

# Social security of the individual and technological determinism: human dialectics, science and technology

*Andrey Shilovtsev*<sup>1,\*</sup>, *Natalia Sorokina*<sup>1</sup>, *Konstantin Stozhko*<sup>1</sup>, *Dmitry Stozhko*<sup>2</sup>, and *Jose Luis Lopez Garcia*<sup>3</sup>

<sup>1</sup>Ural State Agrarian University, 620075, Karl Liebknecht str., 42, Yekaterinburg, Russia

<sup>2</sup>Ural State University of Economics, Department of History and Philosophy, 620144, 8 Marta str, Yekaterinburg, Russia

<sup>3</sup>Universidad Politecnica de Madrid, Ramiro de Maeztu, 7, 28040 Madrid, Spain

**Abstract.** The aim of the study is to assess the multidimensional nature of the relationship between the social security of the individual and the new technical and technological reality. Using the example of the dialectics of science and technology, the noosphere and the technosphere, the article reveals the nature and features of such interrelations in the conditions of modern globalism, a new scientific and technological revolution and the transition of society to a new technological order. An analysis of the concepts of "transhumanism", "posthuman" and a number of other terms is given, as well as the results of modern discussions of the problem under study. The article substantiates the idea that effective management of the modern technosphere is associated with the preservation of the basic traditional value foundations of society's existence, which made it possible to create modern engineering and technology and which are able to provide the necessary dynamic balance between science and technology in the face of steadily growing social instability, uncertainty and risks.

## 1 Introduction

The problem of the relationship between the social security of an individual and technology (various kinds of technical means and technologies) is one of the most discussed problems in many branches of philosophy. This is due to the multidirectional influence of technology, the technosphere and the so-called "technical reality" on human social creativity, on all human activities. At the same time, the key issue requiring serious socio-philosophical, political and economic comprehension is the question of the relationship between humanistic, technical and technological principles in the modern technosphere, as well as the definition of the true role of man and machine in a new post-industrial society - "risk society" (U. Beck ). Within the framework of the tendency that has emerged in the last decade to exaggerate the role of technology and partial substitution of man by machine in solving many private and global problems, new risks and threats are

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\* Corresponding author: [a.shilovtsev@mail.ru](mailto:a.shilovtsev@mail.ru)

emerging, social and macroeconomic instability and turbulence are increasing. The search for ways to overcome this imbalance and the formation of a new quality of dynamic equilibrium will be facilitated by a comparative analysis of the processes of developing human social security in the new technosphere.

At present science is experiencing another paradigm in its development, associated with the accumulation of a huge array of scientific knowledge and the need to interpret and rethink it. It is no coincidence that at the turn of the 11th-10th centuries BC the legendary king Solomon stated: "In much wisdom is much grief, and he who increases knowledge increases sorrow".

## 2 Materials and methods

The study used the methods of structural-functional, program-targeted, comparative and hermeneutic analysis. The subject of the research is the dialectical connection between the modern technosphere and the social security of an individual, which creates the necessary conditions for his effective social creativity.

## 3 Results and discussion

One of the results of the discussion of the problem under consideration in the scientific literature is the concept of "technological determinism", the meaning of which is that it is engineering and technology that largely, if not decisively, determine the development of human social creativity. And although the term "technological determinism" actually appeared for the first time in the works of the American sociologist and economist T. Veblen (1857-1929), and then became widespread in the works of American authors, such as economist K. Ayres (1891-1972) and philosopher J. Dewey (1859-1952) and others, some researchers associate it even with earlier authors. For example, they associate it with the works of K. Marx (1818-1883), who, in particular, pointed out that over time science will turn into a direct productive force of society, i.e. in essence, it will turn into a kind of engineering and technology whereby society will solve many of its economic (and not only economic) problems.

Be that as it may, the motive of technology and its role in the life of society is constantly traced in most social utopias and scientific writings, starting with the publication of the famous novel by F. Bacon "New Atlantis" (1626).

The relationship between creativity (science, art, culture) and technology (technosphere, technology, technostructures) is currently undergoing many discussions and debates. One of the striking examples of this was the work of the round table "Science. Technology. Person", the materials of which were published in the journal "Philosophy of Science and Technology" [1].

New ideas and terms about the relationship between creativity and technology appeared or were concretized during the discussion. Particularly, they discussed such concepts as "posthuman", "transhumanism", "transdisciplinarity", "polyfuration", "singularity", "scientification", etc., whereby individual participants of the mentioned "round table" tried to reconcile, it would seem, the irreconcilable or, as the philosophers say, "remove" the contradiction between the influence of the man on technology and the reverse influence of technology on the man. In particular, V.A. Lektorsky stressed that the transformation of a person caused by the influence of modern engineering and technology can occur in different ways. "You can try to transform him with the help of NBIC-technologies (*nano-bio-information-cognitive*), turning him into a "post-human", that is, in fact, killing him as a person. But one can realize that it is the development of culture, philosophy, art, literature

and science that was a real transformation of the man. That is, the development of his value ideas, the creation of a new "human world". And this development followed the path of humanization of the person himself and his relations, and not along the path of his dehumanization, the real danger of which appears today" [1].

However, this caused certain attempts on the part of other participants in the discussion to level the problem, to go into the area of discussing a more particular problem of the nature and relationship of fundamental and applied science, the area of functionalism of specific branches of science, understanding of physicalism, the usefulness of scientific knowledge, their expertise, etc.

So, D.I. Dubrovsky tried to "justify" the idea of "transhumanism" and the formation of the "posthuman" in the conditions of the modern technosphere. In particular, he said that, firstly, it is necessary to clarify the system of values that is associated with the concept of humanism. In his opinion, not all values of humanism are indisputable. In addition, not all values are congruent (consistent), let alone, observed.

Secondly, the old values can be enriched with new existential meanings [1]. This seems to be dictated by a change in the very reality which the modern man lives in. It turns out that a person no longer makes his own luck, the environment that he created makes it instead. In this regard, there is an opinion that the main reason for the modern spiritual crisis of mankind is not even the moral degradation of the man, but the gap between ethical attitudes and the requirements of the social environment [2]. And this is despite the fact that "the creation of the world is the formation of blood through the spirit" [3].

The question of "enriching" the values of humanism with new meanings on the sole basis that such values are, in fact, often directly opposite (from the ten commandments to "standards" of same-sex marriage) is hardly appropriate. Once N.O. Lossky wrote, "The polarity of values is necessarily connected with the polarity of their symptomatic expression in feeling, primarily in the feeling of pleasure and pain. In the same way, the reaction of the will to values expressed in attraction or aversion is also polarized" [4].

At the same time, one should not confuse different types and kinds of values when explaining humanism and, moreover, the relationship between science and technology. It is necessary to compare only those values that have equal status. For example, one can compare absolute values with themselves, but one cannot compare them with functional values or the other ones. In this respect, the statement that "the absolutization of the value of any branch of human activity inevitably leads to deformation in the others" [1] raises a serious objection. Absolute values are therefore absolute because they have the highest rank in all types of human activity.

As can be seen from the materials of the discussion, the main issue of it was still not the question of the relationship between science and technology, but the question of power. Regrets over the failed Platonic idea that "philosophers should rule" or Bacon's idea that "science is power" led panelists to questions about "how to govern" and "what can be governed" in the sphere of social creativity. The idea was expressed that it is impossible to govern science, that it must govern itself (be self-governed) on the basis of its own impulses and laws of self-development. Hence, the relationship between science and technology in the plane "scientist - politician" illustrates the simple fact that "a scientist and a politician think in completely different ways. Therefore, a scientist or an expert cannot replace a politician. And therefore, a politician often cannot understand a scientist" [1].

However, it is interesting that scientists themselves sometimes cannot understand each other and come to a common understanding of the essence of the problem of the relationship between social creativity, creativity and engineering (technology). The consequence of this is the existence of two interpretations of the philosophy of technology: humanistic (F. Dessauer, E. Carnapp, P. Engelmeier and others) and "engineering" (L. Mumford, H. Ortega y Gasset, M. Heidegger, J. Ellul, etc.).

They, in turn, proved to be a consequence of a certain confrontation between representatives (carriers) of the anthropocentric, sociocentric and technocentric worldview. Moreover, it is precisely the "engineering" interpretation of the philosophy of technology that has recently increasingly prevailed over the humanitarian philosophy of technology [5; 6; 7; 8]. This trend has developed in the context of mature industrialism and the transition to a new industrial society. With the only clarification that the "revolution of managers" and the transfer of power in corporations to representatives of the technostucture, which J.K. Galbraith once wrote about, did not take place.

This process ended with the "Thermidorian coup": the seizure of real power and management functions by the administration (officials and politicians). "In the past, management in an economic organization was personified by an entrepreneur," but today "instead of an entrepreneur, the administration is considered the guiding force of an enterprise" [9].

In recent years, the term "technical reality" has received a wide registration in literature, which has become an addition to the previously used concepts of "technosphere", "technoenvironment", "technostucture", etc. Outside of Russia this issue is presented in studies of F. Dessauer, V. Jacobs, F. Callage, W. Newser, T. Kuhn, S. Lem, N. Fogger, O. Spengler and others. In Russia this term is present in the works of V.V. Aleksashina, I.Yu. Alekseeva, K.L. Anisimov, O.V. Aronson, N.A. Berdyaeva, S.S. Beskarvayny, V.I. Gnatyuk, V.G. Gorokhova, A.V. Grigorieva, Yu.L. Episkoposova, V.P. Kapiton, Yu.S. Meleschenko, Ya.G. Neuymina, V.M. Rozina, O.D. Simonenko, E.Yu. Smotritskiy, A.I. Subetto, V.N. Shubina and others.

The applied aspects of studying the relationship between social creativity and technology are reflected in modern scientific periodicals: the journals "Philosophy of Science and Technology", "Problems of Risk Management in the Technosphere", "Safety in the Technosphere", etc.

The significance of the introduction of new concepts into the scientific lexicon turned out to be associated with the idea that the world of technology is not the true, real world of people, but a kind of projection onto it (N.A. Berdyaev). The basis of this view is the fact that "being is not identical to reality" [10].

Nevertheless, "the entire history of mankind is the history of creativity, including technical creativity, contributing to the adaptation of the man to the world, the subordination of the environment to his growing biological, social and cultural needs" [11].

But the result of such creativity can lead not only to the creation of the "human world", but also to its destruction, not only to the improvement of the person, but also to his degradation as a person. In this regard, the social security of the individual is also destroyed, since the social responsibility of a person is its basic condition.

It is known that "the stability of the structure of society is due to the constancy of the relationships which it is based on" [12]. One of the most important of such relationships is the relationship between social creativity and technical and technological reality, between science and technology, the noosphere and the technosphere. At the same time, "an increase in the amount of diversity, complexity, scale, functionality of the technostuctures created and manufactured in the society predetermines the growth in the number of ways to satisfy needs used in the society" [12].

However, a significant difference in the state of the society over the last decades has become precisely the violation of constancy, the growth in the dynamics of the development of science and technology and the bifurcation of interrelations between them associated with this growth. It is difficult to talk about any strictly defined system in the sphere of such interconnections, and, consequently, about their entropy. Rather, we are witnessing the transformation of the previous relationships, their modernization, diversification, the development of their emergence and the growth of their dynamics. All

this, taken together, could be characterized by the biological term "mutation" - a change in the very essence of the relationships under consideration and their nature and content. Using this term (proposed by G. de Vries in 1901), we can characterize the process of changing the relationship between social creativity and technical and technological reality, science and technology as "mutagenesis".

Just as attempts to change and direct metabolic and gene processes at the nano-corporcular level turn out to be very difficult in medicine or biology, so it is becoming more and more difficult to control the technosphere by a new technical and technological reality in the sphere of social creativity. Having escaped to freedom, pieces of work as the result of creativity live their own "life". Driving a car or an airplane itself requires special training and certain conditions. As for the more complex types of technology, and even more so for technostructures or the technosphere as a whole, even total dispatching of processes does not give a guaranteed result. Failures in power grids or power supply, man-made disasters and incidents increasingly remind a person that he is becoming dependent on the engineering or technology that he himself creates. You can observe as diligently as you like, for example, the rules of the road or the rules of flights (air navigation), but any other technical and technological factor can nullify all the efforts of the creator of technology. We are not talking about weather conditions, which only indicate the level of technology development and its functional capabilities. It's about the technology itself. And just as it is possible to organize thermonuclear fusion, but it is extremely difficult to control it, and even more so to control its consequences, it is extremely difficult to control the modern technosphere. This is still a task for the future, without the solution of which it is difficult to positively talk about the fate of humanity as a whole. Strictly according to A.P. Chekhov: "if at the beginning of the play there is a gun hanging on the wall, then by the end of the play it will certainly shoot" if it is not unloaded.

In recent decades, fundamental changes have taken place in the development of engineering and technology itself. If earlier these or those technostructures existed separately, then over the last decades they all merged into a single macrosystem - the technosphere. This technosphere has become more open (K. Popper's concept of "open society") and global. Researchers count up to eleven specific groups of technostructures that are part of a single technosphere [12].

Currently, several levels of the problem of the relationship between creativity and technology can be identified: physiological, psychological, biological, moral, existential and organizational.

"The border between the natural and the artificial in a person is destroyed, he becomes not only a product of the technoenvironment, but, designing and creating a new reality, he becomes a product of his own creative activity, up to a change in his inherent physicality due to the implantation of chips, elements of artificial intelligence, genetic technology, transplantology, etc. Science is actually leading an "attack" on a person. Difficulties arise with the criterion of recognizing a person as a person in the course of replacing natural organs with artificial ones. What percentage of replacing tissues and organs with mechanical, cybernetic, bionic ones will retain the status of a person for his "improved copy?" [13].

Another aspect of the problem is genetics, or rather, gene games in modern science and technology. Experimenting with DNA and creating technologies to control the development of molecules (the so-called guided evolution - VEGAS), scientists become a kind of technologists for the production of new "scientific" products - chimeras: different clones, "steaks in the garden" or "pears on the willow" [14]. The constant mutation of the new COVID-19 virus, the pandemic of which swept almost the entire world in spring 2020, has become the most obvious confirmation (or rather, refutation) of the so-called "guided evolution".

There is also an even deeper than biological or physiological level of transformation of the relationship between safety and responsibility, between creativity and technology, this is the existential level. It entered the most acute phase with the beginning of the digital revolution, which has significantly transformed not only public, but also private space, not only professional, but also the everyday life of people. A new society emerged and began to transform, which was no longer simply the industrial (K. Saint-Simon), post-industrial (D. Bell), technotronic (Z. Brzezinski) or informational (K. Koyama) society. It was already a new one – the "risk society" (W. Beck) [15]. It has become characterized by a high degree of uncertainty, instability, turbulence, risks and threats.

However, at the same time, global networks, electronic communications, genetic technologies and other achievements that are used by billions of people today have become characteristic features of the new society. For example, the same networks give people the opportunity not only to communicate, exchange and interact, but also meet the most basic needs [16].

At the same time, the awareness of the high degree of risk in the development of the modern technosphere comes to people with a great delay. The fact is that many of the most modern achievements of scientific creativity are considered and "allowed" to be used not by experts-scientists and not even by managers-executives, but by politicians-officials (bureaucracy), they are evaluated by them solely from the point of view of commercial benefits, profit, efficiency. This allows us to state that the modern "risk society" is just a modified (radicalized, developed to reach downright commodity fetishism) "consumer society" (J. Baudrillard's term) [17].

The danger caused by the substitution of the value of true knowledge as a product of scientific creativity or genuine beauty as a result of art with the commercial criteria is also due to the fact that the creator of the consumer value of a product (or a service) today is not even a person, but technology. The cleaning fluid or engine oil, a specific brand of gasoline or kerosene is directly used not by the person, but by the mechanism (machine) created by him. Here the question arises of what knowledge is? Is it something that is formed regardless of its usefulness and corresponds only to objective reality? Or is it something that is useful and also corresponds to objective reality? And how to teach the machine (equipment) of the ability to self-study, i.e. a combination of true knowledge and useful knowledge and to blocking production and, moreover, the use of true, but useless or even harmful knowledge within the framework of the current technical reality? In other words, what needs to be done to ensure that even a modern weapon aimed at a person would be blocked and could not kill him even when someone pointed it at him? What microcircuits, chips or other "stabilizers" are needed for this? After all, even access to an ordinary safe, which contains valuable things needed by a person, is barred by an unauthorized person with a combination lock and armor. What about the car? After all, anti-theft, signaling and other tools are already used here. But the influence of technology and the technosphere on a person is only growing.

N. Winner once wrote on that score, "Any machine created for the purpose of making decisions, if it does not have the ability to learn, will be completely devoid of flexibility of thought. Woe to us if we allow it to decide the issues of our behavior... For a person to shift the problem of his responsibility to the machine, regardless of whether it is capable of learning or not, means to let his duties go with the wind and see that they return to him by the storm" [18].

The script of the famous American film "Eagle eye" perfectly illustrated the possibility of such a "storm", when a rebellious computer tried to eliminate the entire "political elite" in the United States and seize power in the country in order to destroy the humanity.

This only illustrates the fact that "in the culture of technogenic societies, one can always find ideas and value orientations that are alternative to the dominant values" [19].

It is this alternativeness and the tendency towards the dominance of new values of technogenic societies that destroys the existing traditional value hierarchy, becomes a trigger in exacerbating the contradictions between science and culture on one side and engineering and technology on the other side.

However, radicalism in any form is always dangerous. If we talk about the need to resolve the dialectical contradiction that develops between science and technology and manifests itself in the question of who dominates in the context of their interrelationships (the man or the machine), then this contradiction presupposes several scenarios for its own resolution. It can be removed radically. For example, the seizure of power over a person by machines. This script is widely featured in Hollywood blockbusters. Or a rejection of the achievements of a technogenic civilization like Luddism.

The "expulsion" of the "genie of technology", that is the ideology of technological determinism, which too many unreasonable hopes are pinned on (for example, to create a "society of universal abundance", "welfare economy", "happiness economy", etc.) from the sphere of social creativity is objective necessity. The absolutization or idealization of information technology, "expert power" or an innovative economy is from the field of such "ideology". This "proctopy" (E. Toffler's term) or "ideology" should be replaced by another and more adequate reality - the ideology of a dynamic balance between science and technology, social creativity and the technosphere. The meaning of such a dynamic balance is the constant reproduction of the individual, the society, as well as increasing their social security, and, consequently, social responsibility in relation to themselves and to future generations. Consequently, any type of equipment and technologies that cannot be used for the sake of such reproduction, which carry the threat of destruction of their creator, should be prohibited, and their development stopped. There can be no room for reasoning about love for "true" scientific knowledge, knowledge "in itself." Such "perfectionism" is always only speculative and represents one continuous illusion.

Opposing the man and scientific truth, one can just as well find oneself in the "trap of science" as well as in the "trap of technology" or in the "trap of faith". The story that happened to Cardinal Montanelli, described by E.L. Voinich in her novel "The Gadfly", is a vivid illustration of the destructiveness of such "perfectionism". The father who essentially betrayed his son to the executioners for the sake of his faith, and then simply went mad with grief and insight, is a perfect example of the absurdity of such "perfectionism."

In this regard, the famous words come to mind, "And what do you benefit if you gain the whole world but lose your own soul?" (Matthew 16:26).

## 4 Conclusions

As a result of the study the following proposals can be formulated for what needs to be done first.

*Firstly*, it would be advisable to expand the study of the problem of the relationship between social creativity and technology and highlight several levels of analysis of such a relationship: noosphere, biosphere, pneumatosphere, technosphere (taking into account the corresponding concepts of V.I. Vernadsky, N. Winner, P. Krugman, T. Kuhn, S. Lem, N.O. Lossky, A.I. Oparin, P. Teilhard de Chardin and others). A clearer delineation of the "horizons" of the study of the relationship between social creativity and engineering (technology) will allow not to mix, as sometimes happens, the values of the highest (absolute) order and the values of the functional (operational) order. And thus, it will make possible to come even closer to the objectively correct system of axiological coordinates that will allow modern society to maintain a dynamic balance between human creativity and technology.

*Secondly*, it would be more logical to correct the widespread thesis that technology is the result of the development of science alone [20; 21], since technology nevertheless appeared historically before science and was initially the result of the development of human instincts and reflexes (empirics), as well as of human primary, unscientific forms of knowledge (metaphysics, mythology, religion). Creating primitive technology by trial and error, the primitive man did not yet know science. To do this, it was necessary to accumulate and process a much more significant amount of information than the knowledge of how to light a fire or sharpen a flint ax. The process of such accumulation stretched, without any exaggeration, for millennia. And science appeared in the development of the social division of labor as a special form of human activity much later than the man invented a primitive loom, means of melting metals or a windmill.

At the same time, the idealization of the role of engineering and technology within the framework of technological determinism is just as vicious as the idealization of various forms of social creativity (the same science that forms a new quality of the economy - noonomy). At various stages of human history, the ratio of social creativity and technology changed, their role was transformed, which indicates dynamic balance as a permanent state of this relationship.

*Thirdly*, when solving the issue of "supplementing" traditional value systems with "new values" of a technogenic society, it is necessary to proceed from the priority of traditional values that have already been tested by time, since "a stable and harmonious system of values is formed only by tradition" [22]. As the saying goes, "Measure thrice and cut once". Such an attitude towards traditional values and the accumulated historical experience of their practical development will make it possible to more thoroughly correct many of those negative social consequences of modern technological progress which researchers have already written a lot about [23; 24].

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