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ECONOMIC MAN UNDER CONDITIONS OF WORLD SOCIAL-TECHNOGENIC DEVELOPMENT

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Abstract

Economic man and his behavior in modern economic psychology and social sciences are considered narrowly from the standpoints of social peculiarities of behavior and motives of receiving a profit in market economy. But the socialization of man takes place under conditions of widening an artificial innovation habitat – technosphere and the destruction of natural environment which affects the peculiarities of human social and natural characteristics, and it is accompanied by their changes. Social and natural processes determined by a technospheric expansion affect directly and indirectly subjects of economic activity. Globalizing technogenic socium (as a result of dangerous actions and their consequences in sufficiently comprehended by philosophy, economy, psychology, sociology, political science and other sciences) transforms nature and man himself forming new regularities of human behavior under technogenic conditions of life. That is why, it is necessary to expand the applied methodology for the comprehension of human manner in social sciences having included the interrelated social-economic and natural changes in man in the field of their consideration under conditions of social-technogenic development of the world.

Keywords: Economic man, social-technogenic development, technosphere, NBICS-techniques.

1. Introduction

At the beginning of the XXI-th century, economic psychology as a science with the basis formed by the study of regularities in economic behavior of various strata of population in the course of economical activity (Spasennikov, 2003), was at the stage of the formation. Social relationships and social-

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economical transformations reflecting the peculiarities of economic behavior of various subjects in socium under conditions of market management fall into the sphere of its interests. Though the interests of this science fit in inter-subject investigations, nevertheless, the concentration of attention just on social regularities restricts its problem field.

Indeed, the modern world develops under conditions of social-technogenic development. Such type of social development typical for industrial and post-industrial economy creates and widens an artificial habitat – techno sphere actively. Artificial objects (means of production, industrial complexes, towns, constructions), synthetic chemical lagents, artificial electro-magnetic fields, technogenic foodstuffs and so on are its constituents. On the one hand, a widening techno sphere affects a social organism itself which results in the formation of an anthropogenic habitat, that of the way ofl ife of the population in towns and changes in the psychology of human behavior. From the other hand, it transforms abiospheric nature in a technogenic way that contributes to its degradation, destruction (including human transformation as a biosocial living being) and as a consequence, there is an increase of the ecological crisis. Thus, social and natural processes determined by at echnospheric expansion affect directly and indirectly subjects of economic activity. Therefore, it is necessary to extend a problem area of economic psychology and social sciences, and to include the matters of changes in the economic activity of socium under the globalization influence of social-technogenic processes.

2. Methods

A narrow (sociological, and also social and economic) approach (method) to definition of globalization phenomenon concentrates the researchers' attention upon social and economic transformations (e.g. social regularities). In contrast to it, the broad understanding of this phenomenon, being beyond the scope of solely economic relations, allows to have a comprehensive look on this process of emerging of new integrated regularities of the world economy's development, and also understand the peculiarities of social, artificial (technospheric) and economic interconnections arising nowadays. This is a new interdisciplinary scientific socio-natural method based on the phenomenon of social-technogenic world development (Trifankov, & Dergachev, 2016).

The objects and elements of technosphere give rise to man, society, and nature system changes which in the aggregate create a phenomenon of technogenity of social and social-natural development and the extension of such development in the world. At that, a technosphere gives a considerable and growing acceleration not only to social, but also to social-natural processes, aggravates global problems accompanying them. A universalizing technosphere participates in exchange processes between a socio-sphere and a biosphere becoming a constituent of globalizing processes. All this is an evidence of that modern globalization including not only economic changes acts as a process of a system-integrated socio-techno-natural development (Dergacheva, 2016). Hence, economic psychology, as a field of social sciences and inter-subject researches must not also limit a subject of its comprehension exceptionally with economic relations.

In present-day social scientific literature of the late XX-th – the beginning of XXI-st centuries, there are many works collected on the study and comprehension of man-caused (anthropogenic) socio-natural processes allowing adeeper perception of phenomenon of modern man under conditions of socio-

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technogenic development of the world. In particular, it is possible to emphasize it in the works by several authors (Grunwald, 2011; Demidenko, 2016; Colbert, 2011; Popkova, 2012). Many global inter connected transformations in a social organism, man and biosphere determined by the activity of technogenic socium are considered in their works. These changes are usually connected with utilitarian-pragmatic interests of socium keeping an economic activity under market economy. These interests result in the growthoft echnogenicity in social and natural development, changes in the model itself of an evolutional socio-natural character. Globalizing technogenic socium (as a result of dangerous actions and their consequences insufficiently comprehended by philosophy, economy, psychology, sociology, political science and other sciences) transforms nature and man himself forming new regularities of human behavior under technogenic conditions of life.

3. Results & Discussion

One of the consequences of modern globalization is a transformation of common cultures included in the processes of world technogenic changes. As a result, a global culture is formed having common parameters for all cultures. Accordingly, the culture changes in people living in technogenic societies. The formation of general planetary culture is followed by socio-cultural changes which are expressed in the growth of contradictions in the development of social and natural human features. If social characteristics in a universalizing technogenic society of constant technical-economic innovations evolve quickly and perfect themselves, then natural, physiological, and psycho-functional systems of an organism, organs of sense formed by a biosphere are destroyed as facts show. It is enough to emphasize that in a present-day epoch,the genetic defects are a reason of more than two thousand heritable diseases; about one third of new-born children have pathologies in morphological structures of an organism, or in the functions carried out by its different systems, and each tenth child has significant abnormalities, that is to say, is defective (Nikolaykin, & Nikolaykina, 2003). The extension of activity fields, a participation of man in manufacturing branches and service sectors of a universalizing technogenic society with its economy, particularly in the field of mental work, determine the perfection of different social characteristics. It is manifested in the development of human thought, world outlook, lab our functions and specialties, people's way of life. Besides, it contributes to the formation of new social-technogenic needs and interests satisfied to a greater extent at the expense of a biosphere.

As the ends of market economy development in globalizing technogenic societies are connected with getting a maximum profit in a competitive struggle and a satisfaction of a personal interest, these market-directed properties develop as private selfishness, individualism, pragmatism, perseverance in the solution of problems specified mainly in those people who are involved actively in the processes of innovation development. Changes in the employment structure of technogenic societies inevitably result in that the significance of mental work increases. The level of the education obtained by man defines a human social status, well-being and contributes to the junction to new life values. In as much as these people have already a certain material welfare for a decent existence essential to support it, the aspiration for the creative self-realization comes out to the forefront in a motive of their labour activity. Furthermore, the development of business depends greatly upon an intellectual potential of the company staff. Accordingly, professionalism and creative abilities belong also to market-oriented features of a person

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which are formed owing to the globalization of technogenic societies.

An extending technogenic society develops a market which renews constantly a range of goods, human services, technologies, and thus, determines the necessity in the development of such qualities as abundant consumerism, mobility, and readiness for constant changes in production, society, habits, values, and changes in the way of life. Rising foundations for a new global cultural environment (and peculiarities of consumption) are based on a value basis of market economy the leader of which are the USA (since the second half of the XX-th century).

As economy of modern societies in its motives is guided by rationality of a profit, qualities (and values) that are common and developed throughout centuries as far back as an agricultural society such as collectivism, moral, confidence, honesty, kindness, compassion, empathy are ignored in globalizing technogenic societies and degrade. New, changing dynamically human qualities (with common qualities lost in many respects in their combination) do not become more humane, as emotional-irrational values of socio-natural life having no rational substantiation from the view point of a market are made vapid. So, if we follow the logic of globalization development, then it turns out that the cultivation of transgenic plants "results" in a greater value to people as the profits of trans-national corporations (TNC) grow. Therefore, in the situation when the purpose consists in a business growth, such concepts as "honesty" and "confidence" may be applied with great reserve to the activities of technocrats and managers of these companies.

In a universalizing technogenic society, the "volumetric" social qualities are formed in man. On the one hand, man adjusts the actions with the standards of national culture common for the region of habitation. On the other hand, social qualities of an individual are formed under the influence of belonging to the events of forming planetary culture, which turn out to be accessible to the individual due to information and TV communication ties, "remote" employment, distant education, tourism. But an ambiguous situation manifested in the degree of human attachment to a local area is formed.

All this is an evidence of the fact that in a universalizing technogenic world, a hierarchy of market qualities (in values of preferences) is under formation which is defined by the degree of human involvement (and a country) in a planetary system of economy of technogenic societies. As a result the "scale of rank" of general culture (and social status of an individual) in regions with the different level of technogenic development is formed.

The process of the development of universal market qualities in man combines in itself two trends – an aspiration to join to the standards of a global technogenic society and to keep the specificity of regional values. At the same time, countries have unequal technical and economic potentialities for the participation in information and network area and inter-cultural communications. Therefore, market qualities of individuals are hardly formed on the basis of an equal synthesis of values of different cultures. It is possible to suppose that man turned out to be in a certain sort of a trap of a multi-aspect (and absence of definiteness) of values in the interpretation of vital activity offered by different structures. An individual substantiates a choice between alternative options mainly not by a priority of own actions for a society (on the basis of traditions), but in accordance with the market logic – for one's own purposes. Hence, no wonder that in a globalizing technogenic society, there is a situation under formation with the uncertainty of standards and market qualities. This uncertainty of human qualities under the auspice liberal values as though proved their universal humanity and positivity, but really makes man

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(and nature) vulnerable and convenient for the manipulation by TNCs.

The general planetary transformations of man, as a matter of fact, are not limited with a socio-cultural sphere and also connected with a changing character of socium mutual relations, a technosphere created by it and nature destroyed by it in the course of current universalization. During the formation of a global technosphere, man develops technogenic qualities (in particular, new standards of communication, notions of life arrangement, leisure activities and so on) suppressing natural ones and those unusual for pre-industrial development. In a broader sense, they belong to socio-technological changes in man.

These transformations in man are connected not only with man vital activities dependent on technosphere. In fact, they touch upon human nature – physical and mental abilities of a person. The researchers emphasize two types of technological impacts upon man. The first type of techniques of present-day techno-science includes the conservation and restoration of that available in man, the second type is directed to changes, endowment with new properties increasing human competitiveness in market environment changing constantly (Yudin, 2012). It should be recognized that it is getting harder and harder to support human natural weak health (his main value) on the basis of techno-science and medical therapeutic practice. The second type of technologies widens artificial adapting potentialities of an individual to a globalizing technosphere is directed to the change of individual biology and qualities. Technogenic socium shows a growing interest to the development of this type of techniques financing generously new innovation projects on human improvement.

Technologies become a center of manipulation with social and natural-biological that is generate technogenic socio-natural changes in man. But these transformations are not neutralatall as they strengthen irreversible changes and contain prerequisites for the transition of mankind into other quality which may change the idea of specificity of human labour and the nature of employment. This expected economic and technological future of new man can be described only with the use of multidimensional philosophical world view getting out beyond narrow limits of the rationality of techno-science.

Today due to the acceleration of a scientific-technical progress, we observe in time the intersection of a number of phases of a scientific-technical revolution determining development and expansion of a biosphere. In particular, it is possible to emphasize a revolution in the field of information and communication techniques proceeding since the 80s of the XX-th century and followed by a biotechnological revolution and a revolution in the field of nano-technologies recently started. It is also impossible to ignore a rapid progress in the development of cognitive science taking place in the course of the last decade.

The interference of just information technologies, biotechnologies, nano-technologies and a cognitive science is particularly interesting and significant. This phenomenon is given a name of NBICS-convergence (according to the first letters of fields: N -nano; B -bio; I -info; C –cogno, S–social-humanitarian techniques). The term NBIC-convergences was introduced in 2002 by M. Rokoand and W. Beinbridge, authors of the most significant work in this field and in this period – the account “Converging Technologies for Improving Human Performance: Nanotechnology, Biotechnology, Information technology and Cognitive science” prepared in 2002 in the World Technology Estimation Center (WTEC). The account is devoted to the disclosure of the peculiarity of NBIC-convergence, its significance in the general course of the world civilization development and also to its evolutionary culture-forming significance for modern man.

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But five-six years later, it became evident that four primary basic technologies can not be considered in isolation from the system of social subjects and the humanities and it was offered to widen NBIC-convergence up to NBICS-convergence which opened a huge field of activities for humanitarian knowledge, but unfortunately, domestic academic researchers (philosophers, psychologists, sociologists, economists) turned out to be unprepared to respond to the challenges of time. Further, we will try to describe strategic trends of an organic inclusion of social-humanitarian technologies into a general convergent context (Baksanskij et.al., 2010).

The interaction of nano- and biotechnologies (as well as other constituents of the scheme, and it will be shown below) is bilateral. Biological systems have given a number of tools for the formation of nano-structures. For example, special sequences of DNA are created which make a synthesized molecule of DNA to reduce to two-dimensional and three-dimensional structures of any configuration. Similar structures may be used, for example, as "scaffold" for nano-objects formation. In prospect, a possibility is observed for the protein synthesis performing specified functions for the matter manipulation on a nano-level. Also reverse possibilities were demonstrated, for example, the modification of a protein molecule form with the aid of a mechanical effect (fixation by a "nano-cramp"). Nano-technologies will result in the appearance of a new industry – nano-medicine – a complex of technologies allowing the control of biological processes on a molecular level.

Nano-technologies and a cognitive science are more distant from each other as at this stage of science development the possibilities for the interaction between them are limited, furthermore, these fields began to develop rapidly later. But among prospects analyzed now,we should emphasize the use of nano-tools for cerebrum analysis and as well as its computer simulation. The existing external methods for cerebrum scanning do not ensure a sufficient depth and a resolution. No doubt, there is an enormous potential to improve their characteristics, but robots with dimensions up to 100 nm (nano-robots) and under development in many leading laboratories are supposed to be as the simplest way technically to study the functioning of separate neurons and even their intracellular structures.

The interaction between nano-technologies and information technologies bears a bilateral synergetic character and, what particularly interesting – are cursive mutually-strengthened character. On the one hand, information technologies are used for the computer simulation of nano-devices. On the other hand, already today there is an active use of nano-technologies simple enough for the time being for the creation of more powerful computer and communication devices. The information technologies are also used for biological systems modeling. A new inter-subject field appeared – computer biology containing bio-informatics, system biology and others. To date, a lot of various models are developed which simulating systems from molecular interactions up to populations. In particular, system biology deals with the integration of similar simulations with different levels. Anumberofprojectsofmostvariouskindsareengagedintheintegrationofhuman organism models at different levels (from cells to the whole of organism). In this way, the Blue Brain project (a joint project of IBM and Ecole Polytechnique Federale de Lausanne) is created for works on the modeling of human cerebral cortex (Blue Brain Project).

On the whole, it is possible to speak of that the phenomenon of NBICS-convergence developing before our eyes represents a radically new stage of a scientific and technological advance. By its possible consequences, the NBICS-convergence is the most significant evolution-defining factor which signifies

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by itself the beginning of trans-humanitarian transformations during the human evolution itself, Thus, it may be assumed that it will come under human own intelligent control. But this evolution hardly could be considered to be humane in as much as a natural-biological genetic code (gene pool) of mankind will be transformed considerably by artificial technologies. These innovations have the perfection of man with the aid of technologies as an object, that is, they are aimed at the strengthening of human functionality, rapid training, scholarship, ingenuity, creative abilities, patience and capacity for work as significant qualities required by market economy. At the same time, the development of a techno-science ethically neutral in the aspect of human perfection, human market-aimed qualities may result in the strengthening of evident negative qualities connected with the excess consumption, and also to the suppression of everlasting common values of socio-natural life (emotions and feelings).

It is possible to assume that in future, as a result of human technological up dating, a social stratification will be defined according to the principle of presence or absence of innovations in man. In as much as these innovations will be accessible in the first place for the inhabitants of anthropogenically developed societies in a global elite, they will become the first representatives of a new caste. And if ethic assessment of human technological updating is late and does not keep up with the rate of technogenic transformations, a new evolutional type of mankind is created as a type under control of a biosphere and hence will be plunged into a maelstrom of constant social-technological manipulations.

Conceiving philosophically the process becoming actual now, it is possible to assume that the experiment with a technogenic rationalization of mankind identified with the humanity of decision-making by a society and simultaneously the strategically priority one for business can turn into the creation of a mass of creatures of the same type, easily controlled and deprived of individuality. These technogenic transformations will result in a radical change in the comprehension of mechanisms defining an economic behavior of individuals, which must be taken into account in the methodology of economic psychology.

The problem also consists in that under conditions of a current globalization the logic of a global expansion of engineering and production processes and the replacement of human labour by machines makes people created by nature unnecessary and unclaimed. The economy innovation mechanism of technogenic societies has a need for implements of the same type supplementing for the time being the imperfect processes of a technosphere. All this results inthe removal of unique properties which distinguish man from the rest of the world, in the unification of social elements “embedded” in technosphere processes. Therefore, the possession with trans-humanism and a technological control of human evolution is just that value moment in the world technosphere development and, unfortunately, contrary to the value of a natural biological life and “eliminates” unnecessary human material. This suggests that the initiative on a human technological transformation cannot be rendered completely to a humanitarian project, though, of course, it is unlikely that somebody will not agree to prolong a proper life on the basis of the application of NBICS-technologies, the substitution of spent and diseased organs for new ones, complete therapeutic treatment of diseases by nano-methods. And an end has not been put in this philosophical and ethic problem yet, in as much as many researchers show anxiety about a fate of modern man.

So, the distinguishing features of the NBICS-convergence are:

- The intensive interaction between scientific and technological fields mentioned.

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- The considerable synergetic effect.
- The coverage of subject fields under consideration and subjected to the influence –from an atomic level of matter to intellectual systems.
- The identification of prospects in a qualitative growth of technological potentialities in individual band social development of man due to the NBICS-convergence.

At the same time, it should be expedient to bear in mind that the NBICS-convergence, besides positive aspects, can be fraught with a lot of challenges and social-economic risks. The definition of key factors of a risk in large measure depends upon prospects which open and upon the field of use and application. Therefore, the attention should be paid also to different aspects of ensuring safety. The following risks should be specified:

- The risk to the environment because of nano-particles release in it.
- The safety problems connected with the influence of nano-particles upon manufacturers and consumers of nano-products.
- The political risks connected with the influence which nano-technologies can have upon economic development of countries and regions.
- The futuristic risks such as a possible interference of man in nature and a hypothetic possibility of nano-machinery.
- The business risks connected with the market of foodstuffs containing nano-technological developments.
- The risks connected with the protection of intellectual property.

The convergent NBICS-technologies giving mankind a chance to avoid a resource collapse by means of the creation of a technological sphere “similar to nature“ define at the same time actually new risks challenges of a global character.

These risks are connected with the character itself of convergent NBICS-technologies ensuring a possibility of the systems and processes of technological reproduction of animate nature. From the point of view of special application, it opens a prospect for a purposeful interference in the vital activity of natural objects and, first of all, of man.

Basic possible trends and solvable problems are the following:

- The impact upon a psycho-physiological sphere of man (control and management of consciousness and body, in particular, the formation of an idea of reality, modification of biological processes in an organism, the introduction in the organism of implantable structures, vital activity management).
- The fundamentally new interfaces “man – environment” (interfaces including directions, “cerebrum – machine”, “cerebrum – cerebrum”, hybrid interfaces (for example, direct transmission of information upon an eye retina), getting mental images without a direct interference in cerebration).
- The genetic modification of animate structures (an artificial cell, modification of immune structures, living robots (animates)).
- The target delivery of substances (capsuling, specific reactions with the specified areas of organs and cells, suppression of immune reactions).
- The micro- and nano-robots (matters transportation, technological manipulations, collection and transfer of information).

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- The artificial organs (a united system of artificial tissues, muscles, bones and sinews, hybrid sensor systems).
- The distributed information-measuring systems, including a hybrid collection, transfer and processing of large arrays of information, a constant control of a situation in large areas and in complex systems.

The convergent technologies open enormous potentialities and prospects for the mankind, they may also turn out to be Pandora's box. It may be the best rationality test of a homo sapiens type.

4. Conclusions

In such a way, in the course of the current globalization, the contradictions between social technologically updated natural qualities in the representatives of different sociums involved in technological development and cultural exchange are formed. These and other contradictions must be taken into account at the comprehension of economic psychology and behavior of economic man under conditions of world social-technogenic development.

Global processes and problems displayed during the last two-three centuries of technogenic socio-natural development have not been analyzed thoroughly enough yet by economy and economic psychology in the aspect of the researches of behavioral motives in business entities which does not allow including these problems in the sphere of the methodology of social sciences. During the interaction of social, artificial and natural-biological components of the modern world, the integrated regularities of its developmentare formed. In the aggregate, they form a phenomenon of social-technogenic development (Trifankov, & Dergachev, 2016). A wide view upon modern man getting out of the limits of economic science and psychology presented in the paper will allow looking "volumetrically" upon human behavior under conditions of the formation of artificial habitat – technosphere.

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