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# The Information Revolution in the Post-Industrial Society: Dangers in Political Processes

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**Abstract:** The relevance of the study lies in the fact that the information and computer revolution has made it possible to create and include in the system of social circulation such information flows, which are currently sufficient to ensure the most rational use of nature, demographic, economic, industrial, agricultural and spiritual and cultural development of mankind. The phenomenon of the information revolution is the result of two parallel processes that can develop throughout history: an increase in the role and volume of information necessary to ensure the full existence of society, and improvement in the technology of information accumulation and dissemination. Information technology has been integrated into the current social and economic space. The use of computers and telecommunications has influenced an unprecedented intensity of communicative interactions. These processes affect the stages of social development. The article analyzes the current understanding of the fourth and fifth information revolution. The problems of economics, management and post-industrial society are considered. An attempt is made to synthesize the models of foreign and domestic researchers. The article considers the existing theoretical approaches to the explication of political security, highlighted such its component as information and political security, and this author's interpretation of the latter. The limits of the information-political security, allowing to separate it from other types of security, depending on the information are established. The influence of information on the formation of information and political threats affecting the information and political security of the country is considered.

**Keywords:** *Information and technology; information and political threats; information and political security; politics; computer technology.*

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## Introduction

The ubiquitous changes in information and technology in the last third of the twentieth and early twenty-first centuries have a significant impact on the development of today's society. Knowledge production, improvements in corporate management, breakthroughs in microelectronics, computer technology and telecommunications, and their impact on the socio-economic system have generated a huge amount of data for the research field of the scientific community. The understanding of the above changes, in our opinion, should be considered through the prism of the information revolution, which directly or indirectly contributed to their manifestation and development.

Approaches to information revolutions differ depending on the classification features used by one or another researcher. The central link here is communication technologies in different historical epochs. In this classification, communication technology and computer technology are one and the same.

Indeed, the "information revolution" is a fundamental shift, a transformation taking place in our society of transition under the direct or indirect influence of information technology and telecommunications.

First of all, to understand such processes requires consideration of their environment, certain boundaries and time, otherwise under the "information revolution" can be understood any information technology, such as a personal computer.

There is a large number of developments on the topic of the article in the domestic and foreign literature.

In our opinion, the classifications of "information revolutions" by Dzoban and Manuylov (2017), who each offer their own system of "information revolutions", deserve special attention. But what they have in common is that it consists of five stages: the invention of writing, the invention of printing, the invention of electricity, the invention of computers and the personal computer and, finally, the invention of global telecommunications networks, i.e., the Internet. Prudnykova (2015) in her scientific works distinguishes the fourth and fifth information revolutions, which she orientates to consider with the help of the concepts of post-industrial and information society. According to researchers Dzoban & Zhdanenko (2019), Nerubasska & Maksymchuk (2020), Nerubasska, Palshkov, & Maksymchuk (2020) these concepts do not contradict or oppose each other, on the contrary, they only complement and specify the existing changes in society.

Foreign researchers include the works of authors Joseph (2013), Copeland (2000), who considered the post-industrial society in interdisciplinary aspects, as the analysis and prediction of the socio-economic system under the influence of information technology. Economics, sociology, computer science, information theory, political science, statistics and social philosophy - this is a small list of scientific directions, with the help of which the concept of post-industrial society was created in the works of the mentioned scientists. The structural changes in employment under the influence of the information revolution are evidenced by the works of Machlup (1962), Bell (1989), in which scientists predicted a systematic change in production systems and the transition of the workforce released as a result of automation to a new sector of the economy - the service sector.

The purpose of the article is to reveal the concept of information revolutions and their classification; to clarify the essence of the information revolution in post-industrial society; to determine the main aspects of information danger in political processes.

### **The concept of information revolutions and their classification**

The systematization of information revolutions (hereinafter IR) is facilitated by their classification according to the dominant technological inventions in different periods of social development. IR classifications differ somewhat from author to author, mainly due to the choice of the orientation of the dominant technology.

In our opinion, the classifications of Dzoban & Manuylov (2017), who offer each their own system of "information revolutions". But in general it consists of five stages: the invention of writing, the invention of printing, the invention of electricity, the invention of computer technology and the personal computer and, finally, the invention of global telecommunications networks, i.e. the Internet. This classification includes both communication technologies, linguistics, and the visual arts (writing, cave paintings), as well as infrastructure technologies (electricity, communications). In addition, in the classification of information revolutions, there is a significant distinction: dramatic changes under the influence of computers (the fourth revolution) and the introduction and use of various networks and telecommunications (the fifth IR, which is currently underway).

This technological section in revolutions, in our view, contributes to a more accurate socio-philosophical understanding of the information-revolutionary changes taking place under current conditions.

Prudnykova (2015) believes that the fourth and fifth information revolutions should be considered with the help of the concepts of post-industrial and information society, because these concepts do not contradict or oppose each other, on the contrary, they only complement and specify the existing changes in society.

Let us consider in the context of our problematic the impact of the fourth information revolution on the education of post-industrial society.

To solve the problem of processing increasing information, mankind needed to automate various information processes, which in the industrial era were coped with, for example, production equipment and machines, if we are talking about the processing of natural resources. Information, with properties distinct from material resources, was piling up, and there were not enough people capable of managing its flows, content, and consequences in the mid-twentieth century. According to some calculations, 10 billion people were needed in the 1970s to process all managerial information.

That number of people, even if you add up all the inhabitants in the world, does not even now exist. Of course, these problems need to be solved, and new devices and technologies need to be developed. Initially, only large corporations, such as American Airlines, J. Lyons & Company, etc., could afford electronic computing machines (ECM), as well as specialized software.

Large government and state agencies (e.g., the U.S. Census Bureau, the USSR Academy of Sciences) also had this capability. The turning point in the use of computers was 1971, when Intel Corporation invented the world's first microprocessor, the Intel 4004, which started a revolution in electronics that changed the world. The most important thing here is that the invention of this microprocessor led to the design and production of personal computers.

Such consequences for the economy and society, arising in the process of introduction into social processes of computers and personal computers in the fourth IR, are considered by the ideologues of the concept of post-industrial society.

Foreign researchers include the works of Machlup (1962), Bell (1989), Joseph (2013), Copeland (2000). The authors considered post-industrial society in interdisciplinary aspects, as the socio-economic system under the influence of information technology was analyzed and forecasted. Economics, sociology, computer science, information theory, political

science, with the help of which the concept of post-industrial society was created. They also investigated the structural changes in employment under the influence of the information revolution.

### **The essence of the information revolution in post-industrial society**

Of the specific features of the works of the above authors we can emphasize the convergence of management and information technology, especially the new ways of using Internet communications (this already refers to the fifth IR).

Dzoban (2014) believed that knowledge becomes both a crucial resource and a factor in the transformation of the traditional socio-economic system, forming a post-capitalist society. Certainly, we can agree that computers have contributed to the development of management, and to some extent provided a revolution in the management system. But should we go beyond post-industrial conceptions of social change by relying on the transformation of capitalist relations? In our view, the fact that managers have been the result of revolutionary changes from the introduction of computer systems is due to the same service sector.

Management as a kind of service in the capitalist world, enshrined in labor agreements, is an investigative milestone in the third sector of the economy. This fact has to some extent influenced the modification of such a traditional, industrial form of economic management as capitalism, but to say that our society has undergone revolutionary changes and it is post-capitalist is still premature, although there are certain facts and reasons for such views (Trebin, 2013).

Thus, we can state that the fourth information revolution has affected many social systems and processes. With the emergence of the third sector of the economy, the social structure changed, a post-Ford managerial class was formed, the processing, creation and transfer of knowledge became manageable after the development and use of the means of informatization, such as computers and personal computers. The changes were both qualitative and quantitative in nature, transforming the system of relations in society that had developed during the industrial stage.

Some researchers of the sectoral structure of the economy and society, such as Dzoban (2014), Masuda (1983) believe that "the new service or informatics economy is about in the middle of its development stage, and in a few decades this era will end. In addition, there is a certain amount of skepticism in the scientific community about the meaning and characteristics of the information revolution as such.

First, revolution cannot last forever; existing changes resulting from its emergence and flow are also subject to modification and, to a certain extent, evolution. Second, the skepticism that arises about the meaning of IR depends on the slowing and suspension of IR's influence on social change.

At this point, it is safe to say that society is only feeling the effects of the fourth information revolution, the main peak of which came in the middle and late twentieth century, under the new conditions (Khanin, 2012).

This does not mean that there will not be new revolutionary upheavals in computers and technology; of course, this is to be expected. But qualitative, omnipresent transformations, such as the emergence and development of post-industrial society, should be discussed only if the new state and evolutionary paradigm of technological and socioeconomic progress is rethought. At the moment, this question remains unclear.

### **Information danger in political processes**

Information and political security should be understood as a complex problem of protecting the vital interests of citizens, the state and post-industrial society as a whole in the political sphere.

Protection against internal and external information threats is a focus primarily on protecting the interests of citizens and society and a state that corresponds to the generally accepted concept of security; the obligation to study the possibility of using information to form both information and other (external and internal) political threats.

As part of this clarification, we introduce the concept of information political threat - the potential (expressed or implicit) use of information in the political sphere to damage the interests of citizens, the state and post-industrial society as a whole, circulating in the elements of the political structure - political, government organizations, institutions, as well as in a single information space.

According to Lytvyn (2022), among the most important information and political threats associated with circulating in elements of the political structure (sometimes called political information) are the following: - Theft of information (unauthorized access) involving the military, state secrets, commercial secrets of different political structures, personal data of state, political and public figures through the use of wiretapping devices, photographing at a distance, interception of electromagnetic radiation, theft of media and industrial waste, stealing data in the messengers of other users, reading the remaining information in the system storage devices after the authorized request, copying the media, unauthorized use of end devices of

users who are registered, by stealing passwords and other access control data, camouflaging unauthorized requests as operating system requests (cheating), deploying program traps, obtaining protected data through a series of authorized requests, using programming language and operating system errors, intentionally including special "Trojan horse" type blocks in program libraries, illegally connecting to computer system equipment or communication lines, malicious over-execution of protection mechanisms, etc.; modification of the above information (change, transformation of something, characterized by the appearance of new properties), which can be carried out both by partial replacement of the original information by another, and by adding new information to the original, leading to a change in the original state of information with changes in the essence of the object, the appearance of new, unwanted properties; illegal destruction of information, including computer information, that is its erasure in computer memory; restriction of access to political information, concealment of information, i.e. concealment, not informing the population.

- manipulation of political information, including reducing the amount of information available to the average citizen;

- confidentiality, that is, the deliberate withholding of information that might undermine official policy; the use of propaganda, that is, providing citizens with partially correct but biased information; informative overload, that is, the deliberate provision of excessive information in order to deprive the ordinary citizen of the opportunity to adequately assimilate and properly evaluate himself his and other methods carried out in order to limit and degrade political consciousness, to cultivate political mindlessness, leading circles can lead to the most solid levels of thought self-control, to the most stubborn beliefs and habits, to the deepest emotional and sensual layers, to first and instinctive ideological and political reactions (Dzoban, 2013);

- modification of political information in the form of spreading "objective fake information," in which they are often consciously or involuntarily "falsified"-fake, disfigured, substituting fake real, which leads to "crazy political ideas"; "systemic - deceptive information", which misidentifies society's position in the historical process: economic position, relations with other peoples and states, etc., which can lead to an inflated political idea that does not objectively deserve the attention it subjectively deserves;

- "organized-demoralizing information," which transforms moral values and provokes a "leap of political ideas," from the discontinuity of

conclusions, statements, randomness and incompleteness of thought, inconsistency and behavior;

- "enough - entropic political information," where instead of concise, convincing and provable information in the media appear all possible angles from the most primitive to the most fantastic and improbable; "socialization of political information" - "political disinformation" containing false messages misleading public opinion under the mask of truth, including destroying books and publishing new books with fundamentally different facts and their interpretations, creating a so-called mass "inconsistency".

- political thinking, in which the correct perception of details is possible, but the ability to draw logical conclusions and synthesize details as a whole is lost. In this case, known ideas, concepts and thoughts lose their power and the real historical connection is broken (Elizabeth, 2020).

The information network disintegrates into incongruous fragments, resulting in a new, deformed worldview; "concrete political information" - "disorganization of political information" performed by "political argumentation" methods, whose main characteristics are absolutely empty, thoughtless program political speeches of outwardly correct and attractive form and system, which frustrates administrative management, which destroys public order and leads to the collapse of economic and financial activity; "practical information" - "corruption of political information", promotion of prohibited actions, when the goal becomes everything, and bad means are used to achieve the result, the right to truth is replaced by the right to violence, etc., which leads to the phenomenon of "fragmentation of political thought".

Thus, the proposed refinements of existing approaches to information and political security allow to separate it more clearly from other types of security related to information: first, the list of information and political threats includes not only information and psychological, but also information and technological, information and communication and directly information threats and threats to national security; secondly, in matters of ensuring information and political security many, but not all, methods of ensuring other types of security are used, most of them are used to solve other problems of national security; thirdly, information, methods of information security become important systemic in ensuring all types of security (Solomon, 2018).

Like any other technology, information technology and the information society that emerges from it are closely connected to politics, since the definition of key characteristics of technology is a subject of political controversy, including at the international level.



The transnational nature of information space, as well as a number of its other characteristics and promising development trends dictate the need for international cooperation, in particular, to ensure the security of information and communication technologies and the global information society.

Globalization theorists have drawn attention to the compression of space-time due to the development of the Internet, the spontaneity of events, and the growing global self-awareness associated with a range of new organizational forms.

Researchers of social capital recognize the emergence of new forms of social interaction and interconnectedness and the decline or disappearance of traditional organizations with the capacity to create manageable personal interactions. In addition, political scientists note the formation of alternative public spheres of politics due to the information revolution (Hull, 1997).

The Internet extends the trends and processes of current world politics as: globalization, the blurring of state boundaries, dependence in the economic sphere, the entry of non-state players onto the world stage. An example of the negative consequences of global informatization is its impact on interstate confrontation, actively penetrating the digital environment, while generating the following phenomena: information wars, conflicts, cyber spying (Roszak, 2000).

Terrorist and criminal activities have also acquired a new arsenal of information influence, creating new threats to national and international security.

The Internet is not an independent agent of change that determines key indicators of current society and global politics. Like any other technology, the Internet is embedded in a broader social, political, economic context and is sensitive to the processes taking place in society, including at the international level.

In the field of international politics, the impact of information globalization can be systematized as follows (Danylyan, 2014):

- The importance of information and knowledge is growing, making economic development more dependent on ideas and knowledge than before, and states that are home to centers of innovation and high-tech industries that are increasing their influence in the international arena.

- The boundaries between international and domestic politics, between the military and civilian spheres are blurring, interstate borders are becoming more porous, which contributes to the softening of state

sovereignty, but strong states retain the potential to influence the global information sphere.

- The "diffusion of power" in world politics is developing, with non-state players (in particular, business structures, nongovernmental organizations, research and academic communities, and individuals) actively entering the international arena.

- Time and space are being compressed - with global informatization, changes, including international political changes, are evolving faster and harder to manage.

- The nature of power in world politics is changing, the public sphere is expanding, transnational movements organized along network lines are forming, and control over information, knowledge, beliefs and ideas is beginning to be seen as an important component of control over material resources: ICTs enable the accumulation of information and its transformation into knowledge, which is a resource of power.

- In the absence of generally accepted rules of interaction and security, national but not international initiatives are formed, creating new and exacerbating already existing risks and threats to international information security.

Global informatization is creating new security and new challenges to which states must respond. Many of them are domestic, though originating in cyberspace, which is inherently transnational. At the same time, there is a growing list of common challenges facing all states that could form the basis for international agreements (Boryak, 1996).

The information space is transnational by nature; information challenges and threats are not limited to the borders of individual states. International information security requires cooperation based on international law, taking into account the peculiarities of the digital environment. The search for ways to prevent both states and terrorist and other criminal organizations from malicious use of information and communication technologies that can lead to the violation of international peace and security has been one of the trends in the discussions of politicians, scientists and specialists in this field in recent years.

## **Conclusion**

The results of the study contribute to the scientific-theoretical as well as practical progress in the field of research, because the article reveals the concept of information revolutions and gives their classification, consisting of five stages: the invention of writing, the invention of printing, the

invention of electricity, the invention of computers and personal computers and the invention of global telecommunications networks, i.e. the Internet. This classification includes communication technologies as well as linguistics, and visual arts and infrastructure technologies.

This article clarifies the essence of the information revolution in post-industrial society, as information and political security is understood as a complex problem of protecting the essential interests of citizens, the state and post-industrial society as a whole in the political sphere.

The result of the research is to identify in the article the main aspects of information danger in political processes, because the active and widespread introduction of information technology in post-industrial society has led to a change in the structure of society, which sometimes poses a danger in political processes. The new society is largely free from national boundaries in political processes.

New network-based functional structures have emerged in all fields of activity. These include transnational corporations, the current electronic economy, and the unification of scientific teams working on the same problem but physically located in different parts of the planet. But such changes have also affected the negative side of human life. Network structures have become the basis for global crime and terrorism, a danger in political processes in particular.

Today, the pace of life has increased dramatically, especially in the key centers of the global information society, which leads to an increase in stressful situations: today one lives almost constantly in a state of constant stress.

According to experts, the transition of information into the category of the most important resources of mankind causes the problem of struggle for the possession of this resource. The information resource is quite a specific component in the complex of resources of state development. Their objects and the information infrastructure connecting them have their own spatial and temporal features, which are not limited to the national territory. In addition, information itself has unique properties of divisibility and reproducibility. These and a number of other factors have a noticeable influence on the overall assessment of the potential of a particular geopolitical entity, its ability to develop steadily, its ability to influence it from outside, as well as its vulnerability to hidden redistribution of enemy information resources by forces and methods of information warfare. The rivalry for information resource, the struggle for possession of this resource, the acquisition and maintenance of information advantage today occupies a significant place in the geopolitical competition of developed countries.

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*The Author 5* worked on editing the text of the article.

*The Author 6* selected and compiled a list of references.

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