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**Formation of enterprise organizational management  
systems in terms of information economy**

INTRODUCTION

Current practices have shown that financial and business options of enterprises that had been developed through centuries have undergone significant changes. A significant slowdown in the economy (especially in the developed countries), weak predictability of long-term developments, equally multi-vector scenarios of transition through intensifying periods do not allow for future trends of enterprises systematic behavior to be clearly defined. Developments in this field over the last centuries have generally become obsolete. Today, there is the need to change not only systematic behaviour of enterprises, but also their organizational management system (OMS) to higher-quality levels.

LITERATURE REVIEW

Transition from industrial to postindustrial and further into information society is viewed as the most significant transformation of the past decades. The term „informative economy” was first observed in 1976 in the works of Mark Porat, assistant-worker of Stanford center, which was used to denote the cluster of growing hi-tech informative industries<sup>1</sup>. The general theoretical questions of new features of the economy are investigated in researches of native and foreign scientists (T.Andrianova, D. Bell, V. Hlushkov, M. Castells, T. Kuhn, A.Toffler, G. Stigler, T. Stounyera, K. Arrow)<sup>2</sup>.

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<sup>1</sup> M. Porat, M. Rubin, *The Information Society: Development and Measurement*. – Washington, 1978.

<sup>2</sup> K. Arrow, *The Production and Distribution of Knowledge*. // G. Silverberg, L. Soete (Eds.) *The Economics of Growth and Technical Change: Technologies, Nations, Agents*, Aldershot Hants, England; Brookfield, Vt., USA, 199., pp. 9–19. D. Bell, *The Coming of Post-Industrial*

Today an informative economy is based on hi-tech productions which are not attributed to the exclusively information sector (for example, microelectronics, electronic engineering, appliances-making, robotics, manufacturing telecommunications equipment, communications etc.). The main features of information economy comprise of anticipatory growth rate of information in relation to GDP; an increase of financial sector pressure on other sectors of the economy and the transnational character of the global economy. It can be argued that the laws of the new „information economy” don't fully conform to classical slogans of theories of organizations. Management techniques that have been over exploited and improved upon over time, have started losing their analytical significance, ceasing to be effective tools for the creation of OMS for enterprises. Today the demise of traditional management systems and the emergence of new forms with high-quality structural levels are considered a natural phenomenon<sup>3</sup>. This process can be confirmed in practice through the application of laws of technological synergies.

## BACKGROUND

The objective of this article is to define and identify changes in the development of principles for the organization of management system in the context of information economy.

A new type of management was thus created under the influence of the complexity of social and information environmental production that began in the second half of the twentieth century after the widespread introduction of technical innovations.

The emphasis on production targets and priority of technical factors in the achievements of economic superiority defined technocratic management style. However, such approach has led to a fall in labour efficiency and production. As a result, management has continued to emphasize the implementation of social energy and creativity.

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*Society*. - N.-Y. - 1976. M. Castells, P. Himanen, *The Information Society and the Welfare State. The Finnish Model*. N.Y.: Oxford University Press, 2002. Thomas S. Kuhn, *The Structure of Scientific Revolutions*. 3rd ed. Chicago, IL: University of Chicago Press, 1996. G J. Stigler, *The Economics of Information* // „Journal of Political Economy”. June 1961. - Vol. LXIX. 93. - pp. 213–205. A. Toffler, *The Third Wave*. A Bantam book, 1981.

<sup>3</sup> T.V. Andrianova, *Informatizatsiya obshchestva i biznes* / T.V. Andrianova, A.I. Rakitov. – M.: Akademia, 2004. – 349 s. O.V. Efimova, *Upravlenie informatsionnymi resursami* / O.V. Efimova, A.V. Korsakov // Avtomatika, sviaz, informatika (ASI). – 2010. – № 7. – S. 39-40. Hlushkov V.M. *Osnovy bezbumazhnoi informatiki* - M.: Nauka. Hlavnaya redaktsiya fiziko-matematicheskoi literatury, 1982. - 552 s. D.V. Dubov, O.A. Ozhevan, S.L. Hnatiuk, *Informatsiynne suspilstvo v Ukraini: hlobalni vyklyky ta natsionalni mozhlyvosti: analit. dor.* / – K. : NISD. – 2010. – 64 s.

Along with emergence of globalised economy fundamental changes in organization and management of market processes throughout have gained in popularity. Structural changes are similar to the 'avalanche reaction', which is much higher than the rate of behavioral changes, attitudes and culture of enterprise in the traditional economy. A massive and high-quality expansion of business opportunities on the Internet has become a key pre-requirement for the above mentioned changes. The ability to control all phases of organizations from the primary source of raw materials to the final consumer in real-time and remote access due to modern communications technology plays an important role in establishing the concept of integrated business. New information and communication technologies have generated a new subculture that massively spreads throughout the organization, thus outlining elements of a new world order and cultural changes.

Twentieth century global evolutionary changes of system and technology, information and communication, environmental spaces of enterprise activity, took place in the world by rethinking business problems with the help of higher levels of communication. The development of a modern market is often associated with a permanent increase in the degree of intelligence of offered goods and services. Current trends of globalization and internationalization of the economy are aimed at intensifying the use of intellectual capital which creates potentials for economic development. The main components involved in information mechanisms are directed at the preservation and accumulation of information, communication and intellectualization. Accordingly, developed countries have dramatically increased the importance of management creation, accumulation and use of knowledge. We are, thus dealing not only with the expert and automated control systems and decision support systems, but also with the intellectualization of traditional goods and services (house, car, washing machine, etc.).

In summarizing the achievements of socio-economic development in a society and in analyzing the new economy one can identify the most commonly used terms such as information economy, network economy and the knowledge economy, and even the Internet economy. The concept new economy is most extensive in content as can be observed from the above-mentioned studies. Concepts information and network economies or knowledge economy are often used as well. The authors of this paper are of the opinion that the concept network economy mostly reflects concentrated transformation although the term "information economy" is commonly used. Technologically, network economy is the environment in which corporations and individuals can contact each other for cooperation.

The Internet economy is, in turn, a part of the network economy. While analyzing a wide range of publications it is possible to identify the following forms of interdependencies between these concepts:

$$\{\text{new economy}\} \supset \{\text{informative economy}\} \cup \{\text{economy of knowledge}\} \cup \{\text{network economy}\} \quad (1)$$

$$\{\text{network economy}\} \cap \{\text{informative economy}\} \neq \{\emptyset\} \quad (2)$$

$$\{\text{information economy}\} \cap \{\text{economy of knowledge}\} \neq \{\emptyset\} \quad (3)$$

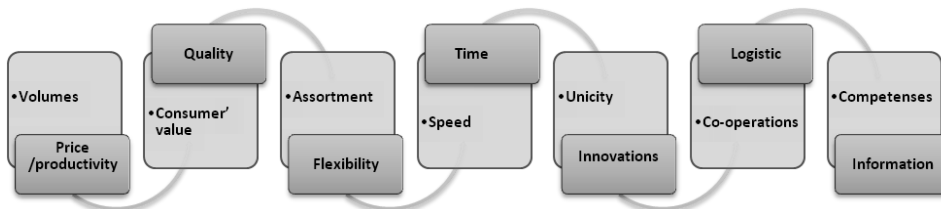
$$\{\text{network economy}\} \cap \{\text{economy of knowledge}\} \neq \{\emptyset\} \quad (4)$$

$$\{\text{network economy}\} \supset \{\text{Internet economy}\} \quad (5)$$

The new economy is formed by a structure of relationships between business entities that are systematically organized in space and time. It is based on the integration of national information infrastructure which supports the creation and use of new information technologies and products (telecommunications, e-business, e-commerce, social networks, etc.).

## EVIDENCE

One of the main concerns of the current stage of development is the wide range of problems facing new OMS ranging from the definition of specific forms of information and communication relationship in enterprise management to the creation of global concepts of interactions with the environment. Analysis of the evolutionary changes in business activities (Figure 1) gears towards the conclusion that the information infrastructure thus generated is one of the determining factors of its efficiency.



**Figure 1. Evolutionary changes in business activity**

Source: own analysis.

Changes in the nature of societal institutional and organizational interactions on the one hand and the increasing information flows in the functioning of different micro-economic systems on the other hand require a rethinking of the OMS role. The most important features of the new economy's impact on OMS are:

- mass character of internet technologies, the active use of economic information and intelligent technologies, progressive intellectualization of goods and services;
- formation of a single space of knowledge, participation in market knowledge network society;

- creation and accumulation of intellectual capital;
- globalization of competition;
- multilevel and interconnected distribution of risks and resources;
- decentralization of management systems (a gravitation is to the collective decisions);
- increasing the efficiency of decisions;
- formation of qualitatively new organizational structures (network, virtual, intellectual, evolution, etc.).

The claims of M. Castells that the company's activity is most productive only when it is harmoniously integrated into the social material production or in the sphere of commodity-monetary transactions is fair as never before<sup>4</sup>. It means a high-quality increase of meaningful information communication.

The composition of organizational information management is changing. It can be divided into the following components:

- Hard – infrastructure, computers, channels, networks, providers, technical support services, which determine the shape and structure of the information environment;
- Soft – the substance of the virtual environment, people's ideas, desires and imaginations about the possibilities of information technologies, formed relationships and information culture.

System-technological aspect reflects the emergence of complicated technological infrastructures (communication, energy, transportation, etc.). A systematic increase in technology and the intensification of interdependence occurred at both micro-and macro-levels. The creation of OMS in an enterprise is needed to intensify mutually agreed technological organization of business processes from supply to the final consumer delivery.

Information and communications aspects reflect the growth of information technology systems and cooperation, which includes:

- intellectually innovative transformations in the areas of intellectualization of the productive forces and equity, intelligence capitalization, innovative mass transformation;
- formation of new development factors – intelligence, research intensity, dynamic, planning and adjustment;
- increased attention to the fostering employees new traits such as: high adaptability, creativity and mobility.
- anticipatory science, organizational culture, education as a necessary condition of socio-economic development stability of enterprise;
- establishment of a new type of competition for quality intellectual resources and the quality of staff education;

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<sup>4</sup> M. Castells, P. Himanen, *The Information Society and the Welfare State. The Finnish Model*. N.Y.: Oxford University Press, 2002.

- focusing on quality is a reflection of changes in the business processes: from extensive – to the intensive type, based on maximizing the use of its potential, especially intellectual;
- staff training transformations in a continuous process, the base of which is the transition to the general higher education.

Ecological aspect reflects the growth of ecological connection in a socio-economic environment of the enterprise and the environment. Microeconomic growth increases impact on the stability of a society.

Taking into account the principles in the table network economy will contribute to more efficient functioning and stable market position of an enterprise (see table 1).

**Table 1. Features of new business forms**

	Traditional business	E-business
Brand capital	Strategy of imposing production	Strategy of pulling consumer
Human capital	Focusing on production	Focusing on consumer
Current assets	High level (WIP, finished products)	Low level (direct delivery to consumers)
Physical capital	High level (possession of production)	Low level (transmission of production to the external structures)

Source: own analysis.

The main objective of the enterprise in information economy is to combine resources like employment, financial, material and information flows that are limited in time and space in the manufacturing process in order to create new goods and services and their subsequent presentation to consumers. Enterprises' OMS should have a holistic nature, in which conditions for storage, transmission and transformation of management information must be created to optimize joint and coordinated use in time and space of the company's available resources and potentials.

The main classical directions of improving OMS in postindustrial society are given in the Table 2.

Developments in information economy lead to the elimination of clear boundaries between producers and consumers, products and services. In the new environments, any company can be regarded as a complex dynamic open self-organizing system that continuously adapts itself to ongoing changes in the external environment and evolves with it.

The company effectiveness and the opportunity to achieve goals depend essentially on the level of coordination and internal consistency of OMS elements.

**Table 2. Directions of OMS improvement**

№ from/п	Directions	Content
1	In postindustrial society	
1.1	Multiplier approach for evaluating the enterprise performance	Complex coverage of internal processes of the company by strengthening relationships of all applied forms of production.
1.2	Ecological approach	Increase of ecological level of production and products.
1.3	Flexibility of productive technologies	Minimizing time and resources expenses for the sudden acceleration of updated product range.
1.4	Scientific and technical progress	High-quality improvement and complication of technical and technological base of production.
1.5	Economy of resources	Rationalization of all stages of production in the limited resource conditions by improving management and production processes.
1.6	Standardization technology management and quality production	International organizations worked out a number of standards, the ultimate goal of which is to provide satisfactory quality level and determine requirements to business activities.
1.7	Convergence in using technologies	Provides for the forming of new types combination of productive processes elements, science and industry, production and consumption area with the purpose of concentration and rational use of resources, increase of scientific and technical progress.
1.8	Entrepreneurial principles of relationship between business units	Improvement of economic mechanism of enterprise organization according to the market principles in order to enhance accountability for the outcomes of activities, to maintain market competitiveness, to improve financial performance.
1.9	Activation of human factor	Implementation of effective personnel policies to increase the competence of management, its efficiency and accountability; introduction of collective nature in making decision, widespread ensure of proper organization and executive discipline.
2	In network society	
2.1	Dynamic scenario of enterprise development	They often establish various industrial and trade structures with short and uncertain future relationship.
2.2	Reducing the duration of goods and services life cycle	Innovative technology loses its uniqueness and becomes common – the company is losing its competitive edge.
2.3	Strengthening and individualization of producer-consumer interrelations	Customers are actively seeking alternatives, compare supplies in the global information environment and choose the best variant applying directly to the company avoiding mediators.
2.4	Aggressive business environment	The winner is no greater company, but that is quickly restructured.
2.5	Continuous personnel training	In the conditions of rapid upgrading and innovations the level of staff knowledge is not so much important, but the speed of learning and applying his/her new knowledge.
2.6	System innovations	Embrace the complete cycle of "supply-production-consumption", and are not limited by certain new technologies, goods and services.

Source: own analysis.

Therefore, it is necessary to consider different approaches to the study of the company's organization, its structure, principles and management techniques.

## CONCLUSIONS

Improvements in information infrastructure can provide the following advantages to enterprises:

- reducing response time of OMS and enhancing its bandwidth;
- improving and diversifying of OMS functionality;
- improving coordination and action planning by IT;
- increasing degree of customers satisfaction of OMS;
- improving interaction and communication in OMS;
- increasing productivity decision of OMS.

Perspective directions of enterprises' changes in OMS must be directed at improving existing OMS and application of new forms and business techniques, rationalization of management mechanisms at all administration levels.

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*Summary*

The article regards the formation of enterprise's organizational management systems in the context of the information economy. It defines and identifies changes in the development of principles for the organization of management system. The authors analyze evolutionary changes in business activity as well as features of new business forms. The main classical directions of improving organizational management systems in postindustrial society are presented.

**Tworzenie organizacyjnych systemów zarządzania przedsiębiorstwem  
w gospodarce informacyjnej***Streszczenie*

Artykuł poświęcony jest problemom tworzenia organizacyjnych systemów zarządzania przedsiębiorstwem w kontekście gospodarki opartej na informacji. Zostały w nim zdefiniowane i zidentyfikowane zmiany dotyczące zasad organizacji systemu zarządzania. Autorzy dokonali analizy zarówno zmian ewolucyjnych w działalności gospodarczej, jak i cech charakterystycznych dla nowych form działalności. Przedstawiono również główne klasyczne kierunki poprawy systemu zarządzania organizacjami w społeczeństwie postindustrialnym.