
Philosophical reflections on the information society in the context of a security-creating paradigm

Taras Y. Tkachuk*

Department of Information Security,
Educational and Research Institute of Information Security of
National Academy of Security Service of Ukraine,
Kyiv, Ukraine

*Corresponding author

Leontii G. Chystokletov

Department of Administrative and Informational Law,
Educational and Scientific Institute of Law and Psychology,
Lviv Polytechnic National University,
Lviv, Ukraine

Oleksandra L. Khytra

Department of Administrative Law and Administrative Process,
Lviv State University of Internal Affairs,
Lviv, Ukraine

Valerii V. Shyshko

Department of Theory and History,
Lviv State University of Internal Affairs,
Lviv, Ukraine

Leonid O. Ostapenko

Department of Civil Law,
Educational and Scientific Institute of Law and Psychology,
Lviv Polytechnic National University,
Lviv, Ukraine

Abstract: The article, based on theoretical discourse, analysed the main approaches to the basic axiological characteristics of the information society. It is established that the main characteristic of a modern information society is the presence of people, who are capable of critical thinking. Axiological,

epistemological and ontological aspects reveal the philosophical aspects of the reviewed definition. The ontological aspect of information security fixates a situation designed to deal with the risk, whose purpose is to ensure the integrity of the object and the steady state of the information environment. Anthropological aspect of the concept reveals the security of the subject of information interaction. The axiological component of the concept of 'information security' reflects the values and goals that determine the information needs of man. The hypothesis that information security is a complex phenomenon of modern civilisation objective development, is aimed at promoting the harmonious development of the information society.

Keywords: information security; information rights; global information space; monitoring government activities; modern society transformation.

Reference to this paper should be made as follows: Tkachuk, T.Y., Chystokletov, L.G., Khytra, O.L., Shyshko, V.V. and Ostapenko, L.O. (2021) 'Philosophical reflections on the information society in the context of a security-creating paradigm', *Int. J. Electronic Security and Digital Forensics*, Vol. 13, No. 1, pp.105–113.

Biographical notes: Taras Y. Tkachuk is a Full Doctor in Law, an Associate Professor, and the Deputy Head of the Department of Information Security at the Educational and Research Institute of Information Security of National Academy of Security Service of Ukraine. His areas of research interests: 'ensuring information security of Ukraine', 'legal protection of information with restricted access', and 'philosophy of information'. He has more than 100 scientific and 30 educational and methodical works, including: two monographs, 12 manuals, more than 100 scientific articles in national and foreign professional publications and abstracts at international and all-Ukrainian scientific and practical conferences.

Leontii G. Chystokletov is a Professor of the Department of Administrative and Informational Law, Educational and Scientific Institute of Law and Psychology of Lviv Polytechnic National University. He is an academician of the Ukrainian Academy of Sciences. His areas of research interests: administrative and legal security of economic entities in Ukraine, and information security in Ukraine. He has more than 200 scientific and 60 educational and methodical works, among them: four monographs, 17 manuals, more than 200 scientific articles in national and foreign professional publications and abstracts at international and all-Ukrainian scientific and practical conferences.

Oleksandra L. Khytra is an Associate Professor of the Department of Administrative Law and Administrative Process at the Lviv State University of Internal Affairs. His main subjects of scientific research are: countering operational units of the police for crimes in the field of drug trafficking involving the involvement of minors or minors; organisational and legal basis of the activities of the National Police; and administrative and legal framework for crisis response that threatens Ukraine's national security. He has more than 100 scientific and methodological works, including: four monographs, three textbooks, more than 80 scientific articles in Ukrainian and foreign professional journals.

Valerii V. Shyshko is an Associate Professor of the Department of Theory and History at the Lviv State University of Internal Affairs. His areas of research interests: 'culturology of law', and 'philosophical and legal aspects of lawmaking'. He has more than 130 scientific and educational-methodical

works, including: two monographs, ten textbooks, more than 80 scientific articles in national and foreign professional journals and abstracts at international, national and regional scientific-practical conferences.

Leonid O. Ostapenko is a PhD in Law and an Associate Professor at the Department of Civil Law, Educational and Scientific Institute of Law and Psychology of Lviv Polytechnic National University. His main subject of scientific research are: current policy of the state in regulating social-labour and other related relations; legal regulation of social-labour and other related relations in the context of the social policy of the state; general conditions and rules of regulation of individual and collective social and labour relations; and supervision and control over the observance of the labour legislation by the subjects of social and labour relations.

1 Introduction

The world enters the era of grandiose social changes, technological and cultural transformations. The potential of technics, invariably expanding, has a decisive influence on all spheres of human life in society. Growing labour productivity, changes its content dozens, hundreds of times. They change the way of culture and affect the formation of the entire civilisation. Human intelligence, its power is multiplied by the revolution in information and communication technologies. The social structure of society finds itself under the excessive influence of technological innovations. The process of technological singularity passed the stage from philosophical comprehension to everyday reality: the work began to crowd out people from their usual professions, moreover, some work has already acquired citizenship. And most importantly, the ability to evolve arises in robots, which was exclusively the prerogative of mankind. Not without reason, at the last forum in Davos, the Secretary-General of the United Nations Antonio Guterres made an initiative to develop laws on activity in cyberspace and the use of artificial intelligence in the military environment (The UN Secretary-General Believes that Laws are Needed to Use 'Robots' in Wars, 2019; Milgizin and Baeva, 2017).

The formation of the information society is a logical stage in the evolution of modern societies, which is characterised, first of all, by the large-scale implementation of information technologies and the development of the global information space. The process of new society formation, due to the implementation of information technology, requires a correct awareness of its information specificity and constructive development of the potential laid in it (Fateev and Fateeva, 2016; Huigang and Yajiong, 2009; Patyukova et al., 2018).

In the information society, the main factor of development is the transformation of human scientific and technical or other information into knowledge. Codification of knowledge and technological progress are defined as system-forming factors of social progress. The formation of economics, culture and psychology occurs under certain conditions that are evolving under the influence of technology and electronics. The IT sphere in many countries, including Ukraine, has a leading position in filling the budget of the state and in the field of employment. The theory of post-industrial society has become a peculiar basis for the formation of the modern concept of information society. In this process, too, the accumulated positive experience of previous generations is also

of great significance, as a rule, enshrined in myths, legends, moral norms and principles or in other words, the culture of society (Gasilin, 2018).

The point is that transformations are taking place, because a new civilisation system is born, in which the sphere of work, science and education, state administration, culture will be fundamentally different in character. Changes, as you know, are always opportunities and threats (Zubkov, 2018; Almeida and Chase-Dunn, 2018; Chu et al., 2019). Proceeding from the above-mentioned problems, the purpose of this work is the philosophical comprehension of modern trends in the development of social transformations in the information sphere.

2 Ontological foundations of the information society

In essence, information security is the state of an object (subject), in which the information environment in which it functions, allows it to retain the possibility and ability to implement their decisions in accordance with the goals aimed at progressive development. We determine a similar state of equilibrium of the whole system as stable (Tkachuk, 2018). One can conclude that security is defined as the ability of the system to withstand the menaces, as well as the ability to move in its development to a higher level. The procedure for protecting a safe state is necessary for the normal functioning and progressive development of the system. In our view, security is seen as one of the livelihood characteristics of any object, as well as – as the immanent ability of this object to respond to distortion of their own values, aims, interests, or otherwise – the basis of this system existence.

The above-mentioned means that information security is achieved at the expense of not only means, methods and measures aimed the information environment and the object (subject) protection from destructive influence, but also through the object (subject) capacity development to evade destructive information influence. Thus, the task of providing information security is to create optimal conditions for the functioning of the information infrastructure, the main element of which, not a computer, but a person, could progressively evolve and act in accordance with its values and goals. We emphasise this opinion as a nodule in our study (Nazaretha and Choi, 2015; Siponena and Willison, 2009; Bojanc et al., 2012).

Consequently, the inevitable characteristic of the information society is the presence of people capable of critical thinking, that is, the ability to turn information into knowledge. These processes have their philosophical-anthropological and existential dimension. The essence of which, hypothetically, is concentrated in the noosphere. Man, possessing the ability to reasonably think and transform the world around him, created the noosphere (from the Greek *noos* – mind and *sphere* – sphere). The ancient Greek philosophers Plato and Aristotle believed that ‘nose’ – is the most important part of the human soul: ‘mind’; ‘reasonable part of the soul’ (Shveczova-Vodka, 2018).

In this anthropogenic environment, there are three main areas of human activity that direct social development: production, technological and informational. At the present stage of social development, due to its decisive significance for the further global development of civilisation, information becomes the dominant one. Latter is the embodiment of the noosphere of which the prominent French philosopher, scientist (paleontologist, anthropologist, archaeologist) and the Catholic theologian (member of the Order of the Jesuits, the priest) Pierre Teilhard de Chardin spoke. The authorship of

this term also belongs to the French thinker, representative of Catholic modernism, mathematician Edouard Louis Emmanuelle Julien Leroy (Le Roy, 1928). The ideas of Leroy were developed by his close friend Pierre Teilhard de Chardin.

In his work: 'The human phenomenon', Pierre Teilhard de Chardin concludes that the most penetrating researcher of our modern science can reveal here that everything is valuable, active and progressive, from the very beginning was contained in the cosmic shack, from which our world came out, now is concentrated in the 'crown' of the noosphere (Le Roy, 1928). The next step in the development of mankind, in addition to self-concentration of the noosphere, is joining her to another mental centre, the degree of development of which no longer requires a material carrier – said Pierre Teyyar de Chardin. It is worth noting that Pierre Teyyar de Chardin's main works were written in the 1940s. With the appearance of the Internet, the development of information and communication technologies and artificial intelligence, the philosophical views of this prominent scientist, whom the Vatican imposed on the prohibition and considered heretical, now seems quite logical and reasonable.

According to P.T. Chardine, mankind went from instinct to thought. Humanity has really learned to think for the last few millennia that was found in the heritage of works of science, art, music, literature, architecture, etc. and approached to the transition to a new round of its evolution. What will happen after 'thought'? One can definitely assert that the basis of humankind further evolutionary roots will be based on the knowledge gained on the basis of information, that is, its critical analysis. You can also predict more close 'cooperation' of religion and science about what said P.T. de Chardin: "religion and science are two inextricably linked parties, or phases, of the same thing a complete act of cognition that only one could cover the past and the future evolution to view, measure and complete it" (Teyyar de Sharden, 2002).

3 Futuristic accent

All this may either lead to the development of unique opportunities to 'draw' ('connect') to a universal global data bank, or to the ability to manage the collective mind from a single centre. The human mind has created a technology full of artificial intelligence – smart things, as commonly referred to as internet things. Now this man-generated intelligence creates the good of this person, moreover, he already thinks for her. As if a man created another brain centre for himself. At the most primitive level it looks like this: our smart watch, counting the number of calories per day, gives a command to our refrigerator with regard to dinner options; or the early alarm clock gives a signal to the coffee-makers that we are awake and it can brew coffee. Imagine what will happen in the near future in 10–20 years, given the enormous progress of the last decade.

In the context of this conclusion, the statement of Vernadsky (2004) is interesting:

"All humanity, taken together, represents the insignificant mass of matter on the planet. His power is not connected with his matter, but with his brain, with his mind. In the geological history of the biosphere, a great future opens up to man, if he understands this and will not use his mind and his work to self-immolation. [...] The geological evolutionary process corresponds to the biological unity and equality of all people. [...] The noosphere is a new geological phenomenon on our planet. In it, for the first time, man becomes the greatest geological force. Man can and must rebuild the sphere of his life by his

work and thought, rebuild it radically in comparison with what was before. In front of him, broader and broader creative opportunities open up to him. [...] Now we are experiencing a new evolutionary geological change in the biosphere. We are entering the noosphere.”

Unlike the industrial society, which bases on machine technology, the specifics of the post-industrial society lies in the use of information and intellectual technology. In post-industrial society, according to the well-known American sociologist and publicist, the founder of the theory of post-industrial society, Bell, new elite is formed, this layer of society is being realised thanks to the competence and high qualification that individuals acquire due to education. Now the situation in society is not determined by the number of existing property that is inherited or received as a result of entrepreneurship, or a certain political position that the person supports by means of social movements. As a result, the dominant role of theoretical scientific knowledge, according to Bell, defines the position of the scientist as a central figure in the post-industrial society. “Post-industrial society is a knowledge society in a dual sense: firstly, the source of innovation are increasingly becoming research and development ...; and secondly, the progress of society ... is determined by the successes in the field of knowledge” (Bell, 1999). Thus, Bell defines information and knowledge as a ‘strategic resource’ – the main force generating radical changes in post-industrial society.

Today, in our opinion, this idea should be considered as a basis in the formation of the philosophical concept of information security. The theoretical image of the information society is described in detail in the writings of the Japanese Scientist Masuda (1983). He compares the informatisation with the industrial revolution, attributing to it the same all-embracing depth. The author basically distinguishes between the two models of social development: “not a production of material goods, but information values – is the basis of development and formation of a new type of human existence” (Masuda, 1983). Masuda refers to the basic principles of the information age: computer technology replaces human labour; there is mass production of cognitive information and knowledge; intellectual (science-intensive) production becomes a key sector of the economy.

In the concept of Masuda (1983), the information society is, first and foremost, a ‘free community’. The use of computers in the field of trade, banking and management leads to the general automation of workplaces and large-scale computerisation, which is inextricably linked with communication networks, thereby generating an increase in the amount of free time, from which the role of computers and communications in the new society will increase immeasurably. At the same time, work and biotechnology will enhance the intellectualisation of the information society industry.

Society, described by Masuda (1983), is classless and non-conflict, in a different way. A society of consent, it is characterised by a small government and state apparatus. For the industrial society a peculiar value was the consumption of goods, in the emerging society, time comes to the fore. In human life the value of time rises above such basic economic values as material, defining a new concept of the economy, leading industries of which will be intellectual industries. In our opinion, Masuda is too idealising a society that is born, convincingly that the process of formation the information society will be accompanied by the disappearance of classes, the change of social structures and the harmonisation of human relations, a change of values will be accompanying this. It is obvious that the new society has not become the society of consent. It has the same social contradictions as that industrial, with the only difference: social relations in the new conditions became more complex due to inclusion of information factor in their system.

At the same time, despite the foregoing, Masuda is quite clearly concerned about special problems and difficulties in the field of information security of the emerging society. As one of the key threats he highlights the danger that is the intrusion of information technology in inner world of personality and social organisations. Personal and public the life of an individual are threatened by the invasion due to the fact that the information about birth, health, his work, business, bank accounts is contained in data banks. The author is convinced in the need to overcome these difficulties: "I believe we will avoid this catastrophic automated course ... We have no right to use the computer and science to destroy spiritual life man and humanity" (Masuda, 1983). He sees a solution to the problem in a democratisation of information, state protection of citizens, in the purposeful work on computer crime prevention.

In our opinion, Masuda identifies the correct reference points for the solution of the current issues of information security, at the same time, to date the state system of any country in the world has not yet established effective mechanisms for its realisation. In such a situation the awareness of the degree of all the important changes made, gives incentive to their further comprehensive study. For example, today the process of democratising the information in society encounters serious obstacles, such as: the existence of political, legal, commercial, ideological, technical and religious barriers which is a serious task for the information society.

An analysis of trends in the development of a modern information society is given by a famous Spanish Philosopher Castells (2000). Unlike Bell, who in the 1970s–1980s of the 20th century thought about the forecasts and prospects of information era, Castells had the opportunity to analyse the changes taking place on the turn of the 20–21st centuries. He considered the main civilisation processes, fundamentally related to the development of information technology in the modern world.

In his work the transition of mankind to the information age in form of a holistic theory is presented that allows us to assess the scale of the information revolution, which led to radical changes, practically, in all areas of human activities. Castells (200) sees a revolution that has taken place in the region of information technology as a 'starting point' in the analysis of all economic, social and cultural processes of society. Emphasising every time the idea that in the description of society it is impossible to not take into account the characteristics of its technological tools. The philosopher is convinced that technology is a kind of potential resource for the development of historical processes and social changes in a society that feeds different variants for their further direction. According to what, human society is, of course, free to choose the way of its further development, since high technologies are only means of life activity realisation. In our opinion, in this case, the thought of Castells coincides with the point of view of Bell and the basic idea of the concept is the of provision information security.

Concluding an analysis of the new era theorists works, it must be emphasised, that scientists rightly underline the distinctive features of the coming time. Within the concept of the information society, information and knowledge are becoming key factors of social development, which exceeds the significance of all types of material production, energy and services. In this concept, information, knowledge, new information technologies and telecommunications are the main agents of economic, social and political changes in modern society.

4 Conclusions

Despite the fact that technological revolution can deepen social and geographic differences, people's lives through information technology must to be improved. Information technologies, by way of Instant access to information, broadened the rights of citizens, an opportunity arises not only to consume information, but also to produce it. Conceptual analysis of main theories of the development of a new society in the context of information security has allowed us to detect a relatively low degree of criticality researchers to the opportunities which opened up on the basis of using information technology. The coming civilisation puts social development in close dependence on the progress of science and technology, as a result, it acquires politically dangerous shade, it is inherent in economic, social and all other kinds problems reinforced by the information factor. In addition, the absence of information society affirmation of the ideals of justice along with the proclamation of internal and external freedom reflects in its 'ethical inferiority', which testifies to its inability to confront the occurrence of antagonistic contradictions.

Future prospects of humanity in theories of the information society are reviewed without considering ethical constraints, ideas of freedom are established in them, but, to a greater extent, the principles of information security as an important condition that determines to date the stability of the public system is ignored. Due to this circumstances, the weakly accounted new hazards, threats and negative effects of information technology arise in society.

At the same time, according to the chronology of theoretical views on informatisation processes and security issues associated with large-scale implementation of information technologies, it can be said that inherent in the first concepts a society that is formed by a high degree of scientific and technical fanaticism decreases. Later theories of the information society are different, in regards to more attention being given to the implications of the introduction of information technologies, psychological, spiritual, moral, humanistic aspects of information civilisation development, thus creating a methodological basis for solving information security issues.

The basic concepts of a new society affect some of the actual issues of information security: informational stratification of society, control of individual and public consciousness, violation of confidentiality information, intrusion into the private life of the individual, etc. Thus, the analysis of the formation of a new society, awareness of its integrity, without interruption from information technologies, drives to search ways of safe development, overcoming the negative effects of information technologies application, re-review of value orientations. In our opinion, the further direction of the safe development and application of information technologies, in order to ensure the dynamic balance of social evolution requires the maintenance of information security conditions.

References

- Almeida, P. and Chase-Dunn, C. (2018) 'Globalization and social movements', *Annual Review of Sociology*, Vol. 44, No. 1, pp.189–211.
- Bell, D. (1999) *The Future Post-Industrial Society*, Academia, Moscow.
- Bojanc, R., Jerman-Blažič, B. and Tekavčič, M. (2012) 'Managing the investment in information security technology by use of a quantitative modeling', *Information Processing & Management*, Vol. 48, No. 6, pp.1031–1052.
- Castells, M. (2000) *Information Age: Economics, Society and Culture*, Higher School of Economics, Moscow.
- Chu, X., Luo, X. and Chenc, Y. (2019) 'A systematic review on cross-cultural information systems research: evidence from the last decade', *Information and Management*, Vol. 56, No. 3, pp.403–417.
- Fateev, V.N. and Fateeva, I. (2016) 'Teaching Russian children to be safe when using social networks', *Anthropologist*, Vol. 23, Nos. 1–2, pp.148–151.
- Gasilin, A.V. (2018) 'Academia.edu: marketing of social networks as the novum organum of open science', *Philosophical Problems of Information Technology and Cyberspace*, Vol. 1, No. 14, pp.73–91.
- Huigang, L. and Yajiong, X. (2009) 'Avoidance of information technology threats: a theoretical perspective', *MIS Quarterly*, Vol. 33, No. 1, pp.71–90.
- Le Roy, E. (1928) *Les Origines Humaines et Evolution de Intelligence*, Boivin, Paris.
- Masuda, Y. (1983) *The Information Society as Post-Industrial Society*, World Future Society, Washington.
- Milgizin, I.E. and Baeva, L.V. (2017) 'On the question of creativity in neural networks of artificial intelligence', *Philosophical Problems of Information Technology and Cyberspace*, Vol. 1, No. 13, pp.62–71.
- Nazaretha, D.L. and Choi, J. (2015) 'A system dynamics model for information security management', *Information and Management*, Vol. 52, No. 1, pp.123–134.
- Patyukova, R.V., Minskaya, A.N., Sergienko, V.A. and Tarasenko, E.V. (2018) 'System of technologies for building the information space: coverage tools', *Media Watch*, Vol. 9, No. 3, pp.418–425.
- Shveczova-Vodka, G. (2018) 'The doctrine of the noosphere as the basis of development noocommunication', *Ukrainian Journal on Library Science and Information Sciences*, Vol. 2, No. 1, pp.10–22.
- Siponena, M. and Willison, R. (2009) 'Information security management standards: problems and solutions', *Information and Management*, Vol. 46, No. 5, pp.267–270.
- Tejyar de Sharden, P. (2002) *The Phenomenon of Man*, Publishing House AST, Moscow.
- The UN Secretary-General Believes that Laws are Needed to Use 'Robots' in Wars (2019) [online] <https://www.ukrinform.ua/rubric-technology/2626228-gensek-oon-vvazac-so-potribni-zakonidla-zastosuvanna-robotiv-u-vijnah.html> (accessed 25 June 2019).
- Tkachuk, T.Y. (2018) *Provision of Information Security in Conditions of Vrointegration of Ukraine: Legal Dimension*, VD 'ArtEk', Kyiv.
- Vernadsky, V.I. (2004) *Biosphere and Noosphere*, Airis Press, Moscow.
- Zubkov, N.A. (2018) 'Transformation of subjectivity in the communicative space of information conflict', *Philosophical Problems of Information Technology and Cyberspace*, Vol. 2, No. 15, pp.34–49.