

SCIENTIFIC PROBLEMS OF FORMATION AND DEVELOPMENT OF INFORMATION SOCIETY IN UKRAINE

Научные проблемы формирования и развития информационного общества в Украине

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Abstract: Author provides the definition of information society as a society in which economic development, social change, quality of life and social order depend on the knowledge and methods of information operation, and its expression can be characterized by certain criteria. The characteristics of scientific concepts of information society and economy development in institutional theory are considered. The scientific approaches to determining the nature of the information society, its processes and driving mechanisms are analyzed. The author pays special attention on informatization of Ukrainian society, defines a number of negative factors that operate today. It is concluded that Ukraine has become more sensitive to crises and instability. The measures to create organizational and legal mechanism for effective functioning and further development of the information society are determined.

KEYWORDS: INFORMATION, KNOWLEDGE AND INFORMATION SOCIETY, INFORMATION ECONOMY, EDUCATION

1. Introduction

The evolution of theoretical economic knowledge in historical perspective from the state of classical science through neoclassical to postclassical caused the fundamental changes in its methodological basis and theoretical content. Each of these phases is characterized by inherent specific fundamental basis - the scientific worldview; norms and ideals of the study; network of objects that are drawn to the attention of scientific knowledge.

The theory of information (post-industrial) society, revealing the main provisions of economy and society, has become the methodological basis for determining logical steps in civilization progress, a clear periodization of human history as a unity of pre-industrial, industrial and information, postindustrial society [1]. Nearly 15% of the population of our planet ("golden billion"), live in developed countries, in which the information mode of production and the information society information technology are becoming. About half of the population lives in industrial mode of production and industrial society. The rest of the world's population (nearly a third of residents) live in countries and backward areas of some countries that are in the pre-industrial stage of socio-economic development.

2. The main material

Information society is defined as a society in which economic development, social change, quality and way of life depend on the knowledge and methods of operation of information and expression of which can be characterized by the following criteria:

technological - a key factor - information technology, widely used in all areas of society;

social - information serves as an important stimulator of changes in quality of life, in which "information awareness" in free access to information is formed and states;

economic - information is a key factor in the economy (as a resource, product, source of value added and employment);

political - free access to information provides the political process with increasing participation and consensus between different classes and social strata of population;

cultural - recognition of the cultural value of information as a means for promoting information values in the interests of the individuals and society as a whole.

Of course, the concept of the information society should not allow rude technological determinism. It must take into account the difficulty, complexity, contradiction of new technologies introductions in public life, the interaction among various factors of social development, including the prominent role of the human factor.

Economic theories, existed in the late twentieth century, concerned mainly the sphere of material production. However, the development of information technologies on the basis of modern computer technology began to operate with new concepts, such as an information resource, the product of intellectual work, information environment. It determined the necessity of study of the important methodological issues of economics for information activities, which includes objectives, tools and result of the process. There was a fundamentally new concept - the national information resources, which were considered as new economic category. It is believed that in the XXI century information resources will be fundamental national wealth, and efficiency of their industrial exploitation will increasingly determine the possibility of the country.

According to Daniel Bell [2], post-industrial society comprises five main components of this concept:

- 1) in the economic sector: the shift from manufacturing to expand the scope of services;
- 2) in the structure of employment: the dominance of professional and technical class;
- 3) the fundamental principle of society: central place of knowledge as a source of innovation and policy formulation;
- 4) decision-making: the creation of a new "knowledge economy";
- 5) the future orientation: the special role of technologies and technological assessments.

F. Mahlup [3] in 60-ies of the XX century considered more than 30 industries of "industry knowledge". He grouped them into the following five classes: 1. Education; 2. Research and development; 3. Means of communication; 4. Information machines; 5. Information services.

American scientist M. Porat [4] proposed a typology of information areas: 1. Production of knowledge and innovation; 2. Distribution of informatics and communications; 3. Risk Management; 4. Search and coordination; 5. Processor transmission of information; 6. Information products; 7. Means of information activities providing.

In the system of socio-economic development, the information economy as a social resource of labor is one of the most important evaluation criteria of rationality, including the effectiveness of the socio-economic system organization. J. Stigler is the founder of "information economy" and "economic governance". One of his essay "The information on the labor market" [5] is the starting point for all further works. He noted that information is a valuable resource, and "knowledge is power". According to him, "our understanding of economic life will be incomplete if we do not systematically take account of the cold winds of ignorance".

K. Kelly was one of the first to describe the main features of "new economy" in his book "New Rules for the New Economy" in 1995 [6]. According to him, most obvious in a changing world, are: 1) the global nature of the changes taking place; 2) operating with intangible benefits: ideas, information and relationships; 3) close interweaving and interaction among individual segments of the new economy. He formulated twelve new laws: communication, completeness, exponential growth, turning points, increasing returns, reverse pricing, generosity, devotion, temporary descent, replacement oil fights, inefficiency.

In an economy based on information and knowledge, human and intellectual capital, which produces innovation and contributes to productivity growth, put forward on top (Figure 1). Thus, efficiency of intellectual capital and intellectual labor determines the prospects of the economy. Due to the dialectical relationship between intellectual capital, globalization and information economy, latter is self-sufficient and has a stable mechanism for self-development.

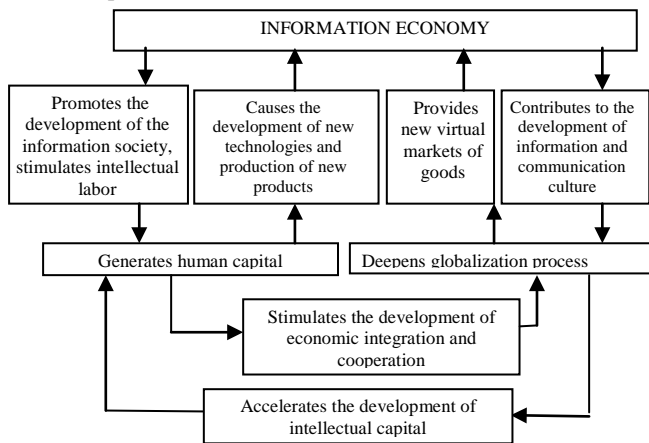


Figure 1. The human and intellectual capital in the system of relationships of global trends in the information economy

There are a number of approaches in the methodology of scientific research of an information society that reflect the data in Table 1.

Table 1

Scientific approaches to determining the nature of the information society

Approach	Representatives	The principle of definition
Economic	F. Mahlup, M. Porat, D. Bell, V. Geys	Economic component - a part of financial sector in the GDP growth - dominates
Information	F. Umesao, J. Hayashy, J. Ito	It is based on the theory of "information explosion", according to which the amount of available public information increases, leading to quantitative changes in the economy and the information society
Technological	A. Duff, P. Nora, A. Mink	The main determinant of the information society is the spread of information and communication technologies
Synthetic	K. Steynfeld, J. L. Salvadzhio	The basis is a separate group of "synthetic" theories, which combines listed above approaches

We will follow the definition done by academician A. Chukhno [1], "Information society is the most developed civilization according to the technological mode of production, which arises due information and computer revolution and is based on information technology, "smart" computers, automation and work of all spheres and sectors of the economy and management, unified fullest integrated communications system".

Prospects of socio-economic development of society are determined by the possibility of formation of synergetic interaction between innovation and human values, which makes this restructuring of organizations and institutions that would ensure

positive relationships between productivity, security, cooperation and responsibility within the new model of development that can ensure economic, social and environmental sustainability in the country.

Mostly, disagreement between social and economic policies is caused by misunderstanding of the origins and hidden content of transformation, that is taking place. Therefore, it is necessary to apply to the processes that are its driving mechanism, in particular, on the one hand, modern stage of society development is a traditional, and, on the other hand is a radically new. Its principal novelty is that all processes are supported by the latest information and communication technologies (hereinafter - infocommunications), which are the basis for additional sources of increased productivity, creation of new organizational forms and the formation of the global economy.

Information technologies are not the main reason for the changes that society is experiencing at the present stage of its development. However, such changes would not have been possible in the absence of new information and communication technologies. Moreover, our planet is incorporated in the global telecommunication computer network, which is the basis for local information systems and communication processes.

Leading countries have taken an active position on the formation of information society. They have identified and formulated the policy of its development. International organizations whose purpose is to contribute to building the information society are established (for example, Information Society Forum, European survey of the Information Society (ESIS)).

It is known that the information in a society with a market economy is considered by scientists and practitioners as a strategic resource that provides acceleration of production processes, helps to economize all existing types of resources and allows to increase productivity, create a real opportunity to accelerate the scientific and technological progress, including through information and communication technologies [7].

Informatization is the tool of construction of an information society. According to some scholars, "informatization of society is the final stage of the scientific and technological revolution and the beginning of a spiritual revolution of society". Therefore, the following definition deserves attention: "Industrial society is transformed into information when the value of communication between agents prevails over the value of industrial production." According to the definition given by the EU Commission, "information society is a society, in which human activity is based on services provided by means of information and communication technologies" [8].

Unfortunately, we must note the following negative factors in informatization of Ukrainian society:

- unsatisfactory providing the appropriate authorities with complete and accurate economic information, and simultaneously receiving by them the information that prevents the adoption of management decisions adequate the situation;

- very large range of organizations engaged in legal practice on informatization, which leads to contradictions in the norms and terminological confusion;

- lagging of the domestic infocommunication technologies, orientation on the purchase of imported unlicensed technics, allows unauthorized access to the information resources and increases the dependence of domestic consumers of foreign manufacturers of computer and telecommunications equipment.

There are problems associated with a lack of coordination of executive bodies in this area in Ukraine. This includes standards, formats, regulations of information exchange for the implementation of full electronic document using a digital signature, creating the system of electronic information resources of executive agencies and others.

The first state strategic step in Ukraine was the development and adoption of the basic principles of the Information Society, based on Development Strategy of Ukraine until 2020 (hereinafter - Strategy) [9]. The Strategy involves organizational and personnel

security of the functioning of the overall information market and economic information in particular. Creation of public electronic information resources, implementation and use of ICT in the national economy will form a system of motivation among the population and obtaining of conditions for computer and information literacy. Implementation of the principles of this document ultimately provides improving of the competitiveness of the national economy through the development of human potential, especially in highly intellectual labor areas, as well as expanding of the export potential of ICT and the Internet economy.

Today, the functionally new infocommunication technologies are equivalent to the electric current in the industrial age. Nevertheless, they are not able to solve social and economic problems in society. However, access to information and communication technologies and their use in the context of our reality, are the prerequisite for social and economic development, and ultimately they lead to the construction of the information society. Economic researches show a direct correlation between the spread of information technology, productivity and competitiveness of companies, firms and countries as a whole.

The crucial role of information and communication technologies in promoting development has two aspects. First, they allow countries to rapidly develop the economy, modernizing the production system and increasing competitiveness. Second, the gap becomes cumulative for countries that are not able to adapt to the new technological system.

The industrial epoch is fundamentally different from the information epoch by the fact that information and knowledge have always served authorities and production. But when new infocommunication technologies made it possible incessant growth of knowledge and experience for humankind, the production potential became unprecedented, and the relationship between intellectual activity and industrial production – extremely dense. Consequently, reducing the gap between social development and economic growth with the help of technological innovation, information management and equitable global development is one of the most urgent issues of the XXI century.

Marginal social unevenness of globalization correlates with the flexibility and global scope of informational capitalism. Education, information, science and technology play a key role in the current conditions. The transformation of education on general has led to the fact, that the level of education has become more important than the number of educated people. Disadvantages of education and lack of information infrastructure lead to such condition when a large proportion of the countries is dependent on the functioning of the globalized economies and, as a result, becomes more sensitive to crisis and instability, which, in turn, influence on the global financial market.

Believed, that the possibilities of information society are endless. There are four tasks in its establishment and further development:

1. Creating a legal framework that improves and protects existing democratic rights and freedoms.
2. Establishing practical rules that encourage people to use new technology.
3. Ensuring awareness about the real opportunities for every citizen.
4. Guaranteeing conformity of products and markets to the highest quality standards and consumer protection.

According to the recommendations of the Council of Europe, prepared by a group of experts, EU Member States should expedite the process of liberalization of the telecommunications sector through [8]:

- 1) the opening to competition monopolized infrastructure and services;
- 2) the elimination of political pressures and budget constraints for non-commercial telecommunications operators;
- 3) the development of a clear plan and order of implementation of practical measures to achieve these goals.

Thus, there are some features of the information society:

- information is production power;

- the problem of informational crisis is solved, and the contradiction between the information avalanche and hunger is eliminated;
- priority of information compared to other resources;
- infocommunication technologies acquire universal character;
- informational unity of all human civilization is formed, that is, society is globalized;
- increase in the share of high technology products and services in the production.

One of the most important tasks of information activity of any country is to develop and support its positive image in the global information field. Ukraine has not fulfilled the task for the following reasons:

the total amount of information about Ukraine and its foreign policy is inadequate its capacity;

available information is mostly outdated and biased; insufficient funding by the state of its representation in international exhibitions of achievements on world markets.

The domestic media market is characterized by the following negative trends:

very low quality of the information provided; undeveloped system of search, analysis and presentation of information;

significant dependence on various political forces, and therefore, partiality;

very small percentage of production of domestic information, and therefore, large percentage of consumption foreign information products (sometimes with low quality);

insufficient advocacy of national idea of creating and development of an independent state.

For establishing the organizational processes of information society formation and effective functioning of the information economy, it is necessary to provide the legislative support and legal protection.

One of the main problems of legal regulation of information sphere is its complexity, because these processes cover a wide range of not only legal, but also economic and technological problems.

Analysis of international experience shows that flexible legal and economic mechanisms, which determine the actions in the development and distribution of information products and services, operate in functioning of an information sector of some countries. They have developed system of legislation, regulating the information activity, called information law.

Legal support of information society in Ukraine is developed in the following areas: the process of informatization, securing the right of citizens to information, clarification of copyright, creation of uniform information space, administrative and judicial protection of information sphere.

The main objects, that require the legal regulation, are: the right to information; the results of scientific, technical and production activities as a source of information; protection of the interests of participants of the processes of creation, storage and use of information; financial and economic activities of scientific and technical information agencies.

The current state of legal support for some aspects of the information economy functioning:

Freedom to information (right to information and access to information). Freedom of speech and freedom of expression in the mass media are guaranteed by the Constitution of Ukraine and the Law "On the print media (the press in Ukraine)". The right of every citizen to freely and independently seek, receive, record, store, use and disseminate any information through print media is determined.

Protecting information. The system of normative acts, aimed at protecting information resources, is insufficient and can only partially solve the problem of public relations. Protection should begin at an early stage, when the real loss have not caused. The rules that prohibit unauthorized access to the computer and familiarization with computer data, as well as the modification or destruction of data are necessary. Storage and development of means to obtain illegal access would lead to criminal action.

Legal acts, regulating relations in information activities, are combined into a single comprehensive legal unit - information law. It has been proposed to introduce in it also the laws on patent and licensing activities, scientific and technical expertise, copyright, intellectual property and technical protection of information. The set of legal norms should cover the relationships between all entities that exist in the information field, information activity and capitalization of market agents.

It is necessary the formation of coordinated legal and regulatory framework that clearly defines the conditions of commercialization and distribution of information products, the criteria for measuring their cost, allows to build a flexible mechanism of civilized realization of the rights of businesses and individuals on information resources on domestic and foreign markets.

The need to introduce legal restrictions on dissemination of information to guarantee national scientific, technical and economic interests should be taken into account. It is necessary to raise awareness in society, to establish the general agreed principles for the regulation of intellectual property protection, to provide privacy and information security in Ukraine and in Europe, and, whenever possible, internationally.

The information revolution can be seen as an important geopolitical factor that can change the relationship between power centers, regions and states. This thesis puts forward the complex of information problems of international character to each state:

- 1) building a system of international relations in the new conditions of information transparency of state borders;
- 2) development of public policy in relation to the world open networks and providing the entry of national and corporate information and telecommunication networks in them in terms of national interests protection;
- 3) the possibilities of the use of information technology as information weapons, and the threat of information terrorism.

Guaranteeing of protection and control of national information space is possible only in terms of skilful combination of two main approaches: the creation of powerful information flows that support the livelihoods of system characters, attitudes and stereotypes and ensure its expansion in the world around us; limiting access to information, control of information flows.

3. Conclusions

Thus, for the efficient operation and further development of the information society it is necessary to create organizational and legal mechanism that would include a number of measures [10]:

- focus the public information policy on complex support of producers and users of ICT;
- secure the leading role of government in the development of information industry, and promote the development of private information sector at the same time;
- bring the legal framework of information industry in accordance with national and international requirements;;
- develop a security and legal protection of both the information and its sources and systems of receiving;
- work out an information product licensing system, and institutions of its creation and distribution;
- provide unimpeded access for all levels of users to banks of information products on national and global markets;
- create the conditions for formation of own modern information channels of connection and telecommunication systems;
- determine the nature, structure, interrelations of system for collecting, processing, information sharing and information services providing at national, regional, and sectoral levels;
- analyze the feasibility of scientific and technological developments in the markets determine the domestic and foreign analogs for use in the national information-analytical system;
- expand interstate exchange of information;

- provide the civilized formation of a virtual segment of information market.

Therefore, analysis of scientific issues and trends of the information society has showed that it will become a reality for some countries in the coming years, but for others - a landmark for development. The result should be a social structure based on a comprehensive, multilateral knowledge and inseparable from it information, circulating in open systems and having a synergistic effect.

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