ISSN 0798 1015

REVISTA ESPACIOS

Vol. 39 (Number 28) Year 2018 • Page 10

Priorities of using new Information and Communication Technologies in the modern economy

Prioridades de uso de nuevas Tecnologías de Información y Comunicación en la economía moderna

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Received: 12/02/2018 • Approved: 20/03/2018

Content

ABSTRACT:

The purpose of the article is to develop methodological provision of this concept and to determine the priorities of using the new information and communication technologies in the modern global economy in the interests of provision of its sustainable development. The methods of regression and correlation analysis are used for creation of regression models and determination of growth of y with increase of x by 1 and correlation of indicators. Dependent variables (y) in this work are global GDP in constant prices of 1970 according to the IMF and the average global level of social progress according to the Social Progress Imperative, as well as average global level of ecological effectiveness according to the Yale Center for Environmental Law and Policy, which are calculated by the authors as direct average of the values of corresponding indices for all countries of the world. Independent variable (x) is average global level of development of the ICT according to the International Telecommunication Union, calculated by the authors as direct average of the corresponding index for all countries of the world. Statistical data correspond to 2006-2016 with two-year interval. The authors prove that development of the ICT influences the modern global economy, leading to growth of the values of primarily economic indicators and not

RESUMEN:

El propósito del artículo es desarrollar la provisión metodológica de este concepto y determinar las prioridades del uso de las nuevas tecnologías de información y comunicación en la economía global moderna en aras de la provisión de su desarrollo sostenible. Los métodos de regresión y análisis de correlación se utilizan para la creación de modelos de regresión y la determinación del crecimiento de y con un aumento de x por 1 y la correlación de indicadores. Las variables dependientes (y) en este trabajo son el PIB mundial a precios constantes de 1970 según el FMI y el nivel global promedio de progreso social de acuerdo con el Imperativo de progreso social, así como el nivel global promedio de efectividad ecológica según el Centro de Yale para Ley y política ambiental, que los autores calculan como el promedio directo de los valores de los índices correspondientes para todos los países del mundo. La variable independiente (x) es el nivel global promedio de desarrollo de las TIC según la Unión Internacional de Telecomunicaciones, calculado por los autores como promedio directo del índice correspondiente para todos los países del mundo. Los datos estadísticos corresponden a 2006-2016 con un intervalo de dos años. Los autores demuestran que el desarrollo de las TIC influye en la economía global

influencing the social and ecological indicators. However, new ICT have large potential in the sphere of stimulation of improvement of all spheres of the world economy: economic, social, and ecological. For this, the authors offer the concept of using the new ICT in the modern global economic system for its sustainable development.
Keywords: new information and communication technologies (ICT), modern global economy, sustainable development

moderna, lo que lleva al crecimiento de los valores de los indicadores principalmente económicos y no influye en los indicadores sociales y ecológicos. Sin embargo, las nuevas TIC tienen un gran potencial en la esfera de la estimulación del mejoramiento de todas las esferas de la economía mundial: económica, social y ecológica. Para esto, los autores ofrecen el concepto de utilizar las nuevas TIC en el sistema económico global moderno para su desarrollo sostenible.
Palabras clave: nuevas tecnologías de la información y la comunicación (TIC), economía global moderna, desarrollo sostenible

1. Introduction

New information and communication technologies (ICT) are defined by academics and experts as a catalyzer of development of the modern global economy. The concept of development of global economic system on the basis of new ICT is based on the following main arguments. Firstly, modernization of state management of economy with the use of new ICT within creation and development of the E-government system and modernization of payment system within development of electronic payments ensure the increase of transparency and predictability of development of the economic system.

Secondly, ICT ensure establishment and development of electronic entrepreneurship, stimulating the growth of business activity and transnationalization of domestic business (increase of foreign economic activity of economic subjects). Thirdly, the sphere of telecommunications has a very important role in the structure of the global GDP, acquiring the fundamental role in growth and development of the modern global economy.

This emphasizes high topicality of study of the essence and perspectives of development of the process of the modern global economy's growth on the basis of new ICT. At that, despite strong theoretical basis and global recognition of this concept, its methodological machine is not developed sufficiently. In particular, this concept does not fully explain the mechanism of development of the modern global economy on the basis of the ICT, which does not allow determining the top-priority directions of their use.

The scientific hypothesis that lies in the basis of this research consists in the fact that development of ICT influences the modern global economy, leading to growth of the values of primarily economic indicators, but not influencing the social and ecological indicators. However, new ICT has a potential in the sphere of improvement of all spheres of the global economy: economic, social, and ecological. The purpose of this article is development of methodological provision of this concept and determination of priorities of using new information and communication technologies in the modern global economy in the interests of provision of its sustainable development.

2. Materials and method

The offered hypothesis is verified with the help of the methods of regression and correlation analysis. The authors compile the regression models and determine growth of y with increase of x by 1 and correlation of indicators. Dependent variables (y) are global GDP in constant prices of 1970 according to the IMF and the Global average level of social progress according to the Social Progress Imperative, as well as the Global average level of ecological effectiveness according to the Yale Center for Environmental Law and Policy, calculated by the authors as direct average of the values of the corresponding indices for all countries of the world.

Independent variable (x) is the global average level of development of ICT according to the International Telecommunication Union, calculated by the authors as direct average of the corresponding index for all countries of the world. Statistical data are of 2006-2016 with two —year step (Table 1).

Table 1

Dynamics of the values of indicators of development of ICT and the indicators of economic, social, and ecological progress of the global economy in 2006-2016

Indicators	Values of indicators in different time periods					
	2006	2008	2010	2012	2014	2016
Global average level of development of ICT, points	5.01	5.28	5.39	6.07	6.43	6.25
Global GDP in constant prices of 1970, $ billion	10,662	11,248	11,474	12,057	12,726	13,487
Global average level of social progress, points	62.19	63.09	63.45	64.37	65.94	67.41
Global average level of ecological effectiveness, points	60.9	60.98	61.59	62.03	62.47	63.15

Source: compiled by the authors on the basis of: (International Telecommunication Union, 2017), (International Monetary Fund (2017), (Yale Center for Environmental Law and Policy, 2017), (The Social Progress Imperative, 2017).

3. Discussion

The conceptual and applied issues of usage and development of the ICT are studied in multiple works of modern authors, among which are (Popkova et al., 2016a), (Ragulina et al., 2015), (Bogoviz et al., 2017), (Orudjev et al., 2016), (Bogdanova et al., 2016), (Popova, et al., 2016b), (Kuznetsov et al., 2016), (Kostikova et al., 2016), (Simonova et al., 2017), and (Sozinova et al., 2016). At that, despite the large number of publications on this topic, they study primarily the economic aspect of application of the ICT to development of economic systems, while the social and ecological aspects are not taken into account. We think it shows insufficient elaboration of the potential of new ICT in the sphere of stimulating sustainable development of modern socio-economic systems and the necessity for further research in this sphere.

4. Results

The performed regression and correlation analysis of the data of Table 1 allowed receiving the following results (Table 2).

Table 2
Correlation and regression dependence of indicators of development of the ICT and the indicators of economic, social, and ecological progress of the global economy in 2006-2016

Dependent variables	Connection with independent variable (x) – global average level of development of the ICT	
	Correlation	Growth of y with increase of x by 1
Global GDP in constant prices of 1970 (y1)	94.57%	$ 2,610.27 billion
Global average level of social progress (y2)	81.37%	4.71 points
Global average level of		

ecological effectiveness (y3)	83.06%	5.40 points

Source: compiled by the authors.

As is seen from Table 2, with change of the global average level of development of the ICT by 1 points, the global GDP in constant prices of 1970 growth by $ 2,610.27 billion (correlation of indicators – 94.57%), Global average level of social progress grows by 4.71 points (correlation of indicators – 83.71%), and global average level of ecological effectiveness – grows by 5.40 points (correlation of indicators – 83.06%).

Therefore, the level of development of the ICT is a significant factor of all distinguished aspects of development of the modern global economic system. However, its influence on the level of social progress and the level of ecological effectiveness is lower than at the level of economic progress. This means that development of the ICT is oriented at the economic sphere of life of the modern global society. That's why application of new ICT in the interests of provision of sustainable development of the modern global economic system requires establishment of new priorities.

We think that the priority of using new information and communication technologies in the social sphere should be creation of "clever houses". A person can control such house with the help of the ICT – e.g., remotely. Implementation of this direction of development of the ICT will allow improving conditions of life and making the modern environment more favorable and accessible of the handicapped people, thus leveling social inequalities.

Another priority in the social sphere is authomatization and optimization of the system of provision of state services for population and business. Electronic state services are more convenient and accessible for users, as they allow reducing expenditures and receiving them anyplace anytime. Due to this, the state machine conforms to the requirements of the interested persons in the best way possible.

We think that the priority of using new information and communication technologies in the ecological sphere should be mass electronic propaganda of ecological responsibility of population and business. New ICT allow the state, private organizations, and civil society to make social advertising with minimum expenditures and maximum coverage of target audience.

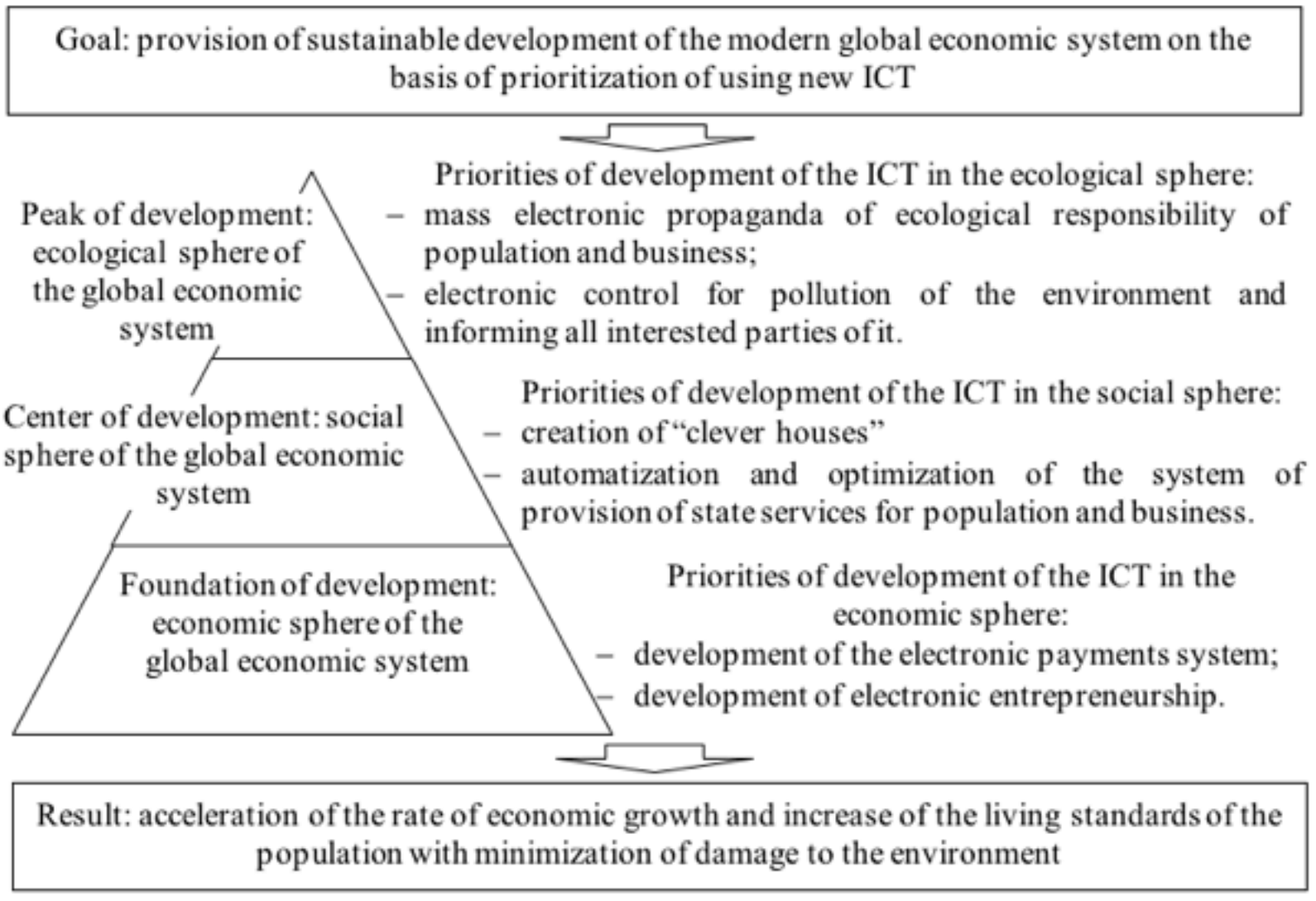
The priorities in the ecological sphere also include start of the systems of electronic control for the level of environment pollution and informing all interested parties of that. This form of control is characterized by high precision and could be applied at all times. Mass informing allows making ecological responsibility an important factor of competitiveness of territories and companies.

In our opinion, the priority of using the new information and communication technologies in the economic sphere should be the development of the electronic payments system. This system allows ensuring transparency of financial operations, thus reducing the scale of shadow economy and increasing the volume of tax revenues into the state budgets.

The priority in the economic sphere should be development of electronic entrepreneurship. New ICT allow optimizing the system of electronic order of goods and services. They allow for automatic computer modeling of individual goods and services and their further production. Due to this, optimization of entrepreneurial activities becomes possible, as demand equals offer.

According to certain priorities, we developed the concept of using new information and communication technologies in the modern economy in the interests of its sustainable development, which is shown in Figure 1.

Figure 1
The concept of using new ICT in the modern global economic system in the interests of its sustainable development



As is seen from Figure 1, in the offered concept the development of the modern global economic system is based on the economic sphere – as it ensures satisfaction of public needs. The center of development of the global economic system is the social sphere, for human is a key landmark of this development. The peak of development of the global economic system is ecological sphere, as favorable environment is accessible only for the most developed socio-economic systems.

Prioritization of development of the ICT in all spheres ensures acceleration of the rate of economic growth and increase of the living standards of the population with minimization of damage to the environment. Due to this, sustainable development of the modern global economic system is achieved.

5. Conclusions

It should be noted that the potential of development of the ICT is so large that they allow optimizing all spheres of modern economic systems. Targeted use of new ICT according to the given priorities allows reaching an unprecedented level of economic growth together with acceleration of social progress and increase of the level of ecological well-being. For this, the author's concept of using new ICT in the modern global economic system in the interests of its sustainable development is offered.

However, it should be taken into account that in case of uncontrolled or ineffectively managed development of ICT there's a large risk of non-achievement of the above advantages and of reduction of sustainability of the modern global economic system. In case of continuation of development of the ICT along the set course, imbalance of the distinguished spheres of the global economic system will be growing with time. At that, the economic sphere will dominate – while in the social sphere the developed will be slower, and the ecological sphere will be peculiar for regress, as it will be the platform for development of two other spheres.

According to this, studying the process of using new ICT in the modern economy from the positions of the Theory of lost profit with emphasis on alternative costs of development of various spheres of the global economic system is a perspective direction for further scientific research.

References

1. Bogdanova, S.V., Kozel, I.V., Ermolina, L.V., Litvinova, T.N. (2016). Management of small innovational enterprise under the conditions of global competition: Possibilities and threats. European Research Studies Journal, 19(2 Special Issue), c. 268-275.
2. Bogoviz, A.V., Ragulina, Y.V., Kutukova, E.S. (2017). Ways to improve the economic efficiency of investment policy and their economic justification. International Journal of Applied Business and Economic Research, 15(11), pp. 275-285
3. International Monetary Fund (2017). Dynamics of the global GDP for 1970-2016. URL: https://seosait.com/dinamika-vvp-mira-1970-2016/ (data accessed: 9.12.2017).
4. International Telecommunication Union (2017). Measuring the Information Society; The ICT Development Index 20006-2016. URL: https://www.itu.int/net4/ITU-D/idi/2017/index.html (data accessed: 10.12.2017).
5. Kostikova A.V., Tereliansky P.V., Shuvaev A.V., Parakhina V.N., Timoshenko P.N. (2016). Expert Fuzzy Modeling of Dynamic Properties of Complex Systems. ARPN Journal of Engineering and Applied Sciences, 11 (17), pp. 10601-10608.
6. Kuznetsov S.Y., Tereliansky P.V., Shuvaev A.V., Natsubize A.S., Vasilyev I.A. (2016). Analysis of Innovate Solutions Based on Combinatorial Approaches. ARPN Journal of Engineering and Applied Sciences, 11 (17), pp.10222-10230.
7. Popova, L.V., Popkova, E.G., Dubova, Y.I., Natsubidze, A.S., Litvinova, T.N. (2016b). Financial mechanisms of nanotechnology development in developing countries. Journal of Applied Economic Sciences, 11(4), pp. 584-590.
8. Ragulina, Y.V.; Stroiteleva, E.V.; Miller, A.I. (2015). Modeling of integration processes in the business structures Modern Applied Science, 9 (3),pp. 145-158.
9. Simonova, E.V., Lyapina, I.R. Kovanova, E.S., Sibirskaya, E.V. (2017). Characteristics of Interaction Between Small Innovational and Large Business for the Purpose of Increase of Their Competitiveness. Russia and the European Union Development and Perspectives, pp. 407-415
10. Sozinova, A.A.,Zhelnina, E.V.,Prokhorova, V.V.,Zelinskaya, M.V.,Putilina, I.N. (2016) Economic Environment Activities of Russian Corporations. International Journal of Economics and Financial Issues, 2016, Volume 6 (2016), No. S1, p. 52-56.
11. The Social Progress Imperative (2017). The Social Progress Index 2006-2016. URL: http://www.socialprogressindex.com/ (data accessed: 10.12.2017).
12. Yale Center for Environmental Law and Policy (2017). The Environmental Performance Index 2006-2016. URL: http://epi.yale.edu/ (data accessed: 10.12.2017).
13. Popkova, E.G., Chechina, O.S., Abramov, S.A. (2016a). Problem of the Human Capital Quality Reducing in Conditions of Educational Unification / E. G. Popkova, // Mediterranean Journal of Social Sciences, 6 (3), pp. 95-100.

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Revista ESPACIOS. ISSN 0798 1015
Vol. 39 (Number 286) Year 2018

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