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DIGITALIZATION OF GLOBAL SOCIETY: FROM THE EMERGING SOCIAL REALITY TO ITS SOCIOLOGICAL CONCEPTUALISATION

Abstract

The purpose of the article is to consider three important issues from the point of view of synergetic theory: global digitalization of society, digitalization of public administration and sociology of digital society.

We consider that the new trend of informatization, which replaced computerization, internetization and networkization, should be recognized as digitalization as the creation of digital network platforms that have analytical and predictive functions.

In the process of studying the global digital society, two main questions will be asked: How is it different from the previous stage of information society? What problems of its development await us in the future? The authors reveal the last question with a scenario approach, denoting both a positive and an ambiguous perspective for the development of a digital society.

The authors point to the need for the purposeful formation of social institutions in a digital society due to the complexity of the ongoing self-organizing processes.

Consideration of the sociology of digital society begins with methodological problems associated with the study of a complex hybrid system due to the unification of real and virtual social spaces, the emergence of techno-subjects and some experience in the use of digital tools in sociology, allowing to work with interactive dynamic data.

Keywords: digitalization, digital society, complexity, the complex hybrid systems, sociology of digital society, public governance, e-governance.

Introduction

The evolution of the theoretical foundations of the study of society is swift. Industrial society was organized around the production and consumption of things and machines. Post-industrial society has made the transition from the production of things to the production of services related primarily to health care, education and management. The information society has put forward time as the most important value. During the formation of global communications, the synergetics (the theory of complex systems) and informational understanding of the world be came the theoretical foundation of the sociology of informatization of public administration. This contributed to the separation of technocratic and socio-humanitarian approaches. The application of the principle of openness to the process of informatization in combination with constructive mechanisms of self-organization made it possible to more effectively implement the mechanisms of democracy.

Today, the theoretical foundations of Digital Society, Digital Economy, Digital Sociology, Digital Divide, Digital Humanities, Big Data, Digital Labor, Digital Education and others are being developed.

Methodology

We apply the explanatory powers of complexity theory of Nobel Prize winner Ilya Prigozhin (1980), Hermann Haken (1977) and Sergey Kurdyumov (1990) on the phenomena they study: fluctuations, feedback amplification, dissipative structures, bifurcations, reversibility, auto-and cross-catalysis, self-organization, etc. (Vasilenko, 2019). This vocabulary is close to the sociocybernetics of the famous scientist Felix Geyer. He was one of the first to understand how cybernetics challenges sociological knowledge. The growth of social dynamics and increasing complexity in the behaviour of social systems made the union of sociology and general systems theory inevitable. Geyer turns to second-order cybernetics, which is not so much interested in technical systems itself as in the interaction between them and humans. He systematizes the properties of such complex systems (Geyer, 1995).

The work used works by Russian scientists: in the context of philosophical rethinking of digital reality (Grimov, 2019), of the interdependence of harmonious human development and the socio-technical processes of digitalization (Karpova, 2017), of new facets of information culture (Bannykh & Kostina, 2019), Artificial Intelligence and Big Data Technologies (Voevodina, 2019), the Sociology of Digital Society (Vasilenko & Meshcheryakova, 2021).

To confirm certain provisions and the conclusion of the work, we turn to the results of a sociological study conducted on the diagnosis of the potential of social networks. The survey was conducted in September-November 2020 year among the population of Moscow as a subject of the Russian Federation, which occupies a leading position in terms of the level of informatization of the region and the digitalization of public administration, as well as among the population of the Kursk region as a region that occupies median positions in terms of informatization indicators. The questionnaire was conducted both

through a field survey and using the Google service. A total of 450 residents of Moscow and 440 residents of the Kursk region over 16 years old were interviewed. The sample was quota by sex and age. During the Internet survey, the achievement of proportionality of quotas of the general population was ensured by sending out personal invitations to respondents satisfying the sampling parameters. Diagnosis of the potential of social networks consisted in determining the current state of the socio-network space of public communications, the readiness of citizens to participate in cooperation with government bodies, the level of organization of the dialogue and partnership in solving socially significant issues, as well as the effective establishment of the established practice of interaction between authorities and the population in the socio-network space (Vasilenko, Zotov, & Zakharova, 2020).

Digitalization of Society

Modern digitalization processes differ from the previous processes of the global information society development. Informatization was associated with the system-activity process of mastering information as a resource for development and management using technical means and infrastructure. The new trend of informatization, which replaced computerization, internetization and networkization, should be recognized as digitalization. Computerization was a broad application of computer technology in the field of professional and everyday human activities. It had established a technical framework for the prompt acquisition, accumulation and processing of information. Global internetization (Web 1.0/Web 1.0) is the integration of computers into a single global network, the wide use of the opportunities provided by Internet sites for reading and obtaining information. Networkization (Web 2.0/Web 2.0) is a process of creating and penetrating sites that allow users who are registered on it to post information and communicate with each other, establishing social ties (relationships). And digi-

talization (Web 3.0/Web 3.0) is the creation of information-analytical (information-on-expert) platforms that have analytical and predictive functions. They are based on the interaction between actors and actants, which is realized not only due to the direct input of the information by a person into a stationary or mobile device but also information obtained from smart devices and sensors. Digital verification forms already holistic electronic platforms as a set of technical and technological solutions that ensure the maintenance of a register of users, the assignment of algorithms of their interaction and the storage of information about online transactions (digital traces) carried out by them. Note that global social networks (Facebook), state portals (State Services), commercial Internet portals and web services (Google) are already turning into information and analytical platforms that use hidden technologies that collect, aggregate and analyze large volumes of personal data and the knowledge about users to create their digital profiles.

At the next stage in the development of the global information society, digitalization is information technology transformation and the modelling of hybrid information-social systems (Tikhonov & Bogdanov, 2020). Hybridity is one of the qualitative characteristics of a digital society. The real social world and the artificial virtual world, built on the basis of computer technologies, which for some time existed in parallel, began to interpenetrate, creating the phenomenon of information-social systems. This is exactly what makes it possible to constitute a new stage in the evolution of post-industrial society into a digital one. Fundamentally new social practices are emerging. They include artificial intelligence agents, technosubjects in social relations (Ignatyev, 2019), as active mediators or participants in these relations. The phenomenon of hybridization is realized through hybrid people who value virtual and real relationships equally, and hybrid intelligence, which combines human intelligence with the "intelligence" of a machine to interact in solving various problems. Hybrid management

practices appear. They are implemented in the global information-social space.

Global Digital Society

The digital society is a super-smart society corresponding to the fifth industrial revolution and the sixth technological order, in which the transgression of virtual relations into the real sociocultural world is carried out, the hybrid collective mind is accumulated and intelligently used.

The main sectors of the sixth technological order: nano- and biotechnology, nano energy, molecular, cellular and nuclear technologies, nanobiotechnology, nano bionics, nanotronics, as well as other nanoscale industries; new medicine, household appliances, modes of transport and communications; stem cell use, living tissue and organ engineering, reconstructive surgery and digital medicine.

The digital society has the following characteristics:

1. The main factor of production and type of ownership has become technological platforms, the owners of which are striving to monopolize advanced information technologies.

2. There is a transition from a vertical organization of management and activities to a predominantly horizontal, networked one, in which fractals of remote and distributed work of teams of employees intelligently use hybrid intelligence and reproduce themselves in business, science and other areas of activity.

3. The social structure is changing towards greater differentiation and exacerbation of inequality, which gives rise to the risks of the appearance in the society of surplus labour resources unclaimed by the economy, a crisis of the electoral and political systems, and a possible revision of the social contract.

4. Virtual relationships products become more real and define a person's life than real communications, which changes the nature of sociality.

The Sociology of Digital Society

Sociology is faced with the task of formulating a conceptual apparatus, theoretical and methodological grounds, methods of empirical research and measurements of digital society and digitalization as a process of its formation (Meshcheryakova, 2020). Classical sociology, with its huge number of theories, methods and techniques, is no longer sufficient for the cognition of objective reality, partially virtualized. With the emergence of modern hardware architecture, a technology stack for analyzing big data, the formation of sociological methods of cognition of this new hybrid reality, we can argue that the foundations of the sociology of a digital society are being laid together with the digital society. That is, we can say with confidence that the sociology of a digital society is built on a flexible combination of classical and digital sociology.

We see the following promising areas of development of the sociology of a digital society (see Vasilenko & Meshcheryakova, 2021):

- sociological analysis of complex social processes, of the formation of order parameters, the study of the dynamics and specifics of the spontaneous emergence of new information channels, networks, boundaries of information governance process:
- analysis of the pace and rhythm of interacting network processes, the study of their cooperative potential and antagonism, the intersection of networks of ideas, interests, principles, rules, real and virtual actions;
- the research the network activity of virtual communities, the social potential of social diffusion and the level of their entropy.

Virtual space is a global space of interaction and active communication through portals, sites, forums, social networks endowed with certain meanings. This is a place for expressing one's personal position with the possibility of forming a new view of social needs. The filling of social networks with meanings can become an indica-tor of the state of public relations. Virtual networks filter semantic values, determining the direction of information flows.

Digitalization of Public Administration

With digital networking platforms, the public administration system can make real-time decisions. Digital networking platforms are more sophisticated electronic tools that not only provide services but also enable citizen participation in decision-making. And if you use the direct meaning of the platform concept as a set of digital technologies focused on using a web application system on a single server for interactivity and personal participation, then modern public administration includes such technologies under the flag of "e-governance". T.O'Reilly's (2010) idea of a state as a platform is beginning to gain international support. In many countries, it began to find practical implementation and was the basis for a new round of administrative reforms.

The digital network platform provides a convenient basis for representing the state as a space for civil activity. In this regard, the idea of the state as a platform cannot be effectively implemented outside the socio-political context. Therefore, the methodological foundations of public management are transformed from the concept of New Public Management to the concept of Public value management. Here, public administration is based on the systemic interaction of stakeholders among themselves in order to organize a dialogue and resource partnership on a socially relevant issue of interest to them. F. Geyer emphasized the ability of systems to organize themselves a quarter of a century ago. Disappointment in the success of long-term planning has led to the realization that individuals and organizations are largely self-reliant. Long-term predictions are impossible due to the reflexivity of psychological and social systems. Knowledge at the moment of its acquisition changes the behaviour of such systems. In this

regard, social systems differ from many other systems, including biological ones. There is a clear two-way link between the self-knowledge of the system, on the one hand, and behaviour and its structure, on the other (Geyer, 1995).

Digital networking platforms create the conditions for combining the concepts of "e-government" and "e-democracy". The platform state has characteristics that contribute to the development of democracy in the broad sense of the word, including civic participation in almost everyday state activities and in-service delivery processes (Smorgunov, 2019). In this regard, the digital network platforms of the state become the basis for the network interaction of citizens, civil society and business associations with the state in various areas of public activity.

The need to make governance in a digital society public is formulated by the UN:

"Public administration is a complex of mechanisms, processes, relationships and institutions through which citizens of the state and their associations express their interests, exercise their rights and obligations and resolve differences. Governance can be carried out by all methods that society uses to distribute power and manage state resources, as well as resolving emerging problems" (Rondinelli & Blunt, 1997).

The subjects of power are authorities, citizens and their associations. Therefore, in the process of digitalization of the control system, the developer must provide for:

- special mechanisms for the performance of management functions by each subject;
- online tools for expressing the interests, rights and obligations of citizens in the governance institutions,
- mechanisms in place to deal with emerging disagreements.

We see the need to turn from "digital regulation" to "smart governance" relying on participation, partnership, coordination, "organizing horizontal connections and relationships between transformative power from above and spontaneous self-organization from below"...

Participatory governance provides for the full involvement of new political actors in public administration. Without this, the development of democracy is impossible. Participatory governance requires a clear agreement on a system of values, an agreed set of principles that reflect a system of views on the world, cognizable and perceived in the process of communication and productive interaction of citizens and authorities, determining norms of behaviour and relations in society.

But self-organizing institutions of the last century that regulate Internet interactions cannot cope with new information flows. Virtual activity has a reduced social responsibility. Social institutions that ensure social order and security in a global digital society have not yet emerged.

According to the results of our study, the respondents agree that the Internet sites organized by the authorities are needed to quickly convey information from the authorities to the population and vice versa. They are needed to collect citizens' opinions, put forward initiatives, and citizens' participation in the preparation of management decisions. Authorities are already using social networks to organize joint actions, to answer citizens' questions, collect critical information identify problems of the population, monitor the implementation of decisions, organize online communities loyal to the authorities (Vasilenko et al., 2020).

On the other hand, we see a contradiction that reflects the complexity of the digital world.

This is confirmed by the answers to questions about the activity of citizens on specialized Internet platforms of authorities (Active Citizen, crowdsourcing):

- 34.2% of the respondents answered "yes, I heard something about them",
- 42.2% have not heard anything about them,
- 11.6% are well aware of them,
- 10.1% are users of such a site.

The citizens' assessment of the usefulness of this tool is as follows:

- they only "collect information about the problems of the population" (46.7%),
- they "imitate vigorous activity" (42.2%),
- 17.6% do not believe in the ability of this tool to "solve socially significant problems".

Conclusion

We already live in a hybrid space.

In real space, there is a state, laws, social institutions, traditions, morality operating. We can improve it. There are no state borders in the global virtual space. People gather in network communities in accordance with their values, socio-cultural and biological characteristics, and social institutions have not been formed; there are no laws yet.

Technical platforms are in the hands of people who are not responsible for the security of society and the state. Techno-subjects are powerful technologies. They can also be in the hands of different subjects. The state is trying to regulate these processes with the same instruments that operate in the real world. But the nature of the virtual world is different.

Humanity faces a choice. The laws and social regulators of the real world are not adequate in the virtual world, and new ones are needed. Real-world power at this stage needs to be especially smart with smart feedback tools!

And here we must update the two problems raised by F. Geyer:

1. Should the behaviour of individuals and groups be planned from the top down so that society can survive in the long term? Or should the competence of subjects of a speech at all levels, including the lower one, be increased, thereby increasing their ability to manage the environment more effectively and participate more successfully in goal-oriented behaviour?

2. Given the above choices, what should be the role of science? Especially social sciences. Should social science primarily strive to provide useful knowledge for improving the management of the behaviour of social systems and individuals? Should social science strive to improve the competence of subjects at the grassroots level so that these subjects can govern themselves and their own environment with better results?

Acknowledgements

References

Bannykh, G., & Kostina, S. (2019). The information technologies and the features of information culture of master's students in Russia and the UK: A comparative analysis 2019. In *Proceedings of the Middle-Term Conference RC04 Sociology of Education International Sociological Association (ISA). Culture and education: Social transformations and multicultural communication* (pp. 464-472). Moscow: Peoples' Friendship University of Russia (RUDN). doi:10.22363/09669-2019-464-472

Geyer, F. (1995). The challenge of sociocybernetics. *Kybernetes*, *24*(4), 6-32.

Grimov, O. A. (2019). *Cifrovaya real'nost': social'naya ontologiya i metodologiya empiricheskogo izucheniya* (Digital reality: Social ontology and methodology of empirical study, in Russian). *Slozhnost'. Razum. Postneklassika (Complexity. Mind. Postclassics, in Russian), 3,* 42-50. doi:10.12737/article_5dbaa-8bf81fe27.51109106

Haken, H. (1977). *Synergetics*. Springer-Verlag.

Ignatyev, V. I. (2019). *I gryadet "drugoj" aktor... Stanovlenie tekhnosub"ekta v*

kontekste dvizheniya k tekhnologiches-koj singulyarnosti (And the "other" actor is coming... the formation of tehno-subject in the context of the movement to technological singularity, in Russian). *Sociologiya Nauki i Tekhniki (Sociology of Science and Technology, in Russian), 10*(1), 64-78. doi:10.244-11/2079-0910-2019-10005

Karpova, D. N. (2019). Manifest and latent risks of continuous online communication. In A. Karpova, I. Ardashkin, W. M. de Jong, & N. Martyushev (Eds.), *Responsible research and innovation, vol 26. European proceedings of social and behavioural sciences* (pp. 356-362). https://doi.org/10.15405/epsbs.2017.07.02.45

Kurdyumov, S. M. (1990). Evolution and self-organization laws in complex systems. *International Journal of Modern Physics, 1,* 299-327. https://doi.org/10.11-42/S0129183190000177

Meshcheryakova, N. N. (2020). *Metodologiya poznaniya cifrovogo obshchestva* (Methodology for cognition of digital society, in Russian). *Cifrovaya sociologiya (Digital Sociology, in Russian), 3*(2)*,* 17-26. doi:10.26425/2658-347X-2020-2-17-26

O'Reilly, T. (2010). Government as a platform. In D. Lathrop, & L. Ruma (Eds.), *Open Government: Collaboration, Transparency, and Participation in Practice* (pp. 11-40). Sebastopol: O'Reilly.

Prigozhin, I. (1980). *From being to becoming.* Freeman.

Rondinelli, D. A., & Blunt, P., (1997). *Reconceptualizing governance.* New York: Management Development and Governance Division, Bureau for Policy and Programme Support, UNDP.

Smorgunov, L. V. (2019). *Partisipatornaya gosudarstvennaya upravlyaemost': plat-*

formy i sotrudnichestvo (Participatory governability: Platforms and collaboration, in Russian). *Vlast' (The Authority, in Russian), 27*(5), 9-19.

Tikhonov, A. V., & Bogdanov, V. S. (2020). *Ot "umnogo regulirovaniya" k "umnomu upravleniyu": social'naya problema cifrovizacii obratnyh svyazej* (From "smart regulation" to "smart management": Social issue of feedback digitalization, in Russian). *Sociologicheskie Issledovaniya (Sociological Studies, in Russian), 1,* 74-81. doi:10.31857/S013-216250008325-0

Vasilenko, L. A., Zotov, V. V., & Zakharova, S. A. (2020). *Ispol'zovanie potenciala social'nyh media v stanovlenii uchastvuyushchego upravleniya* (Social media potential for developing participatory governance, in Russian). *Vestnik Rossijskogo Universiteta Druzhby Narodov Seriya: Sociologiya (RUDN Journal of Sociology, in Russian), 20*(4), 864-876. doi:10.22363/2313-22-72-2020-20-4-864-876

Vasilenko, L. A. (2019) Fractal-synergetic approach to the research of entrepreneurship in non-profit organizations. *Wisdom, 12*(1), 62-72. https://doi.org/10.-24234/wisdom.v12i1.221

Vasilenko, L. A., & Meshcheryakova, N. N. (2021). *Sociologiya cifrovogo obshchestva* (The sociology of digital society, in Russian). Tomsk.

Voevodina, E. V. (2019). *Stanovlenie rossijskoj magistratury: kak realizuyutsya zaprosy cifrovoj ekonomiki v obrazovatel'nom processe* (Formation of Russian magistracy: Implementation of the digital economy requests in the educational process, in Russian). *Cifrovaya sociologiya (Digital Sociology, in Russian), 3,* 16-24. https://doi.org/10.26425/26-58-347X-2019-3-16-24