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DEVELOPMENT TRENDS OF NETWORK ECONOMY IN UKRAINE AND IN THE WORLD

This article examines the nature of the network economy and its development trends. The analysis of approaches was conducted to the definition of “network economy” by various scientists to fundamentally understand the essence of the network economy, and highlights the main features and elements. The features of the functioning of the network economy in the interaction of its subjects, that allows to members of the network economy to be mobile and to quickly establish direct contact with other participants. At the moment, the network economy is well-developed form, is the result of the period of its long-term development. To form a complete picture of the action and scale of the network economy, the state in Ukraine and in the whole world were examined. The reasons of the development and establishment of the network economy in the world and Ukraine were defined. It was estimated the level of preparedness of countries to the network economy through the system of ratings – Networked Readiness Index – NRI (index of readiness of countries to the establishment of the network economy), which gives an estimate of the development of information and communication technologies (ICT) in the world. The structure of problems of Ukraine's joining the network economy was created on the basis of analysis of the functioning of the network economy. On this basis recommendations were made to improve the condition of the network economy in Ukraine.

Key words: network economy, information and communication technologies, Internet, communications, the subjects of business dealing, the information society, international programs, rating.

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ТЕНДЕНЦІЇ РОЗВИТКУ МЕРЕЖЕВОЇ ЕКОНОМІКИ В УКРАЇНІ ТА У СВІТІ

У даній статті розглядається питання щодо сутності мережевої економіки та тенденцій її розвитку. Був проведений аналіз підходів до визначення поняття «мережева економіка» різними науковцями, щоб фундаментально зрозуміти сутність мережевої економіки, а також виділені головні риси та елементи. Розглянуті особливості функціонування мережевої економіки в рамках взаємодії її суб'єктів, що в свою чергу, дозволяє учасникам мережевої економіки бути мобільними та швидко встановлювати прямий

контакт з іншими учасниками. На даний момент мережева економіка має досить розвинену форму, що є результатом періоду її довготривалого розвитку, тому для формування повного уявлення про дію та масштабність мережевої економіки було досліджено її сучасний стан в Україні та у світі в цілому. Виділені причини розвитку та становлення мережевої економіки у всьому світі, включаючи і Україну. Була представлена оцінка рівня готовності країн до мережевої економіки по системі рейтингових оцінок – Networked Readiness Index – NRI (індекс готовності країн до становлення мережевої економіки), який дає оцінку розвитку інформаційно-комунікаційних технологій (ІКТ) у країнах світу. Оскільки важливою організацією в регулюванні мережевої економіки є Європейський Союз, тому він є засновником низки програм, що спрямовані на розвиток мережевої економіки в умовах регіонального співробітництва. На основі аналізу функціонування мережевої економіки, була створена структура проблем входження України до мережевої економіки. Виходячи з цього були надані рекомендації для покращення стану мережевої економіки в Україні.

Ключові слова: мережева економіка, інформаційно-комунікаційні технології, мережа Інтернет, комунікації, суб'єкти ведення бізнесу, інформаційне суспільство, міжнародні програми, рейтинг.

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ТЕНДЕНЦИИ РАЗВИТИЯ СЕТЕВОЙ ЭКОНОМИКИ В УКРАИНЕ И В МИРЕ

В данной статье рассматривается вопрос о сущности сетевой экономики и тенденций ее развития. Был проведен анализ подходов к определению понятия «сетевая экономика» различными учеными, чтобы фундаментально понять сущность сетевой экономики, а также выделены основные черты и элементы. Рассмотрены особенности функционирования сетевой экономики в рамках взаимодействия ее субъектов, что, в свою очередь, позволяет участникам сетевой экономики быть мобильными и быстро устанавливать прямой контакт с другими участниками. На данный момент сетевая экономика имеет достаточно развитую форму, является результатом периода ее долговременного развития, поэтому для формирования полного представления о действии и масштабности сетевой экономики было исследовано ее современное состояние в Украине и в мире в целом. Выделены причины развития и становления сетевой экономики во всем мире, включая и Украину. Была представлена оценка уровня готовности стран к сетевой экономике по системе рейтинговых оценок – Networked Readiness Index – NRI (индекс готовности стран к становлению сетевой экономики), который дает оценку развития информационно-коммуникационных технологий (ИКТ) в странах мира. На основе анализа функционирования сетевой экономики была создана структура проблем входжения Украины в сетевую экономику. Исходя из этого были даны рекомендации для улучшения состояния сетевой экономики в Украине.

Ключевые слова: сетевая экономика, информационно-коммуникационные технологии, сеть Интернет, коммуникации, субъекты ведения бизнеса, информационное общество, международные программы, рейтинг.

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Problem statement. One of the most characteristic features of the 20th century is the possibility of establishing equal relations between economic entities, which have been caused by information and communication changes in the global economy. At this stage for efficient business enterprises it is extremely important to be mobile and cooperate with partners in any place and at any time. One of the tools that provides the process is information and communication technology (ICT).

The Internet is the basis for the formation and operation of ICT, and it is a major factor which influences the socio-economic activity of market participants, which provides quality of

information exchange between people. This socio-economic direction of doing e-business is called “network economics”. In this direction, the network economy is a promising direction for the implementation of the above tasks for modern subjects of business dealing.

However, the mechanisms of functioning of network trends remain poorly investigated, that is a significant reason in insufficient state of network economy in many countries, particularly in Ukraine. Therefore, analysis of this topic is actual for comprehensive concept of modern world trends in the information environment and the development of new approaches for improvement of Ukrainian’s state of the network economy according international standards.

Analysis of recent research and publications. The leading researchers, economists and scientists who have dedicated their works in research areas of the network economy are D. I. Bell, V. N. Buhorsky, P. Drucker, S. A. Dyatlov, M. P. Castells, J. Halbrecht, K. Kelly, S. I. Parinova, G. Saloner, I. A. Stryelyets, K. L. Vayber and others.

Aims and tasks of the article. The purpose of this article is the conceptual substantiation of the nature of network economy and analyze its state in Ukraine and in the world.

Achieving this goal is possible with the following tasks:

- consideration of approaches to the study of network economy;
- consideration of operation of network economy;
- analyze of the latest trends of the network economy development in Ukraine and abroad.

Exposition of the basic research material. To understand the fundamental naturation of network economy we need to consider approaches to the definition of the term. Today, many scientists were involved in research of this area (Fig. 1).

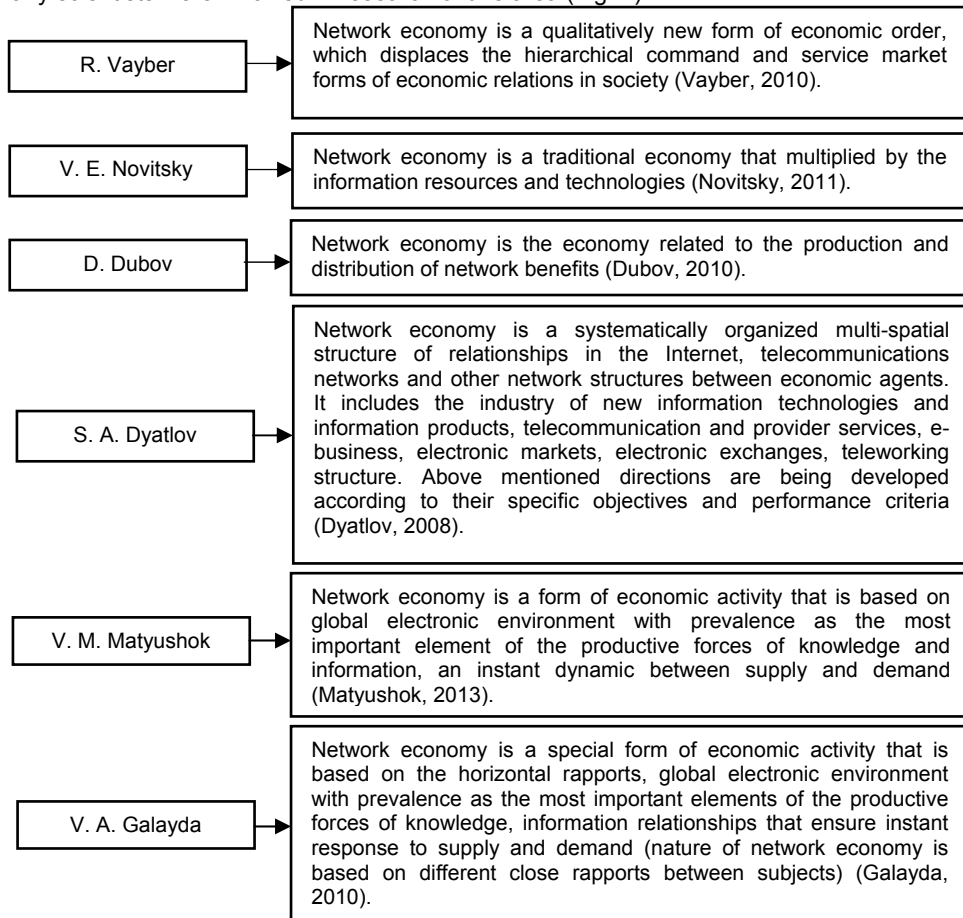


Fig. 1. Approaches to the definition of “network economics” of different scientists
Source: developed by the author

It is appropriate to give an addition to fig. 1 definition of “network economics” by the European Commission, which defines the network economy as the environment in which any company or individual, who are in any part of the economic system, can communicate easily and with minimal costs and with any other company or individual about collaboration in trading, exchanging ideas, know-how or just for fun” (Zirko, 2012).

Thus, analyzing the considered determination can distinguish the main features of network economy:

- subordination to the interests of the network;
- socio-economic location of production facilities;
- the movement of goods and capital aimed at satisfaction of social and economic needs of the network;
- high degree of coordination of economic operators;
- modification of flexibility thanks to modular construction;
- promotes wide implementation of economic activity in the global information and economic system.

Summarizing the above description of the approaches to the definition of “network economics” can derive the formula of its creation (fig. 2).

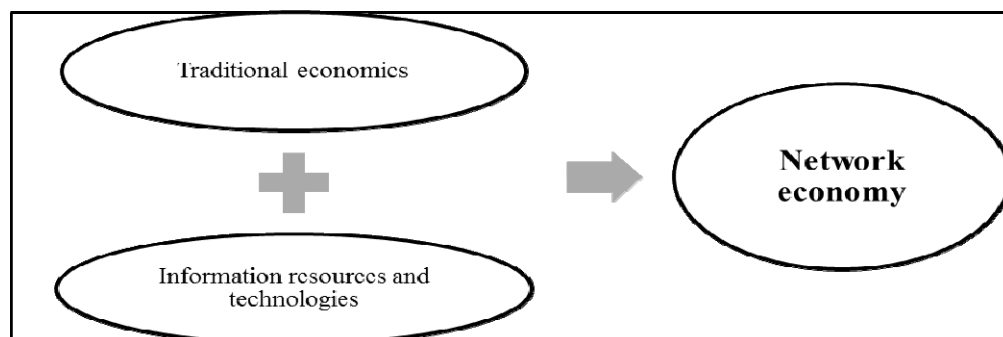


Fig. 2. The structure of the network economy

Source: developed by the author

The main subjects of the functioning of the network economy are agents that interact with each other in direct communication. It allows participants to network economy to be mobile and to establish quickly direct contact with other participants.

The effective interaction and functioning of agents providing the following conditions (Kravchuk, 2013):

- availability of long-term relationships between virtual agents;
- conscious direction of virtual agents for taking positions that has the greatest value to the entire network as a whole;
- section problems of their activities between virtual agents on equal terms;
- specific distribution network of goods which value increases with their copying.

The network economy is rather developed form, which is the result of long development period at the moment. The reasons for the development and establishment of network economy in the world, including Ukraine, have the following processes (Ignatyuk, 2011):

- the evolution and spread of Internet technology;
- the emergence of a global information space;
- the transfer of all types of social and economic activity on the Internet, so that
- traditional organizations have turned to network structure;
- creation of network options “horizontal” economic structures that serve a
- variety of organizations in economy;
- increasing the role of leading multinational companies.

The trend of recent decades reflects the strengthening of the growth of global communication networks. Nevertheless, it should be noted that only one third of the world

population uses the Internet and is a member of global communication, that's why its users are distributed unevenly (tabl. 1).

Table 1
The number of active Internet users of the at the moment of 30 November 2015

World regions	Population (2015 year)	Population (% of the world)	Users of the Internet	Internet Penetration (% of population)	Growth (2000–2015)	Users (%)
Africa	1158355663	16,0 %	330965359	28,6 %	7,231.3 %	9,8 %
Asia	4032466882	55,5 %	1622084293	40,2 %	1,319.1 %	48,2 %
Europe	821555904	11,3 %	604147280	73,5 %	474,9 %	18,0 %
Middle East	236137235	3,3 %	123172132	52,2 %	3,649.8 %	3,7 %
North America	357178284	4,9 %	313867363	87,9 %	190,4 %	9,3 %
Latin America / Caribbean	617049712	8,5 %	344824199	55,9 %	1,808.4 %	10,2 %
Oceania / Australia	37158563	0,5 %	27200530	73,2 %	256,9 %	0,8 %
Global	7259902243	100,0 %	3366261156	46,4 %	832,5 %	1

Source: According to WorldStats (Internet Users, 2015)

The biggest amount of the Internet users are in the following regions: North America (87 %), Europe (73,5 %) and Oceania/Australia (73,2 %), and the lowest are in Africa (28,6 %) and Asia (40,2 %).

For estimation of the level of preparedness of countries to the network economy, there are several systems of ratings and one of the most popular is a Networked Readiness Index – NRI (index of readiness for establishment of network economy), which assesses the development of information and communication technologies (ICT) in the world.

According to the static of the site “World Economic Forum” on the world ranking NRI 2002 start position occupied the US, and in 2005 it was replaced by Singapore due to high levels of quality of education in mathematics, the degree of implementation technology with the support of the state and development of ICT. In 2007 Denmark occupied the leading position in the NRI ranking and helped primarily legislation and strategy of political forces played a secondary role rapid rooting Internet and provide converged services. But since 2008, and as of 2015 (from 143 countries) in the world the highest rate was recorded in Singapore and Finland marked in 6. The next ten leading positions were occupied by NRI and Sweden, Netherlands, Norway, Switzerland, the USA, Great Britain, Luxembourg (fig. 3).

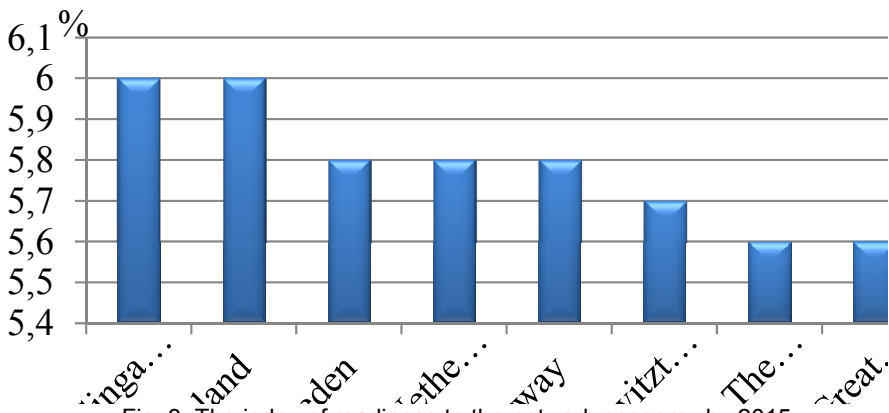


Fig. 3. The index of readiness to the network economy by 2015

Source: developed by the author by source (NRI, 2015)

Thus, according to statistics we see that the Nordic countries are leaders. But it should be noted that countries such as the USA, Great Britain, Luxembourg, Japan, Canada, Korea, Germany have the opportunity to improve their NRI. The main advantages of these countries are the following (Bradford, 2015):

- a mobile process establishment and operation of business;
- a large number of qualified personnel due to high quality education;
- openness to foreign investment and the introduction of foreign technologies;
- low cost communication.

Speaking about the emerging economies, which have a tendency of rapid development in the NRI rank for the 2015. China was in 62 place, Brazil was in 84 place, India was in 89 place.

Regarding Ukraine's position in the ranking NRI, it occupies 71 position from 143 of the index 4.0. This situation is due to several factors. Specialists of the National Institute for Strategic Studies assessed the Ukrainian on the development of ICT infrastructure. It says that Ukraine lags behind the average level in the areas of mobility and access to the Internet.

The development status of small and medium businesses has a significant impact on the formation of the network economy. It is expedient to note that doing business in Ukraine meets the best European indicators (449 small businesses per 10000 of population in Ukraine in 2015), but the trend of recent years indicates a decrease of participants in this sector due to the high level of monopolization of economy and hierarchical structures of management. Also present state is a lag in the global web space largest Internet audience.

According to the State Statistics Service of Ukraine the innovation activities as a fundamental factor in the successful operation of network economy has a downward trend in Ukraine. It shown in fig. 4.

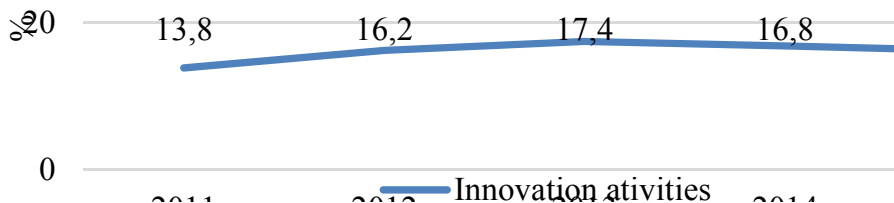


Fig. 4. The dynamics of innovation activities in Ukraine for 2011–2015

Source: collectively by the authors according to the source (*Innovation activities, 2015*)

It is important to notice that the functioning of Ukrainian information sphere is performed using foreign technology, and there is a large percentage of counterfeit products. The main reason is an absence of regulation methods of information in the country.

Consequently, the significant deficiencies in the underdeveloped network economy in Ukraine are problems in the institutional sphere: the difficulties for small and medium businesses, complicated tax procedures, obtaining a building permit and the connection to the power supply, inadequate legal framework, insufficient innovation and education activity.

Graphically fig. 5 shows the problems of integration of Ukraine in the network economy.

To improve the network economy in Ukraine should be noted that reforms in the functioning of the national economy should be carried out not only in national but also in regional level, including at the enterprise level. In this regard, the Global Information Technology Report shows that the development of network economy in Ukraine must be developed in infrastructure, focusing on improved functioning of ICT, improving conditions for development and innovation, and the need to reform legislation in the economic sphere. Neglect of these areas is the cause of underutilization of potential.

In turn, the legal framework (for organizational and technical, scientific and methodical, information-analytical, resource provision of information society) in Ukraine requires changes to a favorable climate for the operation of the network economy and information society development.

For transformation of the national economy to a new level of network development, which requires strengthening and reform not only of economic and legislative sphere but also focus on social change primarily concerned mutual trust and social responsibility of partners. It can be achieved by following openness and transparency. The effect of Transparency comes to reducing transaction costs, improving innovation process, ease of access to important information for participants doing business and establishing mobile process between them.

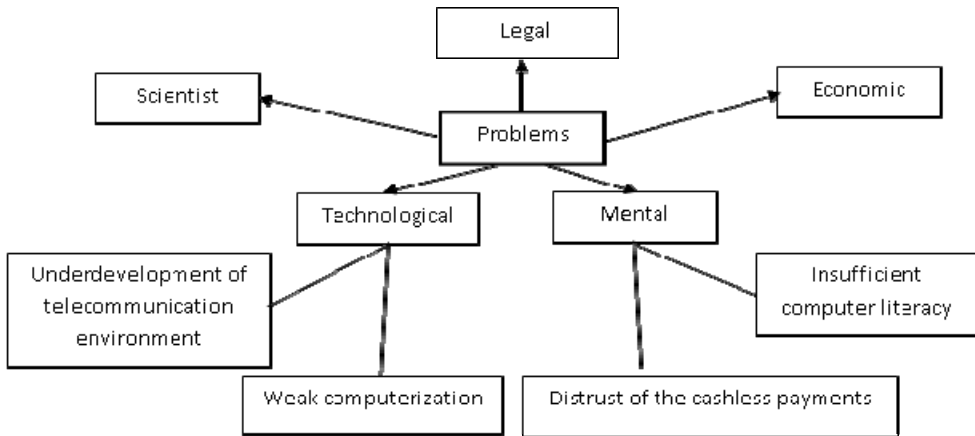


Fig. 5. The structure of problems of Ukraine's joining the network economy

Source: developed by the author by source (New Rules for the New Economy, 2015), (Global Information Technology Report, 2015)

Other recommendations for the development of the network economy in Ukraine can offer the following:

- creation of training programs for universities for training in ICT;
- upgrade information infrastructure;
- improve the conditions of access to the Internet for the public;
- reforming the tax for entrepreneurs participating in ICT;
- support research activities in ICT by creating special state structures;
- openness for public and private investment in this area.

During an activation of Ukrainian business activity, network economy is the key factor, which gives new perspectives and opportunities for business performance at both the national level and in the world.

Conclusion. Based on the analysis, we can conclude that the network economy is an economy of the future. It erases any barriers between countries, accelerating the transfer of information and movement of goods and financial flows, making more mobile entities, and their work more effective. Thus, deepening into the network economy will go simultaneously with the times, not only business, but also the country as a whole. The concept of network society and network economy is a set of concepts entering to the information and communication space, which take into account social, cultural, economic characteristics that form the global society.

The modern stage development of the network economy in the world can be described as the period of formation. This period of development characterizes by the combination of the maximum uncertainty of future states, on the one hand, and of the dynamics of high development on the other hand. The second characteristic of the stage of formation is a combination of trends to update or destroy the old structures (institutions, relationships, agents) and the simultaneous formation of new structures.

Every year the network economy is becoming increasingly important for countries wishing to occupy a high position in the world. Nevertheless, the world statistic shows the inadequacy of the state in most countries, including Ukraine due to problems in the legal, economic, mental, scientific and technological spheres. In this regard, the recommendations were given to reform these areas in order to develop the network economy.

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