UDC 14

SOCIO-PHILOSOPHICAL ASPECTS OF MODERN INFORMATION TECHNOLOGY RESEARCH

Veryaskina A.N.

The Russian Presidential Academy of National Economy and Public Administration (Nizhny Novgorod Institute of Management), Nizhny Novgorod, e-mail: veryaskina-an@mail.ru

Despite the presence of a significant number of research, the issue of the impact of information technology on a person's life requires further study. Virtually absent are studies that consider the category of "information technology" in its conjunction with the category "life path" of an individual. In this respect, the concept of a system of factors affecting modern human life taking into account the transformative role of IT needs to be clarified. The problem of substantiating the system of conditions facilitating the choice and practical implementation of positive life path model of an individual as a bio-socio-spiritual creature, taking into account the impact of IT, requires further study. The present research reveals the content of the "information technology" concept in the unity and interrelation with the philosophical categories of "technology" and "information". The role of information technologies in the system of factors affecting modern society is analyzed. The system of interrelated objective and subjective conditions facilitating person's choice and practical implementation of positive life path in the conditions of informatization is developed.

Keywords: Informatization, information technologies, Internet– technologies, life path, self-realization of a person.

Despite the presence of a significant number of research, the issue of the impact of information technology (hereinafter – IT) on a person's life requires further study. Virtually absent are studies that consider the category of "information technology" in its conjunction with the category "life path" of an individual. In this respect, the concept of a system of factors affecting modern human life taking into account the transformative role of IT needs to be clarified. The problem of substantiating the system of conditions facilitating the choice and practical implementation of positive life path model of an individual as a bio-socio-spiritual creature, taking into account the impact of IT, requires further study.

To analyse the problem of the nature, content and structure of IT, it is necessary first to consider the content of the philosophical concepts of "technology" and "information".

Three groups of phenomena are now included in modern authors' understanding of technology. First, the purposeful human and social actions to create innovations (artefacts): machinery, technical environment and even new technologies. Secondly, machinery contributes its own meaning to the understanding of technology. Thirdly, the phenomenon of technology is closely associated with civilizational conquests, which mankind owes to natural science and technical scientific disciplines, technical inventions, etc.

Modern interpretations of IT are associated with an expansive interpretation of the term "technology". J. Galbraith defines technology as the systematic application of scientific knowledge for practical purposes. The analysis of issues on the nature of IT is related to the discussion on the content of technological revolutions. According to D. Bell, the first technological revolution should be considered the steam revolution. The second revolution is associated with chemistry and electricity, the third – with computers and telecommunications. The concept of technological revolutions is continued by the concept of information revolutions, as D. Robertson's concept states that "civilization means information" [1].

Considering the phenomenon of information, first of all, it is necessary to note the general scientific approach, which examined the patterns of control and transmission of information in different systems: society, living organisms and machines (N. Wiener, C. Shannon, W.G. Walter). Linguistic, biological, psychological and sociological studies have singled out a number of information characteristics: originality, redundancy, orderliness, code, sign and others (L. Wittgenstein, J. Gerdan, N.S. Trubetskoy, A.A. Shakhmatov, A.A. Potebnya). In the framework of the dynamic theory of information developed by D.S. Chernavskiy, methodologies for determining the information value were developed.

The latter has gradually acquired the status of a philosophical concept in the discussions on the information nature. The information nature can be defined within "functional" (D. Dubrovsky, N. Moiseev, N.I. Zhukov, B.S. Ukraintsev, P.V. Kopnin, etc.) and "attributive" approaches (K. Kolin, A. Uemov, Y. Urmantsev, A. Ursul, etc.). Numerous scientific studies provide a detailed critical analysis of these approaches, allocating its merits and demerits (A.Y. Friedland, D.S. Chernavskiy, J.Y. Bakaeva, V.V. Sanochkin, G.V. Fazlieva, S.L. Popova, etc.). Nowadays, researchers offer various options for constructively overcom-

ing the latter in order to create a common approach to describing various properties and manifestations of information.

Modern scholars consider a human as an informational being in a threefold way: 1) man is an internal cause of obtaining information by the subject himself from outside and within them; 2) man is a self-managed system; 3) human beings are unique physical, biological, social data banks.

The last form of information is social information, which merits closer attention in a social-philosophical approach. Modern social information scholars (M.K. Petrov, A.I. Subbotin, N.I. Basina, I.F. Vodyanikova, S.L. Popova) rely on the concept of sociocode – "a totality of all artificial programmes of joint activity possessed by sociality: mechanisms for its retention, fragmentation, translation and modification; and social institutions providing communication and continuity of generations".

Besides, socio-philosophical interpretations of information analyze its various forms, allocated depending on the main fields of society life: "economic information", "political information", "socio-cultural information", etc. All these types undoubtedly have an impact on an individual's life path and require their own specific research.

Thus, the modern information concept is rightfully characterized as a general scientific and interdisciplinary one. In the expansive interpretations, information is presented as an essential requirement for the development of all types of activities, and meaningful information is presented as a fundamental mechanism that distinguishes the humane from the non-humane.

Consider the definition of information technology. Some authors, applying the type of technology tools as a criterion, allocate manual, mechanical, electrical, electronic and computer technology. The latter, which has been actively developing since the mid-1980s up to the present day, has made it possible to substitute humans in various fields.

Until the mid-1990s, the computer invention was perceived as the "information revolution", the "computer revolution", the personal computer was perceived as a tool to optimize individual human activity, rather than as a means of expanding human communication. Nowadays, due to the rapid development of Internet technologies, it is impossible to imagine "communication" without "information" and "information" without "communication".

Thus, since any information processes turn into communication ones, and any communication processes denote that information transfer has occurred, the concepts of "information technology" (IT) and "information and communication technology" (ICT) can be used as synonyms. In this research we will adhere to the same approach.

We will now focus on the definition of this phenomenon.

The UNESCO Information for All Programme considers information technology as "a set of interrelated, scientific, technological disciplines studying methods of efficient organization of people' labor involved in information processing and storing: computer science, methods of interaction with people and production equipment, their practical implementation, and related social, economic and cultural problems" [2].

IT is considered in its own technological and broad socio-philosophical context.

One of the earliest classifications of information technologies developed in the Russian literature in the 80-90s of the 20th century includes: functionally-focused, domain-specific and problem-oriented technologies.

I. B. Shevchuk allocates IT, providing such directions of information society development as e-economy, e-work, e-medicine, e-government, e-science, e-culture, e-security and others [3].

The ICT development is associated with a series of processes, which are nowadays grouped under the concept of "informatization". These include: 1) improvement of electronic technologies and computer devices; 2) development of digital media and digital methods for information storing and processing; 3) complication and miniaturization of telecommunication media and networks (broadcasting, telephony, mobile network) using satellite and ground devices; 4) creation of new communication channels leading to intensification of information transfer; 5) diversification and efficiency of ICTs; 6) increase in information services; 7) higher requirements for the information quality and security; 8) increasing the ICT mass character and accessibility, expansion of audience, choice of place and time of access to communication channels and content transfer; 9) creation of intelligent systems and informational-urban complexes (nodes of global information socio-natural space and communications) – info-polis; 10) modernization of education system using ICTs [4].

However, the creation of the Internet, a global computer telecommunication network, is of crucial importance among the listed processes. Its impact on human life has already been compared to that of the printing press.

Half of the world's population are now active Internet users, according to the "Measuring the Information Society" report by the ICT Statistics and Information Division of the Telecommunication Development Bureau of the International Telecommunication Union (ITU).

In 2011, 152 countries were included in the IDI (ICT Development Index, which includes 11 indicators of ICT access, usage and skills); in 2017, 176 countries were included.

In 2017, the top IDI countries were: Iceland, Republic of Korea, Switzerland, Denmark. The Russian federation ranked 45th in 2017 (IDI 6.91). By comparison, in 2010 Russia ranked 46th (5.57) [5].

The number of Internet users in Russia has increased from 49,3 (in 2010) to 89,6 (in 2020) per 100 inhabitants. Denmark, Iceland, UAE, Kuwait and other countries are ahead of Russia on this indicator [6].

Socio-philosophical analysis of the nature and essence of information technology highlights the main concepts described in the modern foreign and domestic literature. To identify the IT distinctive features, these concepts will be reviewed in the technological aspect, as a type of broadly understood technology.

Technology nowadays is a parallel to the human way of life, which transforms the whole system of factors affecting it. When comparing approaches to the study of technology, we will follow the triad "natural – social – spiritual", revealed in different aspects: "nature – technology", "society – technology", "culture – technology".

Considering the aspect "nature – technology", it is worth noting that technologies include products of natural "activity" of nature itself, rather than just products of man's purposeful activity. All man-made technologies use natural laws and effects. Some of them have been explored, rather than created, and are now used by humans. Man himself is a component in the technological processes of nature.

Technology development is defined as a key factor in the sociocultural dynamics of the modern era (L. White, M. McLuhan, F. Kittler, J. Simondon). Sociocultural changes are described as progressive and humanizing society. They provide an environment for a person's self-realization. This concept examines the way of life of man, who has made technology his second nature, so that man was able to respond to any natural, social, cultural challenges.

The socio-deterministic approach emphasizes that there is an essential connection between technology and social relations. It is often neglected if technology is viewed only as a technical system.

All "phases of life" of technologies, starting from their creation to their withdrawal from use, are directly connected with social relations. And these relations emerge mostly without the participation of technology. Scientific knowledge only assumes ways of further development of technologies, but only political and economic decisions can implement them in reality.

Nowadays the development of technology is determined by groups of people who are in a position to make political or financial decisions. These people are members of governments, businessmen, financiers, media tycoons, scientists, and engineers. However, people in societies with strong public opinion and political institutions must consciously propose, modify, or forbid the use of certain kinds of technology.

Thus, technological determinism and social determinism are strands that explore the cause-effect relationship in the society-technology system.

In addition, there are a number of theories that reveal the specificity of technology, considering it in the context of culture. Along with social determinism there is cultural determinism (R.Williams, Crocker, Weinstein).

Thus, M. Heidegger believes that it is necessary to consider technology within a broader context, which is the entire worldview of man in the New Age. This is connected with the fact that New Age metaphysics develops the ideas of subjectivism and domination over the world. The question of technology becomes a question of man and our understanding of nature for the philosopher. Modern technology is ruled by supply (the functional element of supply production). Supply is the extraction, not the realization of mystery, the compulsion of nature and man [7, p. 234, 253-254].

This philosopher makes a critical assessment of the processes of human technologization. This assessment is supported by many modern researchers.

Important aspects of cultural determination of technologies are described in the works of D.V. Galkin. "The search for preconditions of digital (binary) language – the foundation of modern information technologies – leads us to classical rationalism (philosophical metaphysics of Leibniz and its later adaptation in mathematics and informatics). Through the cultivation of scientific rationality, cybernetics, systems theory, and information theory have become the theoretical and methodological

foundation for the development of information technology" [8].

Speaking about the directions of the study of technology in the aspect "culture – technology", it is necessary to consider the axiological aspects of the problem.

In instrumentalism the main role is played by the value of Benefit (by analogy with the values of Truth, Goodness and Beauty realized by science, ethics and art). This approach was followed by the founders of philosophy of technology and engineering in Russia and Western countries (E. Kapp, P.J. Engelmeyer). They regarded technology as a means of achieving the goals of man, who is a "technical animal".

This point of view was formed at a time when the development of technological reality has not yet had a global character. At the same time, proponents of instrumentalism offered arguments in favor of technology and engineering that are still in use today. Their essence was that the problem is not technology itself, but the way people use it.

In another concept, technology is seen as the highest moral value. For example, the teachings of Friedrich Dessauer describe technical ideas as thoughts of God that are grasped by the human mind. Scientific and technical knowledge becomes a way of human life, and technical activity becomes a way of establishing a positive relationship with objects.

A number of other works address the formation of a new culture based on the values of technocratism. This term is described by A.V. Mironov as "the transfer of professional thinking and values from the sphere of scientific and/or engineering activity and any professional environment to the rest of the variety of relationships; absolutization of mathematical models – giving them an ontological status". He singles out progress, possession, objectivity, substitutability, controllability, all-solving, reductionism, etc. as values of technocratism [9, p.249-252].

It is impossible to completely abandon technocratic notions, but it is possible to minimize the damage from them by developing technoethics. Technoethics is the norms of responsibility for the use of technical means (scientific achievements) in practice, as well as their real application by people.

Thus, we have characterized the main approaches to the study of technology in the "natural – social – spiritual" system, which, we believe, is of fundamental importance for understanding the specifics of human life in modern society.

Of the greatest interest are the issues of man as an object and a subject of technologies, the "leader" in the "man – technology" system, new types of man that have emerged in the era of the last information revolution, etc.

For example, V. A. Pleshakov introduced the term "Homo Cyberus", which means "cybersocializing man. Cyber socialization is "the socialization of a person in cyberspace, a process of qualitative changes in the structure of a person's self-consciousness, occurring under the influence and as a result of a person's use of modern information and communication, digital and computer technologies in the context of assimilation and reproduction of culture as part of personal life activities" [10].

Some authors propose an alternative version of the Homo Sapience species for the next 10-15 years. They propose the creation of a kind of "eHOMO", which will be placed in a technological environment from birth, which will serve as its educator and helper and evolve symbiotically with it. There are two possible variants of the development of a new technological civilization created by eHOMO. A. S. Narignani notes: "The development of the species Homo Sapiens, multiplied by the possibilities of the new technological civilization being created, which helps it turn into a superperson (we can assign the index A to this version). However, we have already seen developments where progress does not simply adjust its direction, instead it makes a kind of dead loop. As a result, its dominant feature is a combination of political technologies, linguistic programming and mass culture, which prepare the optimal level of brain liquefaction, providing a breeding ground for civilization B – anti-utopia" [11, p.58].

Critical attitude to pan-technology is characteristic of many thinkers who oppose the transformation of man into a "technological creature", a product of technology, an extension of the techno-technological system.

The huge discrepancy between the living organism and its environment, between culture and technology, spirituality and rationality is considered in the works of V. A. Kutyrev. "The Rise of the Machines". However, it will not manage to function in reality. We can submit to the machines ourselves, without even noticing it or knowing when we will no longer exist. The increase in the complexity of activities and their exceeding the limits of human capabilities leads to the fusion of man and machine into a kind of wholeness. The individual turns into "human factor". He loses his identity and the meanings of life. Some reflexive structures

are formed involuntarily, so that the individual cannot control them [12].

Nowadays, Information technologies is considered from a technological point of view and in terms of its use to build new social relations and new forms of process organization in various fields of human activity.

The analysis of human prospects reveals both positive and negative trends. The prevalence of positive trends over negative ones is associated with the choice and implementation of a positive "humanistic" model of a life path. The latter implies that a person has real opportunities to gain and preserve health, improve their professional and cultural competence, and develop and effectively use their creative abilities at every stage of their life path.

However, the modern sociocultural situation is characterized by a contradiction between human striving to go beyond the limits that restrict his freedom in knowing, practical activity, communication, and the necessity of regulating human activity, technological and consumer self-restriction, ensuring unity of human will and action in order to preserve nature and spirit. These objective factors, essential to human being as bio-socio-spiritual creature, are now undergoing a serious transformation, whose scale and pace can lead to the most severe consequences.

Furthermore, there is a contradiction between the enormous potential offered by information technologies and the real human capabilities in mastering and using it with minimal negative consequences, preventing the destruction of the individual, society, the state, and the entire mankind.

Considering these factors, a number of objective social conditions that facilitate a person's choice and practical implementation of a humanistic model of life path, taking into account the impact of information technology, can be singled out. These conditions are based on the listed dialectical contradictions that are characteristic of the society's informatization processes.

First, it is essential to ensure the development of promising areas of scientific and technological progress, including the ICT sector, irrespective of short-term efficiency and material benefit only. The society should form an appropriate attitude towards science as a field that ensures the country's competitive position on the world markets of knowledge-intensive products and cutting-edge technologies.

Thus, a positive model of a life path should be based on a person's conscious aspiration to leave "here and now" dimension, to go beyond their own individual desires provided by Internet technologies, immediate material benefits, the prevalence of higher spiritual values over material ones, the feeling of belonging to the destiny of this society and humanity as a kind of criterion of estimating material benefits and achievements of technology.

Overcoming the crisis tendencies of natural human environment preservation and "cultural ecology", manifested in the destruction of the transpersonal values' system, can also be considered as a necessary condition for self-realization

Achieving a humanistic model of life path will be facilitated by the availability of knowledge, information and related education. In this regard, the individual's awareness of his needs, motives, goals, as well as the development of cognitive independence, including the willingness of a person to use the virtual educational space advantages, can be considered subjective conditions for self-realization.

A choice of a humanistic model of life path is facilitated by a corresponding assessment by society of a person's labor activity. Material reward should correspond to the importance of the functions performed by a person in the society. This implies the need for professional self-determination of a person, assessment of material wealth not only through the prism of prestige, but spiritual values as well.

The objective social conditions that facilitate a person's choice and practical implementation of a humanistic model of life path include ensuring the information space protection, prevention of negative impact on people. Subjective conditions in this regard include the formation of one's own culture of life self-determination? knowledge of the potential risks and ways to ensure the Internet security" [13].

The described conditions, on the one hand, represent the social demand for a creative person, and are the most important organizational basis for a person's creative activity during his or her life. On the other hand, a number of the listed objective and subjective conditions reflect the necessity of a rational combination of free self-realization and technological and consumer self-restriction, which is nowadays an essential condition for the existence of mankind as a whole. In our opinion, the consideration of natural, social and cultural transformations generated by information technology development from the perspective of a complex and contradictory process of seeking and choosing a positive model of life path can contribute to enriching socio-philosophical theory.

References

1. Veryaskina A.N., Romanov E.A. Information technologies as a subject of philosophical analysis. Bulletin of the Nizhny Novgorod Institute of Management. 2019. No 3. Access mode: http://services.niu.ranepa.ru/nauka/?page_id=8242 (accessed: 15.10.2022).

2. Information for everyone. UNESCO Program [approved at the 160th session of the UNESCO Executive Board (Paris, October 9-25, 2000); Resolution 160EX/3.6.1 dated November 22, 2000].

3. Shevchuk I.B. Expanded classification of information technologies: scientific-theoretical and regional approaches. Prospects of science and education. 2014. No 6 (12). P. 41-47.

4. Dergacheva E.A. Trends and prospects of socio-technological and natural globalization. Moscow: Leland, 2022. 230 p.

5. Measuring the information society. Report 2017. Access mode: https://www.itu.int/en/ITU-D/Statistics/Documents/publications/misr2017/MISR2017_Volume2.pdf (accessed: 09.10.2022).

6. Abdrakhmanova G.I., Vasilkovsky S.A., Vishnevsky K.O. Digital economy, 2022: Pocket data book. Moscow: National Research University Higher School of Economics, 2022. 124 p.

7. Heidegger M. Time and Being: Articles and Speeches. Moscow: Republic, 1993. 447 p.

8. Galkin D.V. Digital culture: shift artificial life: monograph. Tomsk: Tomsk State University, 2013. 285 c.

9. Mironov A.V. Philosophy of science, technology and engineering. M.: MAKS Press, 2014. 272 p.

10. Pleshakov V.A. Cyber socialization of man: from Homo Sapiens to Homo Cyberus: monograph. M.: Prometheus, 2012. 270 p.

11. Narignani A.S. Ehomo – two in one (Homo Sapiens in the near future). Open education. 2005. No 2. P. 51-61.

12. Kutyrev V.A. Philosophy of Transhumanism. M.: Direkt-Media, 2015. 85 p.

13. Veryaskina A.N. The problem of university students' self-realization. European Journal of Natural History. 2021. No 3. P. 13-17.