

# AN ANALYSIS OF INFORMATION SOCIETY DEVELOPMENT IN UKRAINE

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*Abstract. The article analyzes the development of information society in Ukraine by a retrospective comparison of the Global Competitiveness Index, Networked Readiness Index, E-Government Development Index, reflecting the major trends of ICT use in Ukrainian society. Based on the received results a SWOT analysis of the information society development in Ukraine was made; the main problems and perspectives of its development were determined. The research leading to these results was conducted, within the framework of the IRNet project.*

**Keywords:** Global Competitiveness Index, Networked Readiness Index, E-Government Development Index, with information and communication technologies, information society.

## INTRODUCTION

Global competition is an economic category, which reflects the process of rivalry between entities, regions, countries and nations for access to scarce resources in order to create sustainable competitive advantages in terms of monopolization and the impact of isolated factors. In fact competitiveness today is not only a fight of transnational capital and national economies, but also domestic innovation systems, closely connected with information and communication technologies (ICT). That is why all highly developed countries consider building of information society to be the basis of their socio-economic, political and cultural development and conduct a targeted public information policy.

The main strategic goal of the state information policy in Ukraine is a wide implementation and usage of the new information technologies as systemic factors of political and socio-economic reforms in the country for its entry into the global information community. The key documents that define national policy on informatization are:

The President of Ukraine on July 31, 2000 № 928 "On measures to develop national component of the global information network Internet and providing wide access to Internet in Ukraine."

Verkhovna Rada of Ukraine on February 4, 1998 № 74/98 "On the National Informatization Program".

Verkhovna Rada of Ukraine on February 4, 1998 № 77/98 "On approval of the Advisory Council on Informatization at the Verkhovna Rada of Ukraine".

Verkhovna Rada of Ukraine on January 1, 2005 № 3175-IV "On Recommendations of the parliamentary hearings on the Information Society in Ukraine".

Cabinet of Ministers of Ukraine on August 8, 1998 № 1352 "On approval of the development and implementation of the National Informatization Program"

Cabinet of Ministers of Ukraine on December 7, 2005 № 1153 "On approval of the State program "Information and Communication Technologies in Education and Science in 2006-2010".

Cabinet of Ministers of Ukraine on August 27, 2010 № 1722-p "On approval of the Concept of the State program of implementation in the educational process in secondary schools of ICT "One hundred percent" until 2015".

State Committee for Communications and Information on December 19, 2003 №8414 / 18-03-23 "On Approval of the Concept of information system of a region and local community creation".

Unfortunately, to assess the effectiveness of public policy in the field of informatization and the development of information society in Ukraine is extremely difficult, as an officially recognized system of indicators needed for such evaluation is absent. Taking into consideration this problem and with the purpose of integrated characteristics of competitiveness of the country in the light of ICT usage we will analyze the following "global" indexes.

**WEF Global Competitiveness Index** - is a complex instrument of assessment of micro- and macro indices of national economy and its potential to achieve a stable speed of economic growth in the medium-term perspective. The professionals of the World Economic Forum regard see the competitiveness as a set of institutions, politics and the factors, that form the productive level of the country, which influences the level of wellbeing of the population and determines the income from the investments into the economy. The results of Global Competitiveness Index for the last four years are given in Table 1.

**Table 1.****Countries' WEF Global Competitiveness Index 2010-2014**

Country	GCI		GCI		GCI		GCI	
	2010-2011		2011-2012		2012-2013		2013-2014	
	Rank	Index	Rank	Index	Rank	Index	Rank	Index
Switzerland	1	5,63	1	5,74	1	5,72	1	5,67
Singapore	3	5,48	2	5,63	2	5,67	2	5,61
Finland	7	5,37	4	5,61	3	5,55	3	5,54
Germany	5	5,39	6	5,41	6	5,48	4	5,51
USA	4	5,43	5	5,43	7	5,47	5	5,48
Sweden	2	5,56	3	5,61	4	5,53	6	5,48
Hong Kong	11	5,27	11	5,36	9	5,41	7	5,47
<i>The Netherlands</i>	8	5,33	7	5,41	5	5,50	8	5,42
Japan	6	5,37	9	5,40	10	5,40	9	5,40
Great Britain	12	5,25	10	5,39	8	5,45	10	5,37
Canada	10	5,30	12	5,33	14	5,27	14	5,20
Denmark	9	5,32	8	5,40	12	5,29	15	5,18
<i>Austria</i>	18	5,09	19	5,14	16	5,22	16	5,15
<i>Poland</i>	39	4,51	41	4,46	41	4,46	42	4,46
<i>Czech Republic</i>	36	4,57	38	4,52	39	4,51	46	4,43
<i>Spain</i>	42	4,49	36	4,54	36	4,60	35	4,57
<i>Portugal</i>	46	4,38	45	4,40	49	4,40	51	4,40
Latvia	70	4,14	64	4,24	45	4,41	52	4,40
Kazakhstan	72	4,12	72	4,18	51	4,38	50	4,41
<i>Russia</i>	63	4,24	66	4,21	67	4,20	64	4,25
Georgia	93	3,86	88	3,95	11	4,07	72	4,15
<i>Slovakia</i>	60	4,25	69	4,19	71	4,14	78	4,10
<i>Ukraine</i>	89	3,90	82	4,00	73	4,14	84	4,05
Moldova	94	3,86	93	3,89	87	3,94	89	3,94

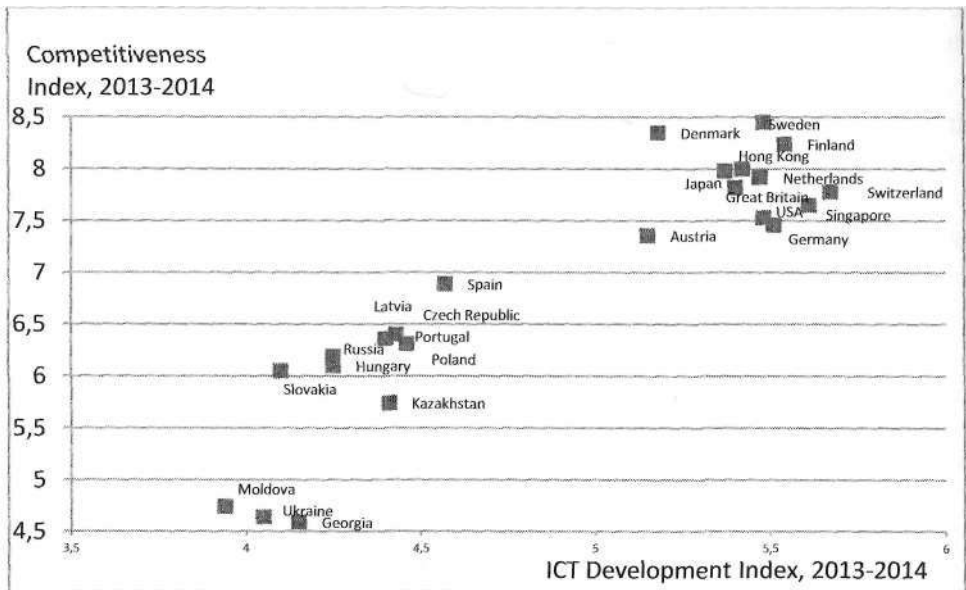
*Source: Own work based on The Global Competitiveness Report 2010-2011, The Global Competitiveness Report 2011-2012, The Global Competitiveness Report 2012-2013, The Global Competitiveness Report 2013-2014*

Analyzing the control data of Global Competitive Index, it must be mentioned that for the four successive years the ranking has been topped by Switzerland; Singapore keeps the second place, Switzerland and Finland that dispute the third place. These

Northern and Western European countries dominate in the top ten together with Germany, Sweden and the USA.

Ukraine keeps the 84<sup>th</sup> place having lost 11 positions in the ranking. Such a drop was provoked not only by the worsening of cumulative absolute assessment, but by other countries rank growth. When the progressive countries are transforming themselves into the informative society, building the economy of knowledge, in which the intellectual capital is the main production resource, Ukraine is still the country of raw materials with a very low of generation and the usage of foreign innovations. Weak innovativeness and, therefore, the competitiveness of economy is caused by the fact that Ukraine limited the percentage of high-technology production to the critical number that led to the the reduction of demand for their own scientific-technological inventions, containing the transfer of technology and brain drain (<http://www.niss.gov.ua/articles/379>, 2011).

The research results in the developed countries show that one of the conditions of a competitive growth is the practice of IT-competencies in the professional life of the employees of different economy sectors. Using Index of Information-Technology Growth we demonstrate visually the relationship between the competitiveness of the national economy and the development of IT (Figure 1).



**Figure 1. Interconnection of the national economy competitiveness with the development of IT**

*Source: Own work based on The Global Competitiveness Report 2013-2014, The ICT Development Index Report 2013-2014.*

Analyzing the data given above we can see, that the highest values of ICT Index have the highly developed countries, which are leading the ranking of Global

Competitiveness. The place of Ukraine in the matrix is not the best. As a result: low rate of competitiveness, irrational usage of informational resources and intellectual capital, rank loss not only on the international markets of information and innovations, but on the "classic" for Ukraine markets as well.

The model, which determines the level of countries' preparation to participate and use the advantages of the development and demonstrates the bias and advantages of the country in information-technology, is **Networked Readiness Index**. This index is a complex world data of information-technology development. The methodology of index determination was developed in 2001. Since 2002 the report about the research of network readiness by this methodology has been formed by the World Economic Forum and by the international business school INSEAD included in the series of reports about the specificity of information society development in the world, which are held yearly. This index measures the level of ICT development in a specific country after 71 indicators, which are grouped into three big groups (The Networked Readiness Index Report 2014):

- 1) the needed conditions for the ICT development (governmental readiness);
- 2) the readiness of population, business and state institutions to use ICT (individual readiness);
- 3) the level of ICT usage in the social life, in commercial and state sectors of a country (business readiness).

The results of Networked Readiness Index for the last seven years are given in table 2.

According to the yearly reports, the growth of the general network readiness index influenced, first of all, the readiness of the society and every citizen of our country to improve and spread ICT. In 2014 such readiness was reflected in result-oriented steps of Ukrainian government to improve the network systems. The President of Ukraine Peter Poroshenko at the end of 2014 issued the instruction to prepare legal documents in order to implement modern communication technology in Ukraine - 3G and 4G, which by the guarantor, will lead to the push in the national economy. The process of the implementation of these systems the President entrusted to the new vice-director of the Presidential administration Dmytriy Shymkiv, formerly holding the position of the general director of "Microsoft Ukraine".

The advantages of the high-speed connection 3G and 4G is hard to overvalue, as greater amount of the information becomes accessible to the users, the necessity to wait for some time to upload the "tough" pages or the files of big size disappears. First of all, the comfort of usage and economy of time are the main advantages of these networks. Besides, the mobile connection, that makes it possible for the user to use really high-speed internet at any place, where there is cellular network. For the business video-conferences and video-calls will become an ordinary practice. Thanks to the ability to transfer a big amount of information such networks open numerous opportunities, many of them are still hard to imagine. For example, the

doctors will be able to operate on distance, using the robot equipped surgery labs; the problem of simultaneous translation into the foreign language is nullified modern programs can already translate the foreign languages in a parallel manner along as the-one's speech sounds.

**Table 2.**

<b>Networked Readiness Index of Ukraine</b>			
Years	The number of countries which are being compared	The value of the index	Rank
2007-2008	127	3,70	70
2008-2009	134	3,90	62
2009-2010	133	3,50	82
2010-2011	138	3,50	90
2011-2012	142	3,85	75
2012-2013	144	3,87	73
2013-2014	148	3,87	81

*Source: Own work based on The Networked Readiness Index Report 2007-2008, The Networked Readiness Index Report 2008-2009, The Networked Readiness Index Report 2009-2010, The Networked Readiness Index Report 2011-2012, The Networked Readiness Index Report 2013, The Networked Readiness Index Report 2014.*

Obviously, the governmental steps have a positive influence on the dynamics of governmental readiness as the part of network readiness of Ukraine to develop ICT at the end of 2014. Of course, governmental readiness will influence positively the business readiness as these categories are interconnected. That is why today we have all the reasons to prognose the improvement of the positions of Ukraine in the ranking of network readiness at the end of the reported year compared to the year before.

Information society formation in the process of integration of Ukraine into the European Union needs our country to follow the higher-level requirements for information security and information policy. This means the use of information technology to enhance the interaction between government, business and the population of the state. Electronic government (e-government) is an information field in which citizens can freely interact with the state and use the services produced by the state at any time. Of course, the level of development of e-government in each country is different. The main parameter that determines the level of development of e-government is a comprehensive index, which is based on

the compilation of three components: index of web-services (level of development of Internet services by the government); telecommunication infrastructure index (level of equipment of the population by means of information and communication technologies); index of human capital (characterized by the willingness of the population to use information services).

According to the result of the international evaluation of e-government, in 2014 Ukraine has the 87<sup>th</sup> place in the world among 193 UN member states. In 2012 our country took 68<sup>th</sup> place, in 2010 - 54<sup>th</sup> place. Despite the loss of its position in the ranking, in 2014 Ukraine joined the group of countries with a high index of electronic governance (there are four groups of indices: the highest, high, medium and low). General index of e-governance in 2014 is 0,5032 and in 2012 - 0,5653. This means that Ukraine lost 0,0621 points, which affected the loss of 19 positions in the overall ranking (The e-government survey 2014, The e-government survey 2012).

This trend is justified, since for the last two years in terms of e-government development in Ukraine the planned steps have not been taken. In early 2012, the leadership of a country has adopted the plan providing a transition to e-government by the end of 2014. According to the project it was planned to submit to the parliament a number of initiatives required and as a result to create the public authorities joint e-space. It was assumed that e-government will work on the basis of a single government portal of administrative services. On the basis of this portal the government plans to provide citizens and businesses with a range of Internet services. Controllers together with "Ukrainian State Register" should run such services as the address register (will cost about 5 million UAH), individuals register (will cost 5 million UAH) and entities register (will cost 15 million UAH). In this way, the state will associate the actual address of the location of all Ukrainian and businesses. On the basis of these registers the State Tax Administration of Ukraine will create "The cabinet of a tax payer" (it is planned to spend 20 million UAH to this project). Also together with the Ministry of a Social Policy it is planned to issue the electronic social card (will cost 5 million UAH) and together with the Ministry of Health - the electronic medical card.

For our research we chose the indexes that more or less characterize the level of economic development based on external and internal factors, including ICT (Global Competitiveness Index), the readiness of society (Networked Readiness Index) and the state (E-government Index ) to use ICT. However, these indicators are not stable and formed by the experience of previous studies, they cannot be calculated with mathematical formulas or equations, they are absolutely subjective, as fully formed by the experts. This means that the objective forecasts based on these indexes almost impossible. At the same time the received information is a perfect base for SWOT-analysis of the information society in Ukraine (Figure 2).

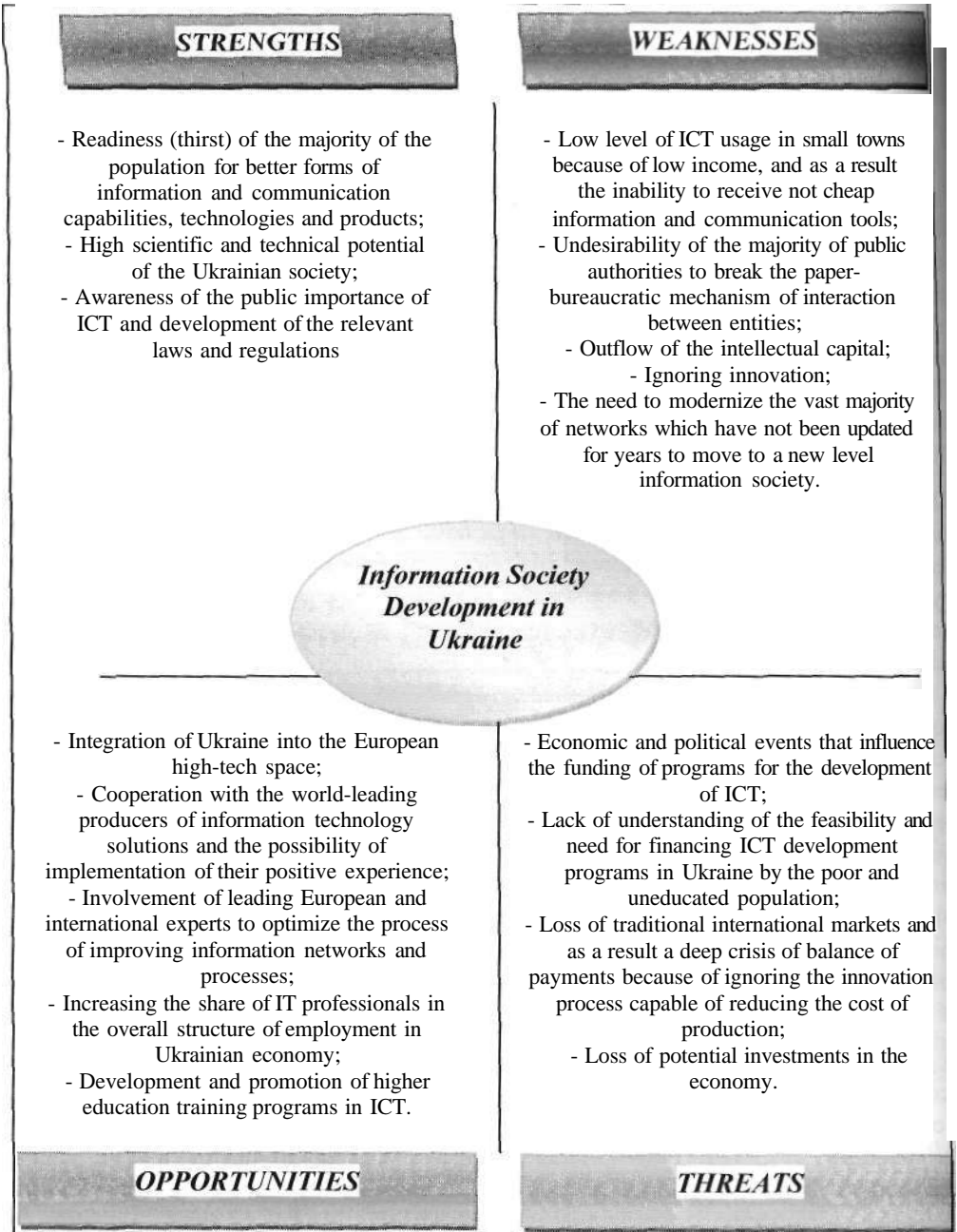


Figure 2. SWOT-analysis of the information society development in Ukraine

Source: Own work



## CONCLUSION

In the modern conditions of Ukrainian economy, when almost all its areas need an upgrade, infocommunication industry is one of the important tools to form a new economic system of the higher level. The development of the IT sector and the spread of ICT in all sectors of the economy will not only improve the "global" indexes and strengthen the position of Ukraine in the international arena, but also become a major factor in improving the quality of public administration, education, health and other sectors of society that is essential for the effective long-term goals of a competitive economy.

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