

# The human impact in the age of digital transformation

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**Abstract.** Issues of negative impact of digital processes on society in general and on people in particular are considered as well as problems of influence of network communications, virtual space, digitalization of education, formation of digital culture on personality. It is argued that in emerging digital society devalued the phenomenon of knowledge in the traditional sense, value and significant in practical terms, is not the possession of knowledge per se, but the ability to buy it, isolate of tremendous information resource, and at a certain time and at scale. There is an analysis and generalization of the transformations generated by the "age of the figure" and affecting humans. The category of "person in his social ipostasis" is chosen for scientific analysis, which allows to better understand the essence of the ongoing transformations, and, most importantly - their social and psychological consequences. The analysis found that the radical transformation of human existence has led to changes both in human psychophysics and in his cognitive, mental, communicative, axiological spheres.

## 1 Introduction

Often we hear the concept of digitalization, although it is more correct to say "digital transformation." The term "digital transformation" is intended to describe the next stage of information technology development, connected with the fact that not only technologies, but also digital literacy of people has reached a new level. Digital change is a consequence of changed paradigm for creating and consuming information.

The digital age made rapid global communications and the existence of information networks possible, which changed the form of modern society in significant way, and changed the Man himself in the first place.

The definition of "digitized person" requires an analysis of the permissible boundaries of culture and human digitization. Now scientists around the world are asking questions "Will the human brain change in the digital environment? What will the excess of information consumption lead to? Research in the field of neuroscience shows that modern man has difficulty concentrating attention, his creativity is decreasing, and communicative skills are getting worse and worse [1]. We have already begun to talk about diagnoses of

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"digital dependence," digital dementia, "informational pseudo deficiency" and "digital autism" (A. Kurpatov [2]).

In connection with the above-mentioned globalizing changes of society and man, new terms have emerged: "digital culture," digital society, "digital person," digital generation, "digital identity," etc.

The concept of "digital culture" was drawn from the English-language publications of R. Gira [3], and it does not raise any complaints regarding the use of information and media technologies. However, when it extends to culture as a whole, or is used as a marker of the modern era, it raises serious worldview and conceptual objections and concerns.

Digital society is often called "equal opportunities society" (A. Keshelava, V. Budanov, V. Rumyantsev [4, p. 6]); Digital equality (in the modern world this is a requirement for social justice - A. Guryanova [5, p. 310]). In order to actually correspond to this kind of essential characteristic, social development must be based on two priority factors: 1) digital and infocommunication technologies, including distance learning, employment, provision and receipt of services, should be developed intensively and disseminated as widely as possible;

2) humanization of society, because if society is inhumane, it is by definition impossible to have a decent existence of man as a person, and it is not only about social, but also about spiritual and elementary physical existence.

"Digital Man" is commonly considered to be someone who was born in the era of digital technology. This term is often used as a synonym for the word "millennial," although digital natives include not only millennials - for example, members of the latest generation of Z are also native to the digital world. In addition, not all millennials belong to the digital nation, because many people grew up without any access to communication technologies.

The term "digital generation" was found and introduced in 2001 by educational consultant Mark Prenski. He argued that unlike so-called "digital immigrants" (people who born before the digital age), children born during the digital revolution need a special approach to learning and process information quite differently. Scientists have still not found out whether the cognitive abilities of the "digital generation" differ from those of "digital immigrants."

The concept of digital or virtual identity is becoming relevant (Y. Peknikovaya [6, p. 63-66]; Nagy, P., Koles, B. [7]).

In general, scientific and technological progress and the resulting digitalization lose meaning without appropriate reform of the cultural and educational environment of man.

According to all this, the purpose of the article is to analyze and summarize the transformations generated by the "digit age" and affecting humans.

Goals:

1. Analysis of trends generated by the digital era, indicating the change of modern man;
2. Summarize changes that occur to contemporaries due to contact with the digital environment;
3. Analysis of the trends of digitalization leading to the changes in the man-world relationship;
4. Understanding the effects of intense digital penetration.

## **2 Methodology**

An effective methodological tool to help identify the mechanism of human-projected impacts of the digital age is the traditional activity approach and conceptual analysis of the set of changes caused by the large-scale development of the digital environment for the formation of the subject's skills.

## 2.1 Radical Transformation of Man in the Context of the Emergence of a Digital Society

We already live in a digital world: we walk with mobile phones, we climb social networks, we pay with bank cards, we carry out online transactions, etc. All "traces" of our activities remain in electronic space; On the basis of these data it is possible to digitize both personal characteristics, needs, environment, and even physiological health.

At the end of the last century, J. Masuda emphasized the effect that a series of discoveries in the field of information technology turn absolutely all people into consumers of information outside their will and will [8]. Technologies in their rapid running carry renewal, constant variability, instability. As a result, modern man feels his vulnerability, the need for constant restructuring, the diffusion of the human existence. Increasingly, the real danger of total information control of both public and private life is becoming known.

Furthermore, the questions of the influence of technologies on human evolution were raised by S. Lem in the philosophical-futurological tract "Sum of Technologies" (1962). In his book, a prognostic analysis of scientific, technical, moral, ethical and philosophical problems related to the functioning of civilization in conditions free from technological and material limitations was carried out [9].

Many of the issues raised by Lem, who in those years made up the topic of science fiction - virtual reality, nanotechnologies, artificial intelligence - 30 - 40 years after the first publication of "Sums of Technology" into the category of topical and actively developed scientific problems.

Today's generation of children, schoolchildren, students becomes a digital generation that can only perform manipulation by operating the computer or phone. It is no secret that the dream of adults is to secure children by ridding them of the negative impact of disenfranchised content, which is related to the dissemination of information about drugs, pornography, and acts of hatred. But on the other hand, modern children can no longer live without the Internet, social networks and computer games [10].

In Table 1, we tried to reflect the risks of developing of the growing individual through the presentation of digitalization forms and transformation of leading activities that act as alternatives to classic, scientifically sound and positively affecting the psyche of the child.

**Table 1.** Digitalization and transformation of leading human activities in the initial stages of life.

Age period (periodization of D. Elconin)	Leading activity	Form of digitalization and transformation
Infancy (a. 0-1)	Direct and emotional communication	Emotional communication with parents alternating communication with a child with activity or leisure with digital devices
Early childhood (a. 1-3)	Subject and manipulative activity	Manipulation of digital devices
Pre-school age (a. 3 - 7)	Role-playing game	Computer games. Retrieving game content from the Internet. Exploration of the mobile phone
Junior school age (a. 7 - 11)	Educational activity	Retrieving information from computer. Digital submission of information. Computer games. Digital technology in education
Adolescence (a. 11 - 15)	Communication	Internet. Social networks. Computer game addiction
Senior school age (a. 15 - 17)	Educational professional activity	Mastering the world of professional and economic activity through the Internet and

		social networks. Computer gaming addiction, social media addiction
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As we can see from the table, in addition to the transformation of the child 's communication with adults, there are trends in the relationship of children with peers and other children. The children 's community is changing dynamically, remaining partially hidden from adults. Children already use digital tools (gadgets) to communicate with peers, as communication technologies become more popular than "live" communication.

Researchers state that the quality of child-parental relations changes (K. Moore, A.Kinghorn, T. Bandy [11]), game activity is reduced and depleted (S. Danby, M. Fleer, C. Davidson, M. Hatzigianni [12]); Reducing the amount of time spent by a child with other children (N. Tolstyh, I. Kulagina, E. Apasova, N. Denisenkova, T. Krasnilo [13]); The type of perception of animation and children 's films is changing (R. Assathiany, E. Guery, F. Caron, J. Cheymol, G. Picherot, P. Foucaud, N. Gelbert [14]).

Features of childhood in the digital age were revealed in detail in the report of G. Soldatova, director of the Internet Development Foundation, member of the Russian Academy of Science. Based on research conducted by the Internet Development Foundation, she described a portrait of the digital generation. Considering childhood, following the classics of cultural and historical psychology, as a socially historical education, G. Soldatova noted that the Internet contributes to the development of the child a new infocommunication coordinate, significantly changing the processes of socialization of the individual [15].

In addition to the transformation of childhood, there is a significant transformation of human consciousness. The Canadian writer Albert Manguel, in his book "History of Reading," describes a remarkable transformation of human consciousness that occurred around the tenth century AD [1]. That's when the era of silent reading came. Before that people read exclusively aloud: today we think it is wild, but it used to be common.

There is no doubt that digital technology challenges our reading mind, creates additional problems for it. But if we look at this question in terms of history, we can say that the problem looks a little different. Reading from digital media is a stick about two ends, not an unambiguous evil. If this reading is "bad," the Web will turn us into mindless clicking creatures, with no end scanning through the eyes of the news tape. If this reading is qualitative, it gives great potential to expand and develop the space of contemplation - the same one that emerged when we learned to read without moving our lips.

Let us pay attention to how a person in an older age is transformed, when, in our opinion, he can already determine priorities of his development and formation as a person. Here, the human impact of the digital environment is enhanced by the inclusion of students and teachers in social media systems (virtual networking), the Internet, online courses, multimedia interactive technologies as ways to organize education, research and leisure.

Today 's students cannot perceive information as its predecessors perceived it. For example, it is difficult to listen to classic half-hour lectures of even the most qualified teacher. But they can digest a huge block of information, but in parts or on request, as students have different requests, approaches and career expectations. At the same time, the nature of interaction between generations has changed, earlier the elderly person was a bearer of information, now modern search programs allow young people to know more teacher. The teacher currently acts not so much as a carrier and transformer of scientific information, but as an organizer of cognitive activity of students, their independent work, scientific creativity.

The introduction of distance learning makes it possible to acquire knowledge in the most prestigious educational institutions, allows to master the profession in the personal

office through Internet technologies, regardless of the usual living conditions, at a convenient time for the student, at the optimal pace for him.

As we know and observe immersion in the electronic environment changes the very nature of thinking, the principles of justification of knowledge (machine thinking, computer consciousness). A few years ago, Russian researcher A. Alekseyev noted that in electronic culture "the spiritual and material component is formatted with artificial intelligence - technology of extraction, representation, storage, processing, transfer of" knowledge "and, in general," management "of them" [16, p. 38].

Thus, in the context of the emergence of a digital society, the phenomenon of knowledge in its traditional sense is devalued. It is not knowledge as such that becomes valuable in practical terms, but the ability to acquire it by drawing it from enormous information resources, and at a certain time and on the necessary scale. The further storage of knowledge acquired in this way in human memory makes no sense in view of the presence of devices specially designed for this function, such as hard disks or specialized servers. For this reason, the ideal of an erudite, encyclopedially educated person devalues, loses its former socially significant status, which leads to its non-demand in modern society and transformation into a kind of relic of the past [17, p. 224].

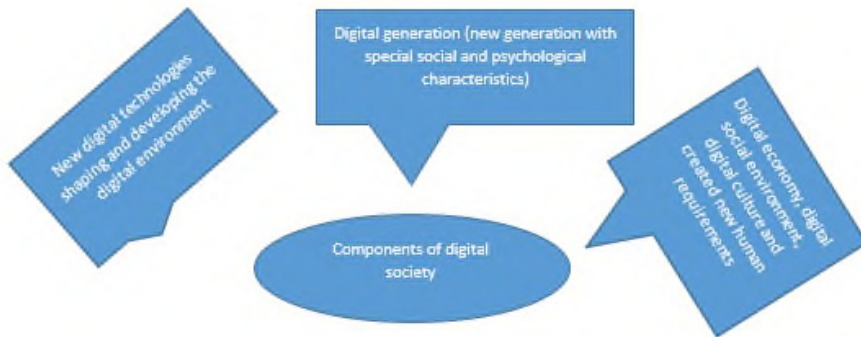
The emergence of the information society has led to the development of pathologies in adolescents and young people not only in the mental sphere, but also at the level of physical health. Low-activity lifestyle, constant computer work in sitting position, a glowing screen that negatively affects the retina of the eye, increased fatigue due to monotony of information perception - all these are only minor consequences of the impact of digital technologies on the health of the student.

But there is an even more global problem - the emergence of mental dependence on social networks and the Internet, which change not only the mentality and world view of the person, but also lifestyle, social behavior, which entails, at best, a change, and at worst - the destruction of traditional values and moral norms, as well as social patterns of behaviour, especially in children, adolescents and young people.

The emergence of a new direction of scientific research - digital axiology, suggests the need to form in modern man a special digital culture as an element of the culture of all-human and mandatory condition of comfortable existence in society. Successful realization of this task requires adaptation of the person to constantly changing conditions of digitalization, where he is in dialectical symbiosis with the latest digital technologies [18, p. 20].

## **2.2 Digitalization trends leading to changes in the man-world relationship**

The characteristic feature of digital society as a sociocultural phenomenon can be considered the dominance of network communication, which expands the boundaries of possible contacts, creates conditions of interactivity, multi-vector, creativity and promotes the involvement of an unlimited number of persons in interaction. Emerging social communities on the world 's information web have an unprecedented capacity to mobilize, to combine spatially divided factors, and with different goals, both socially positive and destructive.



**Fig. 1.** Components of digital society

The new style of consumer behavior generated by the "digit era": online services, online entertainment and games, online communication, online reading, online film viewing, online education, together with online medicine, generate a kind of info-world that positions as a self-sufficient type of being. At the same time, real ties and relations, living personal communication and ways of self-realization are aggressively replaced.

There is also a significant change in the motivation of success, which is associated with the number of likes received on social networks, the number of subscribers, the desire to leave its "network trail" regardless of its value and content [19]. So-called virtual workplaces produce negative effects of an existential nature, as the lack of real interaction with surrounding people negatively affects the essential characteristic of man as a social being. There is a kind of "digital solipsism".

Modern algorithms are becoming one of the most important factors in the formation of new forms of interpersonal interaction. And the strongest dependence of modern man on new technologies allows to talk about a new "interactive" loneliness [20]. Man becomes a gate, a hostage, so-called hikki (or homo solus) - a man alone - that is, a real actor of the digit era [21]. In other words, there is some subclass of computer people, so-called zombies [22], who do not care about the future, they lead a veiled life and earn their livelihood with the same computer.

The former natural environment "man-world - relationship" is replaced by artificial "man - computer - interactivity." The electronic environment allows person in the "network world" to overcome the limits of traditional communications. At the same time, new types of social behavior of the individual, alternative to the historical ties in the real society, are being designed. The person from a passive observer turns into "navigator," seeker of new communists in the network, into creative personality, always ready for dialogue. But since the intensive development of science and technology does not fully guarantee the development of the spiritual world of man itself, the preservation of his moral ideals, there is a threat of loss of identity.

### 3 Conclusion

Due to the above circumstances, modern digital society cannot be called truly "humanistic." It has yet to introduce and strengthen humanistic values fundamental to progressive society [23, p. 53] However, this is absolutely necessary, as the progress of the digital sphere of society - only the external side of his development. The true progress of society is not possible without the improvement of the personality itself, the development of its spirituality and intellectual abilities [24].

In recent years' foreign scientists have been asking questions: on integrating multiple human roles and subject areas (Zinder, E., Yunatova, I. [25]), on whether information and communication technology leads to the well-being of Nations (Ganju K.K., Pavlou P.A., Banker R.D. [26]), do robotics and artificial intelligence really mean social transformation? (Boyd R., Holton R.J. [27]), what is the gap between practice and theory of digital transformation? (Gudergan G., Mugge P. [28]).

As can be seen from the analysis, the intensive breakthrough in the sphere of digital technologies causes significant transformations of all spheres of society, which leads to the revision of the human existence. Man will have to adapt in new conditions, nevertheless in the era of digital technologies man still remains the main objective. Man will have to develop and support the processes of digitalization, as this will require a large amount of highly skilled labor [24].

At the same time, in the last two years, work has intensified that offers real measures for organizing optimal transformation in the era of digitalization: the authors suggest: a training program for mastering digital transformation (Dr. Nagy K. Hanna - a global expert on national innovation, smart cities, and digital transformation strategies [29]); what do machines owe to people and what do people owe to Superintelligent machines (Livingston S., Risse M. [30]); model for digital leadership (Ulrike Stefanie Foerster-Metz ,Katrin Marquardt, Nina Golowko, Andreas Kompalla and Christian Hell [31]); creating leadership impact in the digital world (Paul Taffinder [32]).

Digitalization of society and business is moving forward with increasing speed, requiring closer research of this phenomenon. The main areas of impact identified in the literature are organizational learning, digital innovation, organizational flexibility, business ecosystems, and organizational structures (Markku Kuusisto [33]). So far, the Person remains outside the field of global research, which causes us particular concern[34-36].

In summary, the challenges of digitalization require Man 's readiness to transform various spheres of life. At the heart of any successful digital transformation must be a man. Today we need not only a project of the future state of society based on digital technologies, but also a project of the person who will live and participate in its transformation in this society.

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