“Conditions of formation and stimulation of the activators of innovative development of Ukraine”

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CONDITIONS OF FORMATION AND STIMULATION OF THE ACTIVATORS OF INNOVATIVE DEVELOPMENT OF UKRAINE

Abstract

Western analysts are still pessimistic about the prospects of technological (innovative) business in Eastern Europe. Not only unsatisfactory domestic economic processes, but also the current global economic structural and industrial transformations are the factors of the decline and backlog in Ukraine. However, unfortunately there is no doctrine in Ukraine to overcome them.

The paper deals with the problems of regulation and stimulation of the innovation component of economic growth of enterprises, industries and regions through integrated use of all possible activators.

Transformational and overtaking economies are imposed to follow inertial growth strategy based on the ideology of neo-liberalism and market fundamentalism. A flexible and effective protectionist policy and state strategy to stimulate the growth of sectors are especially important.

The new government policy of economic growth of Ukraine should take into account that innovatization and intellectualization of macroeconomic processes are the defining vectors in a global terms. This new policy should integrate the concepts of innovatization and renewal innovation of industrial foundation of the country. "Falling out" of the process of intellectualization of economic life would mean the loss of even theoretical perspectives to catch up the leading countries of economic progress. The role of the state, its "hard" and "diffuse" institutions should be rethought in the process of the development of a modern market infrastructure and institutions of developed market relations in Ukraine. So the ways of state impact on socio-economic processes should be improved. Comprehensive incentive mechanisms such as activators of innovative processes are necessary to develop in the global competition and "global" fight against protectionism instead of clear policy prescriptions.

Keywords innovations, potential, activators, government regulation, evaluation, efficiency

JEL Classification E27, E60, O30

INTRODUCTION

The low competitiveness of production of Ukrainian economic sectors is one of the threats to the economic growth of Ukraine at present time. It is due to structural deformation, imperfect financial and economic policies, use of outdated technologies, depreciation of fixed assets. Economic national interest requires structural modernization and transformation of the economy despite the attempts of "global regulators" to consolidate a semi-raw appendage niche to Ukraine from the leading countries of economic progress and to consolidate the role of permanent catch-up economy. Neither the role of market mechanisms nor the role of effective state regulation of the conditions of use of country's resources cannot be underestimated with this modernization transformation. In the new environment of increased "globalization pressure", various problems of state regulation and stimulation of innovative components of economic growth of enterprises, industries and regions through integrated use of all possible activators require detailed consideration.

1. LITERATURE REVIEW

Problems in the theory and practice of regulating the gradual innovation development are thoroughly discussed in the works of leading scientists and classic economic thought, including Freeman (1987), Sharif (2005), Nelson (1993), Schumpeter (1954), Edquist (1997).

In his works, Sharif investigates that technological innovation is one of the factors which contributes to economic development, forging ties between science and business in a rapidly changing global environment. His chief research interests lie in understanding how contemporary systems of innovation have been created and developed, focusing in particular on innovation in Hong Kong, as this historically important center of trade and financial activity repositions itself in new regional and global alignments of resources and markets. By showing scholars and business leaders how the current system has been shaped by their past collaborations, he hopes to help them see how they can move forward most successfully. His work falls into three main areas of interest: the development of Hong Kong's system, emergence of the innovation systems approach and business and economic history of technology and the sociology of technology.

In his writings, Nelson identifies sustained technological innovation and a diverse range of often industry-specific institutional structures as the key engines of economic growth.

Ukrainian authors are actively investigating various aspects of innovative development of the national economy, including Lipych, Bortnik, Tovsteniuk, Kchilycha, Kushnir (2017), Frolov, Hovorun, and Ostapenko (2017), Vovchak and Rudevska (2016). Their scientific interests include prospects for the innovative development of information technology in Ukraine during economic crisis, bank crediting of enterprises' innovation activity in Ukraine and prospects for the introduction of innovations by agricultural enterprises in Ukraine.

Nowadays, there is a prepared basic system of categories, models and concepts described in the economic literature about innovative development. First of all, we should pay attention to the concept of National Innovation System (NIS). The origins of the concept are founded in the works of Christopher Freemen, John Clark. In 1970, Freemen and Clark investigated the new technological systems and their impact on economic changes. In parallel, Davis, Romeo, and Mansfield have been studying the problems of diffusion of innovations in the areas of production. The "second circle" of the information and semantic helix growth of innovation systems and the crystallization of NIS content is formed by Nelson (1993), Freemen (1974), and Lundvall (1992).

2. UNSOLVED ASPECTS OF THE PROBLEM

The analysis of the points of view of the aforementioned scientists shows that the relation to the concept of NIS depends on the "national economic position" of the researcher`s homeland. Swedish and Danish economists consider the problem of innovative development of the economic sectors of their own countries as a whole complex is the primary important thing. And those economists who are more focused on transnational corporations, especially consider the importance of supranational, regional and sectoral innovation systems. And, for example, Edquist believes that it is inappropriate to be limited by the NIS scope and therefore he introduces the concept of systems of innovations. Based on the needs of analysis, we can assume that innovative systems can be represented in the regions, sectors of economy, can also be supranational (Edquist, 1997). The thesis of Lundvall is important in the context of our study. This thesis is about that the choice of a level of analysis must be justified by the goals of researcher, as a fruitful result can be directed to all levels of the economy (Lundvall, 2002). It is important that all researchers of "macro" innovation systems agree that the form, content, role and direction of IS depend on the historical development and the economic situation of a particular country. In this regard, it is topical to research and improve the concepts of innovation systems to develop the concept of activators of stimulating the innovation processes in the transforming economy. The applicability of elements of the experience of European countries in the formation of mechanisms to overcome structural and sectoral disparities and factors backlog also needs a further study.

The aim of the paper is to investigate the modern priorities of the economic growth gross on the basis of innovations and research conditions and requirements of development and stimulating the activators of innovative development of industry.

3. METHODOLOGY

The content of this study, scientific findings, conclusion and recommendations are based on the broad application of the systematic approach to the study of the phenomena. The proposed work demonstrates a thorough study of scientific works of domestic and foreign scientists devoted to the conditions of formation and stimulation of activators of an effective mechanism of management of innovation development in accordance with modern transformations in the economy of our country.

An adequate measure of the validity of the scientific statements, the correctness of the statement of scientific and practical tasks, conclusion and recommendations contained in this study is confirmed by the widespread use of modern methods of research, in particular, the abstract-logical method; dialectical logic, analysis, expert evaluation, etc.

The application of these methods allowed the authors to analyze the conditions of influence on the substantiation and specification of the main provisions of innovation development and to determine the conditions for the formation and stimulation of activators of innovation development.

Consequently, the theoretical positions and methodological approaches to the formation and stimulation of the activators of innovation development in Ukraine, which contain a set of provisions on the nature and research of this process in accordance with the innovative model of economic reforms predetermine the novelty of this article.

4. THE MAIN RESULTS OF THE STUDY

The economic development of advanced capitalist countries at the present stage of interaction of market, technology and economy is due to skillful formation and use of innovative policy of economic agents of different scales such as firms, corporations, alliances based on industry characteristics, general industry interests, market infrastructure and non-market institutions. Despite the dominant declaration of "commitment-loyalty" to the fundamental principles of market liberalism, the developed capitalist states form both market mechanisms and non-market institutions of stimulating the innovative development of their economies (e.g., Silicon Valley of USA). The strategy of inertial development which is based on the ideology of neo-liberalism and market fundamentalism in the spirit of the Washington consensus is imposed to transformational and catching types of economies. Western experts in their recipes of how Ukraine has to go out of transformation crisis convince in the omnipotence of the market with the passive role of the state. They convince of the need for refusal of state institutions and public sector to perform their strategic and innovative functions. This leads to uncontrolled and non-competitive opening of the economy to multinational corporations that are able to use Ukraine as a source of energy and raw materials and as an outlet for its high value products.

In this regard, at the current stage of global competition, a flexible and effective protectionist policy and a state strategy to stimulate growth sectors are particularly important. The strategy must include the definition of prioritization and conceptual basis of innovative development of the country, formation of the legal framework for relations between state institutions and innovation-active entrepreneurs, use of direct and indirect methods of the management of innovation activities and for its activation.

The new government policy of the economic growth of Ukraine should not only take into account the fact that innovatization and intellectualization of macroeconomic processes are the determining vectors in a global measurement. It should integrate the concepts of innovatization and innovation renewal of industrial base of the country to the foundation content of the activity of the Government, Parliament, President. Indeed, thanks to modern processes of changing the values and the value of the industrial potential of the country, there takes place a thorough conversion of productive forces and value orientations of economic entities.

The new government policy of economic growth must come from the fact that in the modern world in terms of global regulators, only a country with an active informational, technical, technological, innovative and industrial policies is able to take a profitable in economic terms position on the basis of competitive goods production. It is caused by the change of quality characteristics and features of specialization, which turns from detailed to functionally substantive (Kindzersky, 2013). The globalization of market spaces, considering the multiple nature of unequal markets, carries significant threats, causing separation of states to the "center of civilization" and "peripheral zone", deepening their differentiation in socio-economic and scientific and technical development (Lukyanenko, 2008, p. 324). Countries which are not able to be included in the manufacturing process of producing new forms and content of value risk have to disappear as independent economic agents and political actors.

The compliance of the world's economic leading countries with this doctrine encourages updating the formation of factors of economic progress. It also provides high quality for products and, hence, enhances economic growth. "Falling out" of the intellectualization process of economic life, the outsider in economic development will mean the loss of even theoretical perspectives to catch up the economic leading countries.

In the early 21st century, there is a change of industrial foundation of economic growth and distribution of post-industrial production networks. Ukraine has faced the necessity of abandoning the "catching up innovation development" model which is based on the prevalence of sectors which export raw materials and low-tech products. Preferentially national economy and society must strive for innovative development model, related with involving achievements of world and domestic science, widespread implementation of innovations in various spheres of social life, that is, to the heights of civilization and innovation development.

The tempo of scientific and technological progress is determined on the basis of the statistical application of the Cobb-Douglas production function and suggests that the dynamics of labor and capital costs, at the same time, even changes in their ratio do not explain the adequately estimated statistical features of the macroeconomic dynamics of economic growth, since such an excess has been explained by Tinbergen, regardless of labor and capital, as the third factor of production. This surplus, called the "remainder of Solow", which is equal to the difference between the magnitude of the growth of output and the magnitude of the growth of capital and labor costs, serves as a measure of ignorance of the causes of economic growth. This is due to the influence of exogenous factors, namely fundamental innovations, organizational and managerial, scientific and technological innovation processes.

The main indicators of innovation development and the importance of their stimulants are grouped in Table 1.

However, the Ukrainian system of governance and macroeconomic management are not always operating in the adequate response mode to the civilization dialectic of radical qualitative changes. It is not yet configured to respond to the challenges of the global innovation economy development. And it happens despite the fact that Western analysts are still pessimistic about the prospects of technological (innovative) business in Eastern Europe. They note that this prevents the following disadvantages:

- absence of business infrastructure;
- lack of entrepreneurial talent and experience;
- weakness of managerial and entrepreneurial "know-how" (in marketing, finance, strategic and business forecasting);
- uncertainty of ownership for property and non-property assets;
- excessive variable tax system, import-export and foreign exchange restrictions;
- restrictions on foreign ownership of companies;
- environmental issues (environmental pollution) and problems with basic infrastructure (transport, energy, communications) (Nelson, 1993, p. 28).

Table 1. Characteristics of component indicators of innovation development

No	Indicator and its essence	Characteristic values of stimulants					
	Indicators-stimulants	Xcritical	Xdangerous	Xsatisfactory	Xbottom optimum	Xoptimal	Xtop optimal
1	The share of high-tech products in the total volume of industrial products sold, %	3	5	10	15	18	20
2	Level of expenditures for scientific and technical work, % of GDP	0.7	0.9	1.0	1.3	2.0	3,0
3	Level of innovation financing, % of GDP	0.5	0.8	1.0	1.5	2.0	3.0
4	Share of enterprises that implemented innovations in the total number of industrial enterprises, %	8.0	9.0	12.0	15.0	17.0	20.0
5	Share of realized innovative products in the volume of industry, %	3.0	5.0	6.0	7.0	9.0	10.0
6	The pace of scientific and technological progress, %	–2,0	0.0	1.0	1.5	2.0	3.0

Of course, the first reason for the slow technological upgrading of industry, agricultural sector, service sector and the slow upgrading of the development of research and development work in Ukraine is corruption of government officials and businessmen greed. The dominance of the liberal concept of "economies of personal capital consumption" by the latest Ukrainian oligarchs who "pressed out the wealth from the people owing to socially and economically inefficient manipulative "liberal" privatization worsens the situation. The lag factor is their inability and unwillingness to transform the wealth to manufacturing capital. Additional lag factor is the lack of economic patriotism of modern Ukrainian oligarchs.

Poor domestic economic processes are not the only factors of our decline and backlog. But also the current structural and sectoral transformation of the global economy is the factor of decline and backlog. It forms from the position of perspectives an ambiguous for our country "cyclically-crisis" process of double exposure. On the one hand, in the EU, there takes place a gradual recovery from the crisis. This crisis is caused by a ridge of economic and financial crises of 1998–2012, primarily by expanding the influences of modern technological way to prioritize economic development. Some old sectors are also exposed to recovery, e.g., partial modernization is going on, which is based on a new technological way. The demand for energy and raw materials is also growing. On the other hand, the quality and "power" of competition for consumers are increasing. However, after a rise in 2012–2013, the in 2016 demand for the main groups of energy decreased. In general the demand for steel products remains on a low level that reduces the GDP of Ukraine. This indicates that the new conditions of post-modern productproduction require quality improvement offered by metallurgy, manufacturing and engineering. It is necessary and appropriate to improve production quality, even if it applies to the production of previous technology generation. But providing such an improvement requires a new industrial policy. A technology formation in the focus of the latest achievements of technological structures and even more so requires a very effective industrial policy.

These shortcomings are compounded by the problems of the transition period, that is:

- public and private sectors do not trust each other;
- privatization and social support systems take away all possible state resources which are already actively "shared" by corporate clans of public officials;
- the financial sector is just beginning to develop as a civilized one, and Western capital is very cautious regarding investments, through uncertain political and economic situation;
- there is a distorted idea of entrepreneurship, which is often confused with trade, speculations and mentality of "quick buck";
- there is a messianic belief that the West will stand surety and will invest a lot;

- there is a fear of suppressing the entrepreneurship because of the political instability (Schumpeter, 1954, p. 76).

These specified problems are relevant for Ukraine during the whole period of its independence and, unfortunately, there is a doctrine to overcome them. Moreover, there is no systematic approach to form the foundations of this doctrine. In fact, a part of foundations of this doctrine must be based on the experience of leading countries of capitalist development in post-industrial technological economic world. But it will take into account such new economic phenomena.

At the current stage, global technological processes of transformation in material production in leading countries (and in leading companies) which are provided by an immediate access to the requested capitals "directly" and without delay (delay lag of a few hours or days) are reflected in the intellectual sphere by specialists who are connected with their research infrastructure systems and networks. Over time, technological and transformational challenges gradually penetrate into the academic and university research. Conversely, transformation and modification of potential and achievements of science are reflected in the material production sphere with a certain time lag (in months). The pace of science and technology, life cycle lag of inventing a technical sample and common technological solution in Schumpeter times was measured in tens of years. The process of technological growth of the production quality level in the early 20th century relatively slowly (linearly) took place according to the Schumpeter`s innovation theory. Schumpeter`s innovation theory is a model of linear economic growth owing to separate gradual introduction of innovation factors in business practices (Schumpeter, 1954).

Nowadays, the pace and practice of economic, scientific and technological motion also have changed cybernetic, i.e., technological and entrepreneurial innovations nonlinearly quickly mutually generate new economic practice in all progressive areas of structural transformation of industries. This should be considered already in the formulation of mechanisms of implementation of structural policies and industrial competition in terms of economic freedom of free trade area between Ukraine and the EU.

The data in the Table 2 show us the presence of the inverse link between the emergence of innovative products, technologies and the innovatization level of economic development. We can clearly track the reduction of time lag from 56 years in 1820 to six months in our time.

The developers of the specific content component of interstate trade policy and industrial development policy of Ukraine should agree these strategies primarily among each other and coordinate the vision of the future positions of the national economy in two, five, ten, twenty-five years ahead in the future. Herewith, they should take into account nonlinear features of the requirements of modern innovative economic development. It is necessary to move away from the endless talk about innovation and to deviate from expectations of "automatic" return of the Schumpeter linear model of innovation and associated practice of straight interpretation of the

Table 2. The time interval between the invention and its implementation

Source: Sedlyar (2012, p. 63).

Product	Discovery	Practical implementation	Interval (in years)
Phone	1820	1876	56
Radio	1867	1902	35
Television	1907	1945	38
Radar	1925	1938	13
Atomic bomb	1939	1945	6
Computer with memory	1945	1949	4
Microprocessor	1968	1969	2
Internet	1969	1971	3
Personal computer	1972	1974	2
Mobile phone (first generation)	1973	1979	6
Smartphone	October 1992	Beginning of 1994	1.5

content of market liberalism (Schumpeter, 1954). In particular, we must note that the market mechanism in the era of large multinational businesses is a mutually fruitful interaction of oligopoly, monopoly and competition forces.

The market mechanism for the leading countries is a set of regulators, policies and practices provided by a controlled global financial system and international regulatory institutions and the volume of their capital. The processes of obtaining the benefits of competition in the controlled markets are based on received innovations and as a result of competition and partnership through the formation of production chains. It should be noted that the liberal economic doctrine is productive for firms of technologically advanced countries as residents. The liberal doctrine for these firms (especially for TNC) is a protective sheath of disparity formation in prices in multiple markets from a position of higher (advanced, special) economic status of TNC and leading countries. Unfortunately, the Kremlin rulers who claim to global leadership also understand partnership only as aggression and acquisition, which limits the horizon of alternative economic policy of Ukraine.

In terms of "bilateral compression" freedom of maneuver of economic space of Ukraine, it is necessary to accelerate the growth of the effective degree of difficulty of this space especially in forms of real economy content. The level of effective complexity of the economy is formed by the coordination of innovatization of a complexity of technological layers of industrial base and by marketing efficiency of the current composition of technological structures. The effectiveness of the complexity of the economy is due to the harmony for the requirements of economic growth composition of heuristic and imitating innovations.

Heuristic innovation is a new knowledge which is materialized in organizational or technological carriers and does not have directly close analogues on the earlier stages of civilization evolution of production, economy, science and culture. Imitating innovations are a dyadic opposite of heuristic innovations. Imitating innovations are based on copying or imitating the best practices of industry leaders. The expansion from this dyad to the innovative triad takes place by the formation of basic innovations. The basic innovations are actually imitating innovations with a "handicraft heuristic" adaptation to the content of concrete industrial base.

Heuristic innovations for Ukrainian industries and businesses are still a quite rare phenomenon. Businesses have to pay attention primarily to the copying and imitating innovative borrowings. But these borrowings also are often diversified to basic (in lagging industrial base) and auxiliary (in the auxiliary for the base production segments to simulate imitations). Since heuristic innovation is a resource for us, then the innovative strategy of Ukrainian enterprises at the current development of the country should also be focused on mastering basic innovations. This ultimately will gradually let us move to the new technology and commodity structure of production and ensure the competitiveness of enterprises on the domestic and foreign markets. However, the position of the owners (managers) of enterprises about economic expediency of attracting "improving" and "pseudo innovations" (simulate imitations) in Ukraine is strong enough. The fact that there was a wrong tradition by which wring the last ten years about 20% of companies have opted for a "basic product" innovations and about 12% of companies have opted for "basic process" innovations; about 25% of companies have selected "improving product" innovations and about 15% of companies have selected "improving process" innovations; 19.5% of companies preferred pseudo innovation (Conrad, 2005, p. 25). But it only preserves the position of catching up type of modernization of sectors and industries of the national economy.

Keep in mind that for Ukrainian industry, the coexistence of three "economically basic" technological structures simultaneously for several decades is typical. To "jump" through technological structure is almost unreal for many industry sectors independently without external triggers. There is no required scientific basis, innovative products and the investment itself. So the basic innovations and innovations of new technological structure for Ukrainian industry are not synonymous, because there is no heuristic innovation.

Innovative industrial strategy has the following features.

Firstly, the benefits of basic product innovations to the basic process innovations economy fully comply with specifics of the economy in transit on period. Exactly under the influence of market demand, a breakthrough towards a new technological development model begins with the basic product innovations that later "pull" the entire a technological basis of the production.

Secondly, the prevalence of "pseudo innovations" leads to the accumulation of both morally and physically obsolete capital and hence to diversion of significant financial resources.

Thirdly, the high rating of "improving" basic innovation is not typical for the economy in transit on period. The flow of "improving" innovations is growing at a stage of economic growth. In modern Ukrainian conditions, these innovations are aimed mainly at improving the existing production base. Therefore, this type of innovation is seen as also "preserves" financial resources and weakens prospects of "basic" innovation (Frolov, Hovorun, & Ostapenko, 2017, p. 56). And it does not form the basis for the birth of heuristic innovation as a domestic product.

The difficulty of forming the basis for development of heuristic and even basic imitating innovations is due to the fact that the market and product strategy of industries are mutually intertwined and cause a complement to each other. Most of the companies mastered product innovations for saving the positions in the domestic market, which is connected with the competition. However, a significant part of the business is focused on active foreign market strategy. In engineering, despite the unfavorable investment climate, about 30% of companies introduce product innovations for the entering to foreign markets. But this is a forced reaction and not anticipating innovative policy.

The technology strategy of industries at the present time plays a special role. Around 14% of companies have implemented a strategy of transition to new technology structure in the production which ensures the production of basic products. More than half of the industry observed a strategy of basic process point innovations. The part of improving process innovations was significant that is the improvement of existing technologies without changing the technological principles and decisions on which the production is based. The part of companies that have implemented pseudo innovations is high in all sectors and varies from 65% to 12%. Throughout the country, there is a process of accumulation of morally obsolete equipment and most of the money is spent on its maintenance in a capable condition (Frolov, Hovorun, & Ostapenko, 2017, p. 59).

When developing installations of industrial policy which are focused on the formation of basics of heuristic innovation origin and on the broad use of basic innovations, it is needed in the triad of society, business and government mentality to learn that nowadays an effective competition should be implemented as a dynamic competition. Dynamic competition cannot be realized as inertial strategy. It should be a proactive strategy on certain detailed directions. Dynamic competition operates on: 1) reducing production costs through innovations; 2) improving the quality of products through innovations; 3) forming a network of product and brand loyalty. The best conditions for the implementation of this new type of competition often create only those countries and firms (usually TNC), which "immediately" use technical and organizational innovations and create a promotion network.

Activator theoretical concept "theoretically solved" the problem of interaction of innovation process and obtaining competitive advantages as the primary outcome of the innovation process. It is known as Nonaka and Takeuchi model (Lipych, Bortnik, Tovsteniuk, Kchilycha, & Kushnir, 2017, p. 58). The scheme of interaction is the following: knowledge creating – continuous innovations – competitive advantages. In this model, the interaction between knowledge and innovations is represented as a process in which knowledge originally produced or purchased and then it is used, resulting in innovation and competitive advantages. The role of human capital is significant in this scheme.

In the domestic economy, the scientific research institutes have almost disappeared. The role of structural units of the National Academy of

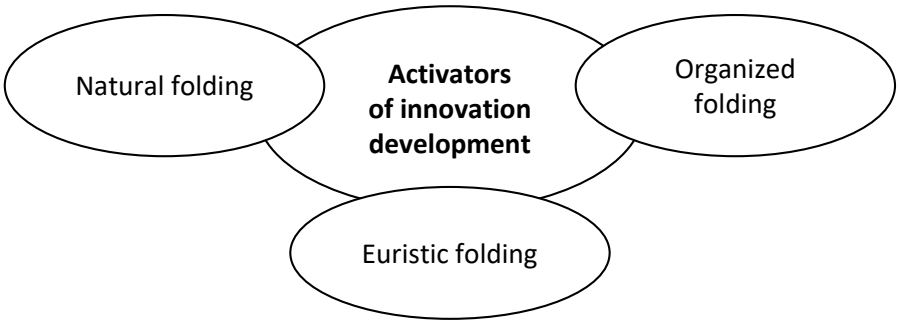

Figure 1. Areas, where activators of innovation development are arise

Sciences of Ukraine is transforming. Universities and companies (corporations) come out to the front of innovative competition. In these conditions, the role of state institutions should exponentially fast increase in the formation of the space of commercialization and mastering all types of innovation. In this situation, it is advisable to draw on the Nonaka and Takeuchi model. Local projects such as industrial parks and free economic zones are neccessary.

To manage innovation, it is important to use the fact that in the space of complexity of knowledge and business activity there is a local area of intersection of formalized, unformalized, chaotic and unmanifest, relevant knowledge. Relevant knowledge "pulsates" on the brink of form and chaos due to the possibility of crossing the cognitive channels of interaction between the internal and external environment of communication-flows to the organization's auto-drive. The "materialization" of the identified relevant knowledge most often occurs as an autocatalytic reaction as a result of the "addition" of activators to the mixture. That is, the management of the innovation process as a necessity must contain two components: a component of directively deterministic management of resources and knowledge, as well as a component of updating and activating the zone of knowledge bifurcation.

We suggest that this duality be solved on the basis of the activator model of generation of bases for the formation of the triad "invention-innovation-commercialization".

The activator is a multivalued word of a technological nature. It becomes at the present stage in demand in connection with the development of the paradigm of social technologies. For our case, the nearest semantic meaning of this word is the value adopted in describing the factors of luminescence enhancement: the material factors that contribute to the glow process.

We define for business processes and business: an activator is a process, an aggregate, mechanism or system that, through its existence, causes (catalyzes) a qualitative growth in the activity of the underlying business process.

The activator of innovations is a process, information carrier and a group of people with organizational knowledge about the needs and prospects of the benefits and benefits of operating innovations that are interested in the innovative development of the organization. The activator of innovations arises at the junction of the three areas (forms, organization and classes) of complexity presented in Figure 1.

Activators are not only intermediaries, that is, something like a Regional Development Agency or the National Investment Council or the Ministry of Economy. This is, first of all, dispatchers and regulators. But component of the regulator can become an activator.

The business innovation activator is a network of environments with autopoietic dimensions. Autopoiesis means the capacity for self-reproduction of form and content. The activator model of reproduction of the innovative content of business processes provides for an autopoietic field of dual virtual-real networks of communicator-communications-information carriers.

An autonomic network of communicators and communications becomes a layer of the business environment and begins to function as an activa-

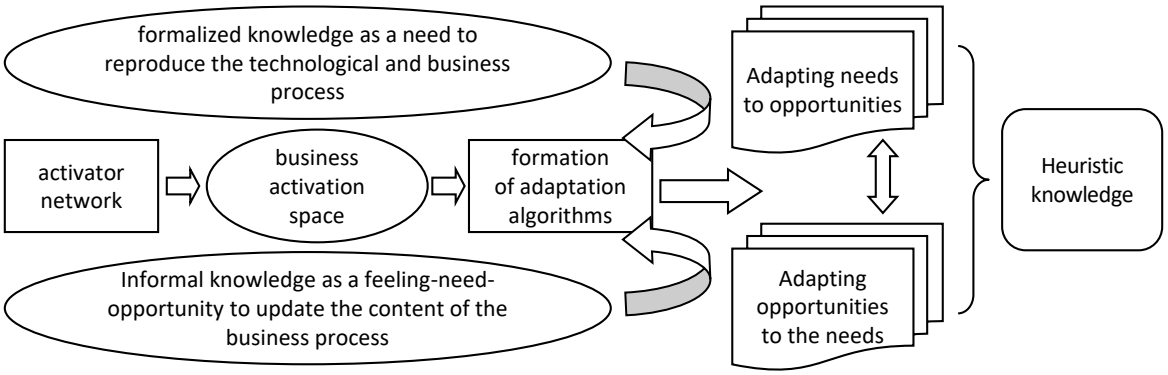

Figure 2. Innovation-production cycle of the activator of innovative development

tor. There is an innovation-production cycle, presented in Figure 2.

So, according to Figure 2, there is an innovation-production cycle: activator network – business activation space – formalized knowledge as the need to reproduce the technological and business process informal knowledge as a feeling-need-opportunity to update the content of the business process – the formation on the basis of a combination of formalized and non-formalized knowledge of adaptation algorithms of needs with opportunities and opportunities with needs – "generating" euristic knowledge due to the forecast horizon as needed call-call. These axes constitute a complex space of innovative business capabilities of knowledge – the commercialization of knowledge – the production of a tangible product (service).

CONCLUSION

Thus, innovative model of development is the latest example of changes in society, which includes the active use of innovative knowledge and their subsequent conversion to innovation. The above showed paradigm is directed at changing the ideology of a business organization at the micro and macro level. Innovative development improves competitiveness and intellectual potential of the national economy as it is directly connected with modernization and transformation of existing industries. The use of scientific achievements, heuristic innovations (as a fundamental factor of production) and investment into development of intellectual capital should be systematically and with a concrete target.

Ukrainian firms and corporations allocate less capital for scientific and technological developments and start-ups than the developed capitalist countries. This tradition comes from the centralized planned and directive economy. State institutions must find offsetting mechanisms and complex and mixed public-targeted and commercialized activators of the formation of innovative sources of industrial development.

The effective structural and industrial policy which will activate the origin heuristic and basic innovation can only function in a competitive business environment free of corruption, collusion of politicians, oligarchs and free of raiding. But it should be at reasonable protectionist technological shell. The activator concept of such shell should be immediately formed through the National Reforms Counciland the National Investment Council.

In general, on the base of rejection of the past-oriented concept of pseudo-liberal market fundamentalism in the process of building a modern market infrastructure and institutions of developed market relations in Ukraine there should be rethought again the role of the state, its "hard" and "diffuse" insti-

tutions. On this dialectical unity of market and institutional regulators, activators and stimulants there must be improved the ways of "internal market" self-organizational impact on the socio-economic processes such partners as society-state-business-science. In the time of global competition and "global" fight against protectionism instead of legislative prescriptions it is necessary to develop comprehensive incentive mechanisms which known as activators of innovative processes. The state should create conditions and procedures at which domestic business gradually becomes an active consumer (and customer in the future) of inventions and innovation developments of local universities.

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