

## Digitalization and sustainable growth in the quality of life

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**Goal:** to improve the quality of life of people by increasing the level of digitalization of society.

**Design/methodology/approach:** The concept of "quality of life of the population" is one of the main social indicators of the economic security of the state. In the context of the digital transformation of society, this indicator does not yet have a generally accepted interpretation and needs to be clarified. The article examines the impact of information and communication technologies on the indicator of the quality of life of the population, its possible boundaries and ways of measuring it. The article attempts to synthesize an indicator of improving the quality of people's lives through digitalization through the prism of many existing indicators of the development of a digital society, such as providing the population with digital goods, digital competencies, quality of working life and the social sphere in the context of digitalization, the quality of electronic public services to the population and the security of information activities of the population.

**Conclusion:** In modern conditions, digital transformation is the most important factor in the socio-economic development of the global information society (GIS). Today, there are many methods, measurement indicator systems and bodies for monitoring the progress of GIS construction: network readiness index (NRI, WEF), e-government readiness index (e-GRI, United Nations), Knowledge Economy Index (KEI, World Bank), Knowledge Index (KI, World Bank), ICT Development Index (IDI, ITU), Global Competitiveness Network (GCN, WEF), ICT Price Basket (IPB, ITU), Human Development Index (HDI, United Nations), Digital Divide Index (DDI, ITU) and others. This variety of indicators is best used to measure people's standard of living in GIS:

**Limitations/implications of research:** The transition from spontaneous to controlled digitalization and sustainable growth in the quality of life will raise many questions related to improving the digital culture and literacy of the population, reducing the digital divide, etc., the solution of which will require the definition of specific goals and corresponding indicators that allow to assess both the dynamics and the level of progress towards achieving the goal.

**Practical implications:** Measuring the quality of people's lives by measuring INDICATORS of GIS development, digital culture, digital literacy, digital maturity of the population and other available indicators of digitalization.

**Originality/Value:** Since there is virtually no end to the penetration of ICTs into all areas of human activity, and since it is crucial for the development of GIS, measuring the impact of digitalization on people's living standards is very valuable. The article takes an original approach to the implementation of such measurements and assessments.

Keywords: information society, electronic index, pair-rank correlation, ICT Development Index, index structure

**Recognition:** The study is conducted as part of a doctoral program at the Doctoral School of Economic Sciences by graduate student Denis Kravtsov under the coordination of Associate Professor Mikhail Gyrley.

**Keywords:** information society, electronic index, digitalization, indicator systems, level of happiness, global information society

## Introduction

Digitalization is a powerful factor affecting all the key components of the quality of life - material living conditions, health, level of education and the availability of various skills, personal activities, civil rights, social ties and relationships, the state of the environment, economic and social security. In everyday life, information and communication technologies (ICT) are extremely widely introduced: online communications, organization of personal document flow, implementation of labor activity, education, realization of creative potential, self-expression, recreation. The impact of the quality of life on digitalization is also beyond doubt: digital solutions are created and implemented by people, and the future of the digital economy depends on how educated, professionally trained, socially responsible the population is, has the material opportunities for this [1].

The crux of the problem: to find out how ICTs affect the level of happiness and vice versa, how they interact and condition each other, how to measure it.

### 1. General condition of the problem

Economic development creates a transition from maximizing economic growth to maximizing happiness. But there is a threshold at which economic growth no longer brings a significant increase in subjective well-being, i.e. although higher incomes are associated with a higher level of

happiness in the country, the average level of happiness for the country does not seem to increase over time in line with the increase in average income [2]. Material well-being is important, but it is far from the only determinant of happiness.

For developing countries, where income has a relatively low weight in the level of happiness of the population, it is very important to pay attention to those determinants of happiness (indicators of well-being) that do not require large resources and can be realized in the short term, since the ultimate goal of most people is not to be rich, but to be happy and healthy.

The concept of "level of happiness" is one of the important measurable indicators of how suitable and comfortable this particular society is for people's lives [3]: the maximum possible level of happiness for as many people as possible is the goal and task of social policy, public and state institutions, as well as a measure of the effectiveness of their work in most modern states.

In the context of economic activity, digitalization has radically changed and continues to change the lives of people, communities and the whole society, transforming business models and the nature of consumption and interaction. The range of digital transformation is vast, affecting almost every aspect of people's lives. Its impact also manifests itself in different ways – from minor corrections in everyday life to potentially transformational changes in fundamental values and processes.

## 2. Measuring the level of digitalization and the relationship with the level of happiness

Faced with many of the challenges and questions raised by digital transformation, national statistical offices and other stakeholders are seeking to push the boundaries of our understanding of "well-being" and the ability to measure it. Trying to combine many issues related to well-being and digital transformation, we find ourselves in the words of Gluckman and Allen (2018) in "... a new, unexplored field."

The digital divide is reaching serious proportions and already threatens to lead to a new form of global inequality. Such disappointing conclusions were voiced by the President of the 75th UN General Assembly Volkan Bozkir [4]. Almost half of the world's population does not have access to a huge layer of knowledge, entertainment and a variety of services. The problem is most acute in developing countries.

In order for everyone and everywhere to benefit from the use of digital technologies, it is necessary to bridge the continuing digital divide, especially in the area of Access to the Internet.

If we pay attention to a special socio-demographic group: the elderly, then the elderly as a group are on the negative side of the digital divide.

Lower levels of computer and Internet use among older adults have important social and financial implications. As ICT becomes increasingly integrated into everyday life, people who do not use the Internet are more likely to become more disenfranchised and disadvantaged.

In the literature, the digital divide affecting older people is explained by the internal characteristics of older people, such as lower levels of computer literacy, anthropophobia, and lack of perceived utility.

The problem of assessing the level of happiness in countries with the help of international ratings is dealt with by many organizations, here are just some of the indicators for a comprehensive assessment of the well-being and quality of life of the population:

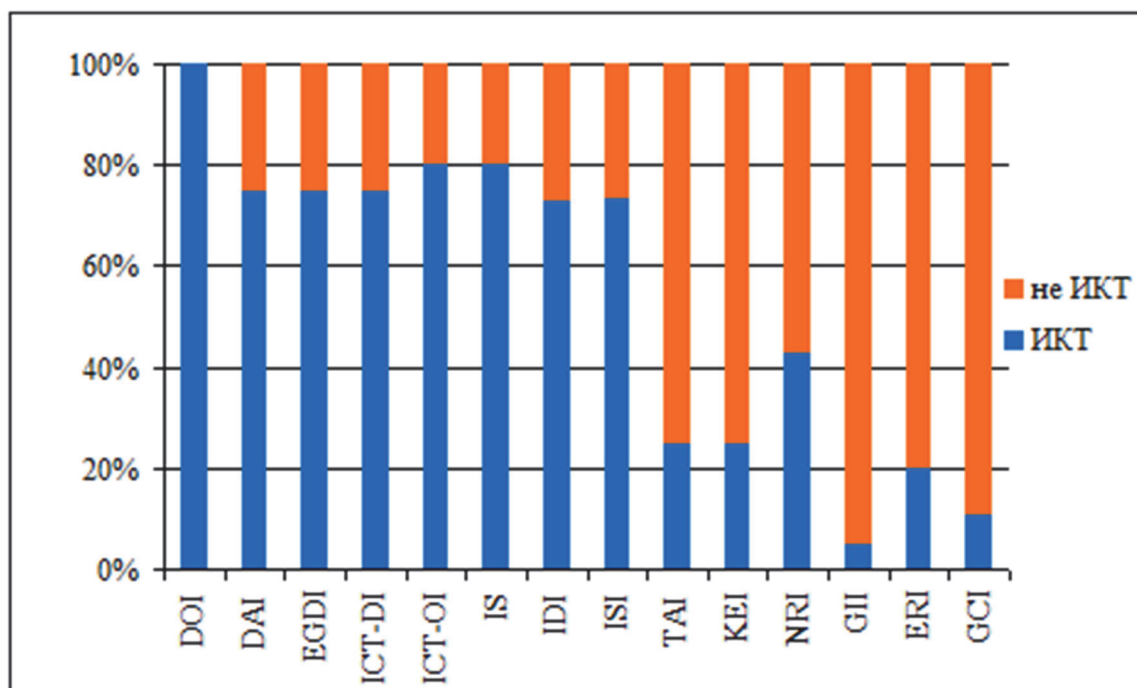
- Better Life Index;
- Prosperity Index / Legatum Prosperity Index;
- World Happiness Index / World Happiness Index;
- Quality of Life Index;
- Gallup-Sharecare Global Wealth Index.

Also today, there are many methods, measurement indicator systems and bodies for monitoring the progress of the global information society (GIS):

- Network Readiness Index (NRI, WEF),
- E-Government Readiness Index (e-GRI, United Nations),
- Knowledge Economy Index (KEI, World Bank),
- Knowledge Index (KI, World Bank),
- ICT Development Index (IDI, ITU),
- Human Development Index (HDI, United Nations),
- Digital Divide Index (DDI, ITU), Global Innovation Index (GII) and others.

In the early stages of information society research, the focus was exclusively on information infrastructure.

At present, due to the multidimensionality and complexity of issues related to the information society, the number of variables in the composition of composite indicators that are not directly related to the dissemination and use of ICTs has increased [5]. A comparative analysis of the most common indices of the information society made it possible to consider the share of ICT indicators in the total volume of partial indicators constituting indices (see figure 1).



**Drawing. 1. Composite indices are analyzed depending on the number of partial indicators directly related to ICT [5].** Of the 14 composite indices analysed, only one (DOI) uses only partial ICT-related indicators, the remaining 13 combine them with indicators describing the socio-economic characteristics of society: indicators of well-being. For six of them (GII, GKI, ERI, KEI, TAI, NII), more than half are indicators that are not directly related to ICT. If we consider the Global Innovation Index (GII), which analyzes 81 indicators, it consists of more than 80% of indicators that are not directly related to ICT.

This suggests that the nature of the information society is quite complex and cannot be measured only by indicators of the use of information technologies, since the successful use of ICT depends more on characteristics that do not have a clear connection with ICT (for example, the level of education, logistics, the political environment and the effectiveness of public administration, the business environment, trade and lending, the entertainment market and others), and not only in terms of information infrastructure parameters.

At the same time, happiness indicators practically do not take into account the peculiarities of the development of the information society. The

potentially significant impact of new technologies – and in particular on user welfare – is largely ignored (Castellaci et al., 2005).

The table below provides an overview of only those parts of the 81 indicators in the GII index that show that ICTs depend on indicators of well-being, but it is very difficult to identify indicators that take into account the group of older persons, despite the fact that older persons are the fastest growing group of Internet users. The table shows the strengths and weaknesses of the Republic of Moldova in the Global Innovation Index (GII) 2021 [6]

**Table 1.** Strengths and weaknesses of the Republic of Moldova [6]

Strengths			Weaknesses		
Code	Indicator Name	Rank	Code	Indicator Name	Rank
1.3.1	Ease of starting a business	12	2.3.3	Global corporate investors in R&D, top 3, us\$ million	41
2.1.1	Public expenditure on education, % of GDP	13	2.3.4	QS University Rankings, Top 3	74
2.1.2	Government Funding/Student, Secondary Education, % GDP/Limit	18	3.2.2	Logistics efficiency	108
2.1.5	Student-teacher ratio, secondary school	31	3.3.1	GDP/Unit of Energy Consumption	107
6.1.1	Patents by origin/billion GDP by PPP	31	4.3.3	The scale of the domestic market, billion PPP\$	116
6.1.3	Useful Models by Origin/Billion PPP\$ GDP	1	5.1.3	GERD operated by business, % of GDP	76
6.3.4	Export of ICT services, % of total trade	15	5.2	Innovative Connections	119
7.1.1	Trademarks by origin/billion PPP% of GDP	14	5.2.1	Cooperation between universities and industry in research and development	116
7.1.3	Industrial designs by origin/billion PPP% of GDP	9	5.2.2	State of development and depth of the cluster	126
7.3.4	Creation of mobile applications / billion GDP at PPP	20	7.1.2	Global Brand Value, Top 5,000,% of GDP	80
			7.2.2	National feature films/million pop. 15–69	101

Many other potentially important channels through which ICTs can generate wealth have not yet been explored. Research on this important topic currently

lacks a coherent and holistic structure that brings together ideas from different disciplines and guides future research.

In a recent evaluation of innovative research, Ben Martin points to **twenty challenges for future research**, one of which is the need to study how advanced technologies affect human well-being. *"Innovative scientists will need to shift the focus of our empirical work from innovation for wealth to innovation for well-being"* (Martin, 2016).[7]

### **Conclusion (regarding the interrelation-mutual influence of the level of well-being and digitalization)**

Many literatures in recent years have looked at the extent to which wealth differs between individuals, social groups, and countries, and a set of factors that may explain these differences. Among other factors, these studies focused on differences in absolute and relative incomes between people, their quality of working life, their social relationships and characteristics, and the quality of their physical and socio-institutional environment.

Interestingly, the literature on happiness flourished independently of innovative research, and the two strands of research did not interact with each other. In happiness research, technological innovation is definitely not one of the many variables that have been explored in the mainstream explanatory system.

In the review "The Impact of ICT on Well-Being" (8), the authors say that:

First, a new and largely unexplored question of great social importance is raised, which is of great interest to innovative research. Second, a new theoretical framework for the analysis of this question is being created, bringing together ideas from different fields of research and various disciplines interested in human well-being, such as economics, psychology, organizational research, and information systems research.

Most people actively use ICTs in both private and working life, lacking adequate information and awareness of how they affect their well-being. Research on this topic is still underdeveloped and highly fragmented.

Second, most research on the determinants of well-being so far has focused on factors related to specific areas of life. However, one important point is that the impact of ICTs on well-being in different spheres of life can be mediated by a set of personal characteristics specific to each individual, and in particular by abilities, psychological functioning and conditions of formation (culture and beliefs). Therefore, the most important aspect that future research should analyze is the interaction between the activities of people in different areas of life and their individual personal characteristics. This is especially true for the elderly, especially since the internal characteristics of this group are quite well studied.

It is this interaction that explains why the use of ICTs in various spheres of life can have a stronger positive impact on the well-being of some people and social groups than others. Studying these complex interactions requires the collaborative efforts of well-being researchers with different backgrounds and disciplinary orientations, and in particular psychologists, economists, and innovation researchers.

It is difficult to distinguish the effect of digitalization from the many factors affecting well-being. It is often possible to measure not so much the impact of information and communication technologies (ICTs) on well-being as the level of well-being itself. However, it is the impact that may be of interest to national policymakers who decide where to invest in order to maximize the impact on welfare [9].

### **References**

- [1] Skvortsova E.E. Interrelation of digitalization and quality of life: measurement and interpretation // Population. — 2021.— T. 24.- No 2.- P. 66-75. DOI: 10.19181/Population.2021.24.2.6.
- [2] Veenhoven R. Happiness in nations: Subjective appreciation of life in 56 nations 1946-1992. //World Database of Happiness. 1993. Vol. 44. No.

6. P.124.

[3] Smith, K. (2014) The Easterlin Paradox. In: Michalos A.C. (ed.) Encyclopedia of Studies in Quality of Life and Well-Being. Springer, Dordrecht. [https://doi.org/10.1007/978-94-007-0753-5\\_802](https://doi.org/10.1007/978-94-007-0753-5_802)

[4] [Summary-of-HLD-on-Digital-Cooperation-Connectivity](https://www.un.org/pga/75/wp-content/uploads/sites/100/2021/07/PGA-Letter-Connectivity) [https://www.un.org/pga/75/wp-content/uploads/sites/100/2021/07/PGA-Letter-](https://www.un.org/pga/75/wp-content/uploads/sites/100/2021/07/PGA-Letter-Connectivity)

[5] K. Y. Kononova, Ph.D., Associate Professor, Associate Professor of the Department of Economic Cybernetics and Applied Economics; E. A. Kovpak, Ph.D., Associate Professor of the Department of Economic Cybernetics and Applied Economics, Kharkiv National V.N. Karazin University, Kharkiv. Statistical Profiles of the Information Society: A Comparative Analysis of Electronic Indices, 2015.

[6] Global Innovation Index (GII) 2021. <https://www.globalinnovationindex.org/analysis-economy>

[7] Martin, B. R. (2016). Twenty tasks for innovative research. Science and public policy

[8] Fulvio Castellacci and Vegard Tveito, 2016. "The Impact of ICT on Well-Being: An Overview and a Theoretical Framework", [Working Papers on Innovative Research](#) 20161004, Centre for Technology, Innovation and Culture, University of Oslo.

[9] World Bank, 2021. "Data, Digitalization and Public Administration". Report on the Economies of Europe and Central Asia, Spring 2021. World Bank, Washington, D.C. Doi: 10.1596/978-1-4648-1698-7. License: Creative Commons "Attribution" 3.0 ISA