnover, they are exempt from taxes for eight years. The accelerated depreciation is also applied to the most important types of equipment: energy-saving, ecological and informational. With a lifetime of equipment up to four years the depreciation rate is 1,5; five-six years – 2; more than six years – 2–2,5.

Israel's experience is also interesting, where innovation business is promoted by providing financial grants, tax benefits and rights for accelerated depreciation. The amount of the state grant is calculated as a proportion of the cost of land development for construction of industrial buildings and investment into the fixed capital (inclusive with construction and installation). Innovation enterprises also receive

tax benefits for seven years starting from the first year of earning taxable income by them.

Germany promotes innovations somewhat differently; a major role is assigned to the use of tax benefits. They may be of three kinds: the special rules of amortization deductions, the creation of reserves of a non-taxable profit and the investment surcharge paid by tax departments. Besides, with the beginning of the crisis, according to the high-technology development program, the KF banking group has merged with the BASF, Deutsche Telekom and Siemens industrial corporations into the high-technology fund of High-Tech Grunderfonde with the amount of capital of 272 million euros. The fund invests into new high-tech companies, which show promising results of research and plan to put them into production. Moreover, there exist a special program of the Ministry of Economics and Technology EXIST. It consists of three parts: "Enterprising Culture", "Start-Up Grants" and "Research Transfer". There are various programmes and areas of support for small and medium businesses in Germany. Particularly, Ministry of Science and Technology provides the companies with loans for new technologies from its own budget funds. They are used to buy the latest equipment (up to 60% of the amount) or to cover extra staff costs (up to 20% of the total costs under this heading).

As for Asian countries, they have achieved significant results in building industrially and technologically developed economics, first of all, due to focusing on promotion of innovation activity of enterprises and technological sophistication of industry. Particularly in China, the government promotes participation of the companies (regardless of their form of property) in development of technology parks. Enterprises operating in technology parks pay a profit tax of 15% of the fixed rate, while the companies, 70% of whose production is exported, pay 10%. The newly created enterprises are exempted from paying taxes for two years since the date of their registration. If the companies sell products on the external market they are exempted from paying export taxes.

**Conclusions and the further research outlook.** The global experience of innovative policy of the countries with the highest rate of innovation index (Finland, Israel, Germany being the "leaders", France being a "follower") gives an opportunity to conclude that without active intervention of the state in the development of innovative processes in the country, as well as without providing financial, legislative and

organisational assistance to the economic entities in manufacture, implementation and sale of new technologies, the transfer to the innovation model of development is basically impossible. It should be mentioned that in these countries, and in Asian countries as well, where the level of innovation development continues to grow, the economic mechanism with an active role of the state has been already in use for a long time.

Thus, the main reason preventing Ukraine from transferring to an active innovation policy is not the lack of funding, though it is undoubtedly of significant importance, but the absence of an economic mechanism, that not only does not stimulate investment in the development and implementation of innovation in production but, on the contrary, slows down the process. That is why it is not a question of modernising the economic mechanism but of fundamentally replacing it. Herewith, the use of flexible tax policy, accelerated depreciation, concessional lending of innovation activity and creation of state institutions coordinating the R&D policy are powerful incentives for implementation of new technologies, improvement of industrial engineering and innovative-investment policy in general. It is this policy that will increase the labour productivity and the profit rate to ensure investment efficiency even with the high level of inflation and the further depreciation of the national currency. And investing in raw material industries with the use of morally and physically worn-out core funds will not make a profit but, on the contrary, will result in corporate unprofitability.

Therefore, in our opinion, a transition to an economic mechanism, that stimulates an innovative development model, needs the following:

- to consolidate the innovative method as a strategic objective of development in the state program by establishing the mechanism of its implementation with resources to support it;
- public-private partnership for consolidation of the financial resources should be used to implement the priority scientific and technical programmes;
- budget funding, organization of the state lending for innovation activity, provision of state guarantees for loans attracted to the innovation sector and application of various tax incentives should be used to stimulate the development and implementation of new technologies;
- provision of tax credits for delaying the tax payments aimed at innovation purposes;

- establishment of the “tax holidays” on profits received from the implementation of innovation projects;
- creation of differentiated tax system considering the priority of innovation activity, etc.;
- to encourage the formation of venture funding companies by developing the state programmes aimed at risk reduction and loss compensation of the venture enterprises;
- to improve the state system for the protection of intellectual property rights and a mechanism to counteract the production and sale of fake and counterfeit products;
- to encourage the creation of innovation banks specialising in lending for the development and implementation of new technologies;
- to support the organization and management of partnership of state structures, scientific research institutes, higher education institutions and venture funds of small and medium businesses specialising in innovation activities;
- building innovation infrastructure (science park network, business incubators, technological development areas, agglomerates, clusters);
- to create information retrieval and specialized databases on progressive technologies and innovative developments that will allow the interested enterprises to find necessary technical solutions and potential partners quickly;
- to create the National innovation system as a complex of various institutes, which all together and each individually make their contribution to the creation and distribution of new technologies, thus, forming the basis that serves the state for formation and implementation of the policy affecting the innovation process, etc.

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