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DEVELOPMENT OF INFORMATION ECONOMY IN THE AGE OF GLOBALIZATION

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“Information economy” is a concept which can be applied to modern economy and this concept characterizes it in the broad sense as “new economy” of global information society in which market space of world-wide scale is being formed thanks to information-communication technologies. Information is a key factor and a product of manufacturing and information shortcomings of market mechanism at the microlevel influence establishing macroeconomic stability. In the narrow sense of the word it is economy of information benefits and information-communication technologies. In other words, it includes producing, distribution, consuming information benefits as well as a sphere of applying information-communication technologies.

As R. Boyer says, “information economy comprises information and technology cooperating with it and also all operations which make it possible to transfer and store binary data in a physical format”. [1, 130]

Information benefits are considered the benefits which can be presented in a digital form. Such broad definition of information benefits is shared by most economists. Actually everything that can be presented in a digital form coded in bit streams is information.”. K. Shapiro and H. Varian stress. [2, 3]

In spite of the fact that knowledge always was and is a motor of social-economic development it is the modern economy which has the right to be called “economy based on knowledge” because this role of knowledge was based on a new platform which information-communication technologies form. Unlike all technologies achievements of the past they have direct relation to knowledge producing, to its fast and efficient expansion and effective use. “The critical point in knowledge economy is not just to make new knowledge but to use it efficiently”³, A. Aristanbekova says. [2, 31]

This can be realized thanks to the following components of “economy based on knowledge” to which the World Bank’s experts pay attention:

- education and learning (educated and professionally- trained population available which is able to produce, to distribute and to use knowledge);
- dynamic innovation structure (resources providing communications, distribution and information processing);
- economic motivations and institutional mode (general economic environment promoting free circulation of knowledge, implementing information-communication technologies and developing business activity).

Modern period in developing human civilization can be called a period of global information society in which economic activity takes place in international market scale. It has been formed under the influence of information revolution and the process of globalization that has

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been the most clearly manifested just in economic sphere. Information revolution starting in 1950-1970s gave as its result constantly increasing expansion of information-communication technologies the need in which can be explained by transforming knowledge into a key factor of production as well as the demand (in connection with this) to produce, to store, to transfer enormous data masses. Information-communication technologies, in turn, became a necessary condition and accelerator of globalization process dramatically decreasing transportation and connection costs, thus allowing economic agents to enter network structures, giving possibilities for electronic methods of running business, boosting the process of technologies and scientific research internationalization and opening new prospects for fulfilling human resources in a global scale.

Economy of global information society is an information type of economy in which the role of information as a resource is very big. A sector of producing information benefits and communication technologies is one of the most fast growing and information imperfections of market mechanism influence economic stability chances. One of its main features is information nature of a large part of nations' wealth which is manifested both in explicit and implicit forms. The wealth whose information nature appears in explicit form actually consists of information benefits, i.e. benefits which can be presented in a digital form as computer programmes, films, musical pieces, books and so on. In its implicit form information nature of modern society's wealth is manifested in all the products manufacturing of which can be called knowledge-intensive because it demands involving both implicit and explicit pieces of knowledge having information form. It is clear that a considerable part of benefits produced in different branches of economy can be referred to these products.

Information revolution started in developed countries in 1950-1970s of the twentieth century. It was connected with creating and expansion of information-communication technologies. Need in technologies with the help of which it can be possible to produce, process, store and transfer enormous data masses appeared as a result of theoretical knowledge transformation into a key source of innovations. It became one of the signs of a new post-industrial society as a new stage in human history.

Post-industrial period in developing world civilization is connected with appearing numerous problems of global character which can deeply influence all the aspects of world system organization.

It seems rather clear that real process of civilization development in average – and in long term will be dramatically determined by the results of world system transfer to a new post-industrial social-economic form of 21 century – to information society. [4, 5] Intensive process of global information-telecommunication environment formation actually opens new opportunities in different spheres of social-economic activities of a human being and brings to formation of economy system of a new type - “information (network) economy”. This economy is based upon more intensive use of intellectual and information potentials of a society as a main renewable resource of its stable development that provides dramatic increase of its efficiency in comparison with material manufacturing of industrial society.

Orientation to use intelligence, knowledge and highly effective technologies as the main resource of civilization development gives necessary premises for its stable development and transfer to practical fulfillment of noosphere paradigm. A society which is able to use individual ideas of people for growing possibilities of a society as whole and which can use growing opportunities of itself to form a person who can again generate new ideas will have the fastest rate of growth of its possibilities.

Extraordinary changes in technologies and technique leading to intensive knowledge growth provide deep transformation of categories in which a human being interprets all the processes

at work and produces new ideas. And this, in its turn, brings to transformation of general production and social structures forming as a result of organizational cooperations of capital flows, information and technologies.

Industrial differentiation of labor which characterizes high-tech industry is transferring into global connection between information environments, centres of high-skilled production and control centres. This leads to globalization of information economy and displacement from it uncompetitive segments as a result of transforming material and financial flows' cooperation. Thus, in the conditions of intensive development of telecommunication connections one dominant segments of developed countries' economies will integrate into global economic system and the others will increase their isolation from the processes of accumulation and consumption.

In researchers' opinion, "material and financial flows will as if "bypass" noncompetitive regions and economy segments". [5, 6] At the same time information component of reproduction process will become the base of prosperity of leading countries and their dominating position in the world strengthening information inequality of not so competitive countries.

That is why intensive development of new information and telecommunication technologies and globalization of economy will encourage growth of asymmetry between countries and regions. As on the global market distribution of profits is determined by a level of profitability economic factors themselves will start reproducing and even increasing social-economic inequality of economically developed and developing countries. Deeper inequality, in its turn, will lead to decreasing rates of consumption of education and medical care, living standards' decrease in these regions, mortality rate increase and so on. All this will stimulate globalization of instability in the world.

Thus, a new economy system will be high-dynamic, high-chosen and high-stable, but at the same time will lead to the growth of economic inequality and instability of "weaker" countries in the conditions of economic globalization. And this, in its turn, will become a potential source of various conflicts. This factor should be taken into consideration while developing strategies of stable growth of civilization in the conditions of building information society and its economic system.

In the conditions of revolution communication technologies play a critical role in practically any economic activity which is connected with information and its storing, processing and transferring. Thanks to the Internet as a product of information revolution functioning economy in real-time mode became possible and this boosted, simplified and increased volumes of financial operations, international commerce flows, dramatically decreased the costs of intercompany and incompany communications. Because of the influence of information technologies changes in manufacturing and products occur. They are the following:

- products of many modern industries become more information-intensive and demand for their producing less traditional kinds of raw material, materials and energy that, in its turn, in combination with progressively growing demands to human resources' skills encourages high-tech industries development near the main markets of their products' sales – not near the sources of raw material;

- the goal of production is not to produce standardizing products in mass volumes but to produce individualized goods in small consignments. It can be done on the basis of production flexibility adaptive to operational readjustment and thanks to broad application of automation and electronics;

- global scales of sales market of production make the problem of competitiveness of innovations and goods' quality quite actual. This, in its turn, makes modern production innovative.

In the period of information economy dynamic combination of automation processes and

integration of economic activity has formed thanks to networks which expanded as a model of business organization and a method of managing it as well as a principal of building intercompany cooperation.[6, 8]

Network structures based upon horizontal interconnections create synergetic effect stimulating creative cooperation of internet links. The main advantages of a network form are creativity, flexibility and multiplicative effect. Before modern information technologies appeared this kind of cooperation could be reached mostly through personal communication that limited sizes of new structures. Information revolution allowed critically broadening scales of net cooperation, giving it transnational and even global character. Networks became a frame of globalization.

Turning Russian economy into “knowledge economy” will demand different quality of Russian cities which must compete in order to attract creatively thinking group of people to their areas. The places of innovation growth for building a new model of economy and for aligning living standard of Russian population will theoretically need all around the country. It has a strategic meaning for the nation but in a near-term prospect – for about a period of 10-15 years – but the most suitable places for creating innovation industries will be probably in big industrial cities.

The point is how they cannot fail in trust if they practically depleted their technological resources. That is the question, in our opinion. It is no wonder that even from big cities there is a massive outflow of intellectual elite to Moscow, St.Petersburg, abroad and the crisis just aggravated the situation. Talented people – researchers, engineers -that big human capital with which the nation connects its hopes for innovation way of development do not want to stay in industrial cities with bad ecology, poor criminal situation and weak communication infrastructure. They need the other environment, the other culture-information space which cannot be compensated with apartments and roads. Perhaps because of this it will be necessary to build environment for generation of innovators in some other “second-best” places. As a rule they are near big industrial centres but unlike them they are more clean, calm and compact.

For example, in some regions of Russia - in Rostov, Leningrad and Tomsk regions - there is already some experience how a state should build new environment for people with high-skilled competence. For example, in Tomsk region there are three universities with 150 thousand students, 11 research institutions with 400 science-intensive plants and totally built innovation infrastructure starting from business-incubators and techno parks for growing and commercializing advanced scientific ideas to special ultramodern techno implementing zone with privileged tax, customs, administrative modes. In this region there are already 45 residents who produce different kinds of innovation nana-, bio-, tele- multiproduction. Main consumers of it are such branches as medical care, communication, agrocomplex.

Innovation is such a tree which cannot grow in common soil that is why not all Russian regions can make a claim for starting developing their own “Silicon Valleys” from scratch, without science and human capitals and innovation business. That is why the government must determine the criteria of innovation potential of Russian areas in order to include them into the system of region rating for getting top-priority state support. In fact, just those regions which have at least some basic universities and research institutions can compete for the right to be considered as innovation areas because only these scientific establishments can create special innovation zone of vacuum absorbing of progressive ideas.

In its turn, these areas will attract innovation companies from neighboring territories. To make a region promote innovation companies it is necessary to critically revise tax and budget systems. At present regional budgets are formed also at the expense of plant property taxes. It

is of no sense to compare in the context of tax filing of budget big industrial plants with their large means of production with innovation companies which have in their disposal just ultra-modern computers. It is also necessary to evaluate differently budget tax revenues from innovation plants. Unlike “raw material” or industrial companies the structure of “innovation “tax should be different. That is why there need to create additional motivations for it.

To “select” special innovation zones we can divide the country into three types of areas – “growing” which should be given maximum sum of money and freedom, “shrinking “(depressing) which should be gradually limited in donations and “restructuring” which try to overcome stagnation. Government should use different control strategies to these three types of areas.

In connection with this orientation to innovation model of development it should consider big industrial cities in Russia a base for transferring to innovation zones. Industrial cities with their experience of rationalization and rationalize will be actually able to become the main place of growing new generation of innovators.

For 10-20 years it is possible to solve a problem of building innovation economy in Russia but the government support here is of great demand. It is necessary to see government structure and powers’ distribution in a new light in order to build such economy. It is very important to support so called business-angels – private structures which are ready to invest capital into venture projects that support innovation projects in Russia.

The main idea of innograd “Skolkovo” is to make a base where principles of functioning “ecosystem” of innovations which is special for Russia could be trained. As to the criteria and mechanisms of selecting projects for Skolkovo, it is impossible to act just with administrative methods. No science-technical counsel or an official can succeed in it. The principal of selection must be market-oriented; whoever would vote a project it should do it only with his/her money.

It is necessary to encourage venture funds to analysis and selection of tenders. Venture capitalists choose companies for their portfolio on their own, without expert council and scientists at hand. Each partner is totally responsible for his/her decision both before his/her investors and partners voting with his/her own money. However, conditions of attracting venture funds are essential. The circle of venture funds at the moment is very narrow. But most people working in this sector are high-skilled businessmen. The main task is to give them a market motivation.

However, with developing innovation projects and human resources, it would be wrong to copy Silicon Valley: Russian innovation branch should develop in its own way. In would be also wrong in a long-term prospect to be limited with just Skolkovo. There are many perspective innovation centres in Russia such as Novosibirsk, Tomsk, Kazan, Rostov-on-Don and so on. In the USA there are also other similar centres besides Silicon Valley – such as Boston, North Carolina, San-Diego.

In order to boost innovation economy development it is necessary to build complex infrastructure which should include not only real estate, business-incubators, laboratories and developers. There need the whole system of services maintaining this infrastructure: legal advisors, patent advisors, venture funds, investment banks, contract research and developments. Favorable business environment and innovation culture are also very important.

Another key factor of success is an access to interesting projects. Unfortunately, here in Russia a number of perspective companies especially in the sphere of biomedical technologies are very limited. Among already existing venture funds and development institutions there is serious competitiveness around these projects. There is more capital on the market than Russian technological industry can merge. That is why it is very important to get an access to interesting

technologies of international scale in other countries. It is necessary to take into account that now the most important thing is not what area in the world Russian money will be invested in but which technologies as a result of these investments Russian investors will get. To develop human capital Skolkovo “ecosystem” should enter world “ecosystem” of technologies. Innovation business is always global and it is impossible to build it in a particular country.

The other aspect of integration is backward movement from global market to a local one. It is very significant to bring perspective technologies to a Russian market if there are no any of them now. It can be done if we integrate Skolkovo “ecosystem” into other countries’ “ecosystems”, into Silicon Valley, in particular.

Right now a lot of portfolio companies can be taken to Russia there are infrastructure and financial premises (capital availability and professional companies’ presence which dome contract research). But there is no special interest from Russian side which would be reasonable for such movements. It is necessary to do such transfer for the companies which have just started their development. In this case more part of their business could be built in Russia.

Innovation-oriented company needs to be boosted so that it could enter new business environment. It is necessary to make conditions in which it would be attractive for this company to establish in Skolkovo. For example, financing particular research programs In Russia could be provided at the expense of attracting investments). First, it is necessary to concentrate on less demanding spheres such as information technologies (IT). Information technologies business in Russia is on a good world level. It is significant to focus on innovation research and intellectual property but not on manufacturing.

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