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REVIEW

Social and Economic Development Models in the Digital Transformation Era

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ABSTRACT

The article analyses development regularities of human system and investigates possible social and economic development models in the era of digital transformation. The article demonstrates that there are three models that can be applied in the conditions of Industry 4.0 technological revolution with its rapidly emerging digital devices and technology breakthroughs of the 21st century. These models are shaped in accordance with their development purposes, which can establish different relations between state, society, business, and specific individuals. The authors convincingly show that there is only one model capable of providing sustainable development and creating a new model for economic development, which corresponds to digital technologies of the 21st century.

1. Introduction

Nowadays most countries in global world believe that their future is closely related to the use of technologies of Industry 4.0 and thus they develop their digital economy. As our empirical research has shown, there is still no universally accepted and scientifically proven definition of "digital economy".

On the international level, the process of digitalization in the broad sense is understood as social and economic transformation initiated by large application and acquisition of digital technologies, i.e. technologies of creating, processing, exchanging and transferring the information. Such definition is given by experts of UNCTAD [8].

The Bureau of Economic Analysis of the United States Department of Commerce enumerates the following three points of digital economy: 1) such economy can be called digital that has supplying digital infrastructure needed for existence and functioning of computer network; 2) digital transactions are realized with the help of the system of "electronic commerce"; 3) digital economy users create the content that they get access to ("digital media") [7].

In other words, digital economy is perceived, first, as both technical and technological issue as it processes rapidly growing masses of data (i.d. "big data"), and secondly, as an infrastructural project. However, this approach, which is also present in Russia, does not reflect technological and technical sides of digital economy [9] without investigating the change of its essential phenomena and without touching upon its values.

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The conducted analysis of economic aspects of digital economy has shown that preplanned results of its development can be obtained only if production becomes targeted, i.e. personalized, and there is a specific individual who is going to make an order, leaving aside the production of anything unnecessary [2, 3]. In this context digital economy could be seen as an economy of agreed interests between state, society, business and a specific individual in the real time at every local level. Everything in digital economy is aimed for the achievement of the global development purpose.

Within the framework of political and economic understanding, the development purpose is formulated with the help of the main economic law-either the law which can answer constantly increasing needs of a man, or the law of a goal setting. Political and economic analysis of various aspects of digital economy development has demonstrated that it is not possible to reach this purpose. The execution of the law of the rise in needs with such a purpose presupposes that the humanity creates the consumer cooperative. The use of digital technologies only accelerates its creation; in such society a satisfied necessity entails a new one, and this process can continue endlessly until all resources are exhausted; the purpose, however, is not reached.

Then, if a specific individual is taken as a primary social unit in all the variety of his or her needs, the purpose is to be reached only in the form of production relations, where a direct interconnection between production and an individual is established. The goods production is conducted by request (or order) of a specific individual provided that there is an equal and a free access to spiritual and material goods and their great diversity. This excludes the possibility of producing unnecessary things, and in this case, resources are used effectively, while spare time and free resources could be employed in a person's development.

2. "Laws" of Society Development

Our research has revealed [2,5,6] that all society development consists only of two phases of society development.

They are reflected in the corresponding models – the paradigms of its development:

• Paradigm 1 – there is a direct correlation between production and consumption and

• Paradigm 2 – there is an indirect correlation between production and consumption.

In this connection it is possible to subdivide rather conditionally the development of society into three stages.

The first stage is characterized by the predominance of the social structure described in paradigm 1 (the direct interconnection of production and consumption). The society started to master manual labour, and everything produced was consumed in this society. Consequently, this is a preindustrial production type for oneself and by request of a consumer at the household level (artisans). The period between the arising of a necessity and its satisfaction was minimal. Concerning the purpose, the development of society proceeded in a spontaneous way. The transformation of the direct interconnection between production and consumption into the indirect one occurs when primary technologies, division of labour are introduced, when market, intermediaries (merchants) and money (the general equivalent for the exchange) appear. The transformation goes with a gradual territorial expansion and the development of foreign commerce.

The second stage of development, described in paradigm 2, starts being formed. Its development in time and space accelerates with the transition to industrial society. Mass industrial production of an assembly line type appears, as well as the development of domestic and foreign commerce, territorial expansion to the global level and mass consumption. Production and commerce are aimed at an abstract mass consumer by the means of communicating with a specific individual with a single purpose – to get maximum profit. This means of communicating is spontaneous, archaic, market and made indirect through prolonging time and space. In such conditions uncertainty in consumption has led to the appearance, and then to the global increase of disproportion between the time of production and the time of money and goods circulation, and then to their total desynchronization. Time of circulation exceeds greatly time of production. Despite a huge increase in the volume of tangible factors of production, their dynamics has become enormously separated from their money form (both real and virtual).

Later, the development concerning the purpose has a spontaneous character, evolution replaces involution and vice versa. That is why crises, chaos, complexity and other negative phenomena of human development in an existing paradigm are reproduced on the global scale, and it has every chance to end disastrously. The present situation in world is the summit of this development paradigm, its agony and its inevitable decline. All this shows clearly that the existing model of society development has worn off, and now it is an unbiased basis and the source of absolutely all critical and negative phenomena, economic and the sanctions confrontation, natural anomalies and disasters, terrorism, irregal migration and diplomatic, commercial, informational, cyber- and real wars with casualties and material losses. The product of the existing development

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model is as follows: migrations of citizens of different nationalities from those countries, where life conditions and perspectives are much worse than in countries where they aspire to settle, especially in the case with irregal migration, the scale of which has increased sharply since the middle of the 20st century, thus aggravating characteristic imbalance in ensuring the national safety of governments.

In the last quarter of the 20st century this development paradigm has not been changed, despite the fact that informational technologies, allowing for direct contact with the consumer and flexible production systems which could be reset according to any order in real time, have not strengthened the freshly introduced opportunity to set the direct connection between production and consumption on the one hand, and the accordance of interests between them on the other. They became the end in itself for collection, storage and processing of large masses of information, as well as the means of creating global markets.

There is a similar situation with modern digital technologies. They are being treated mostly as the means of increasing the effectiveness of modern economy by means of automatization of all processes and technologies of data processing to obtain new knowledge and to form new markets.

Meanwhile, it is only digital and other technologies of the 21st century that let, first and foremost, production be oriented towards every person without producing unnecessary things, and, secondly, towards the creation of digital equality in accessing the vast variety of goods. It is only the following factors that can eliminate all systemic defects in countries social and economic development and establish the equality among regional levels that belong to this or that region: these are the digital equality between concrete people, the equal access to creature comforts on the basis of ordering and the accordance of interests on every local level in a self-government mode. Next, by providing the equality between regions and countries, digital equality would provide the changes on the international level, and not vice versa.

This means that there is a shift towards the first paradigm of society development, where production can again be oriented towards the needs of a specific individual without producing anything unnecessary. This production, however, would take place on the technological level, which would be based upon postindustrial technologies, e.g., additive ones. By this time already these technologies allow for real-time personalized production of any group of goods for each specific consumer. It is crucial not to miss this formation of the development model.

There is a tendency of the confluence of production and consumption into almost concurrent process in this model of possible social and economic development. Here, production cannot exist without consumption and vice versa. This exactly what postindustrial society is. Such interpretation differs from other viewpoints. For example, David Bell, American sociologist and futurologist, defines it as society where there is a shift from the production of goods to the production of services[4]. The dominant productional resources are information and knowledge. Scientific developments become the main driving force in economy. The most valuable traits of a worker are his or her education, professionalism, educability and creativity. As a rule, those countries are called postindustrial where the service sector takes more than a half of GDP. For instance, the USA economy was referred to as postindustrial, where the service sector used to take 80% of GDP. However, after Donald Trump has been elected as president, the tendency has changed drastically, and industrial production aimed for domestic consumption has developed.

3. Possible Models of Social and Economic World Development

All three models of society development are possible in every country in the conditions of Industry 4.0 technological revolution with a rapid adoption of its digital devices, artificial intelligence, Internet of things, bio-, neuro- and other technologies of the 21st century. Relations between government, society, business and a specific individual are to be established in countries according to this or that development purpose [3, 6].

In the first model the whole society and a narrow group of people choose different purposes of development, consciously or unconsciously. These purposes would go in different directions, and the development would proceed by trial and error. In this case the future is vague, it would take much time to achieve it; moreover, the usage of digital and other technologies, which would work in acceleration conditions in this model, would be accompanied by mass human and resource losses which could eventually lead to an apocalypse. Thus, it is possible that singularity as the point of no return in attaining different purposes and in transition to new social and economic model could not be reached.

The second model can be developed in the conditions of the existing paradigm, meeting the requirements of a narrow group of people according to the purpose and values they have adopted. There is a tendency of emergence of technological singularity in this model, the core of which lies in artificial intelligence and digital, biological and other manipulative and mind controlling technologies. The final aim of this model is to take control over the

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whole world to make huge profits. Risks for the government and the society increase. The transition to new social and economic development model is impossible because such phenomena as the ideology of the Islamic State are likely to arise. That is why many people, especially young people, are attracted by the values accepted in this model. That is why nowadays digital revolution and other 21st century high technologies might make enormous threats right up to the threats to the survival of humankind.

However, the third model can be formed if the development proceeds consciously and there exist understanding of the final aim and of the interests of everyone from Russia or other countries, and the concordance of these interests in real time. Interest-based approach can make digital technologies help people to not produce unnecessary things, preserve resources in its primeval state and save time to self-perfection. This is the only possible condition of motivating people (especially young people) and of ensuring rapid and sustainable development in relation to its purpose. In this case, technological (digital) singularity synchronizes with the singularity of forming new relations between people and their realizing that it is essential to approach the achievement of the global development purpose in an evolutional way.

Now the world is in between the first and the second models. Nevertheless, a rapid introduction of digital technologies in our life, digital devices, artificial intelligence, bio-, neuro- and other 21st century technologies and a simultaneous aggravation of international relations, migration processes, sanctions, trade and diplomatic wars and other negative phenomena between the USA and Russia, the USA and China, the USA and Europe etc. accelerate the world towards the second model. The final aim is to take control over the whole world and over each person. Consequence of this have been already described above: risks would increase sharply, and governments could disappear.

Consequently, in order to protect themselves and their people, to ensure a universal safety and transit to sustainable development, national governments should, first and foremost, take care of forming the third model and strategies of its achievement.

4. The Third Development Model Forming Conditions

The third model presupposes the direct contact between people, which can be based upon the personalization of production of a specific individual without producing anything unnecessary. This transition is possible only with the help of digital and other high technologies of the 21st century.

The adequacy of this new form of production relations and new productive forces ensure the achievement of the global purpose with minimum resources, the reduction of labour hours and an increase in spare time spent on self-perfection in physical, intellectual and spiritual sense. Thus, new production relations must correspond to and not contradict new productive forces (such as digital and other high technologies of the 21st century). This characteristic feature has been noted in Russian President Vladimir Putin's speech: "digital economy is not a separate branch; it is a way of life, a new base for the development of public administration system, for economy, business, social sphere, all society" [10]. Only such relations become the basis for forming institutional, financial mechanisms and infrastructural projects of the formation of digital economy.

The achievement of the global purpose is possible not only with transition to new relations with the help of new technologies, but with a compulsory transition at every local level to the new model of living conditions with a concurrent development of the mechanism of its realization. This is the coordination mechanism of the interests between government, society, business and a specific individual in real time, and all it connections between them. This very mechanism is also a mechanism of making digital economy safe for a man.

The technology of block chain is an instrument that could help to realize this coordination mechanism. This technology possesses platforms to carry out operations between equal members acting without intermediaries; there is also a decentralized storage of information which reflects all data about operations on the concordance of interests at every local level. After all, technologically block chain systems need neither intermediaries, nor centralized control. Contradictions are resolved on the basis of a swarm intelligence principle: taking into account the collective opinion of participants, these systems apply its own laws and operate almost in an autonomous manner.

Thus, digital economy should be perceived as an economy of agreed interests between government, society, business and a specific individual in real time, where everything is aimed for the achievement of an established purpose. The main role of the government is to redistribute its functions and budgets from the upper level, which is usually strictly centralized, to the local level.

Only in this case the concordance of interests at every local level in the self-government regime and in real time would allow for eliminating disproportions, desynchronization of all processes in time and space. Then, consequently, there would be digital equality between

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regions; disproportions in regional, country and world development would be eliminated. If the interests are agreed upon on the local level, those problems will be transferred to the next level which is not possible to resolve earlier. Such model of control is extremely flexible because it is not getting accustomed to the reality of a rapidly changing world but is built on a unliteral understanding of the future and the mechanisms of its achievement.

5. Conclusions

The conducted analysis has shown that economy of the agreed interests between government, society, business and a specific person in real time at every local level can emerge for the first time with the help of 21st century technologies. Everything there is aimed for the purpose of the perfection of man. This is the only possible driving force that motivates everyone to increase his or her own intellectual potential and labour productivity, thus ensuring the quality of life of each particular person, not society as a whole.

Consequently, this can help to decrease considerably economic dependence of different countries on sanctions, trade wars, irregular migration and other global challenges of today. Everyone will be able to generate new knowledge in interests of both society and his or her personal. Due to the shortening of producing unnecessary things and generating ideas by everyone all the conditions for a rapid breakthrough in the future can be created. It will be that future where man's interests are the greatest priority for the government and where a new milieu adequately reflecting 21st century high technologies will be created.

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References

[1] Aleshkovski, Ivan (2017) 'Globalization of international migration: social problems and political consequences', Bulletin of the Peoples' Friendship University of Russia, Sociology Series, No. 2, Vol. 17, pp. 213-224 (in Russian). ('Globalizatsiya mezhdunarodnoy migratsii: sotsialniye problemy i politicheskiye posledstviya.')

[2] Bondarenko, Valentina 'Forecasting the future through the prism of a new methodology for cognition, or the future can only be forecast on the basis of the future' / Forecasting the future: A new paradigm // Ed. by Fetisov G. G. and Bondarenko V. M. Moscow: Ekonomika, 2008, pp. 220-270 (in Russian). ('Prognozirovaniye budushchego skvoz' prizmu novoy metodologii poznaniya, ili prognozirovat' budushcheye mozhno tol'ko iz budushchego', Prognozirovaniye budushchego: novaya paradigma.)

[3] Bondarenko, Valentina (2011) 'Contours of future and present-day economies: two paradigms of development', Bulletin of the Institute of Economics of the Russian Academy of Sciences, No. 2, pp. 25-38 (in Russian). ('Kontury ekonomiki budushchego i nastoyashchego: dve paradigmy razvitiya', Vestnik Instituta ekonomiki RAN.)

[4] Bell, Daniel (1976) The Coming of Post-Industrial Society: A Venture in Social Forecasting. New York: Basic Books.

[5] Bondarenko Valentina (2014) Transition to crisis-free development: a myth or reality? // World Futures. Volume 70. №2. Pp. 93-119.

[6] Bondarenko Valentina M., Ilyin Ilya V., Korotayev Andrey V. (2017) Transition to a new global paradigm of development and the role of the United Nations in this process // World Futures. Volume 73. №8. P. 511-538.

[7] Barefoot Kevin, Curtis Dave, Jolliff William, Nicholson Jessica R., Omohundro Robert (2018) Defining and Measuring the Digital Economy. Working Paper 3/15/2018. URL: https://www.bea.gov/digital-economy/_pdf/defining-and-measuring-the-digital-economy.pdf. Retrieved on December 20, 2018.

[8] The Transformative Economic Impact of Digital Technology. URL: http://unctad.org/meetings/en/Presentation/ecn162015p09_Katz_en.pd. Retrieved on December 20, 2018.

[9] Programme 'Digital economy of the Russian Federation', Directive of the Government of the Russian Federation No. 1632-r of July 28, 2017 (in Russian). (Programma 'Tsifrovaya ekonomika Rossiyskoy Federatsii', rasporyazheniye Pravitel'stva Rossiyskoy Federatsii No. 1632-r.) URL: http://static.government.ru/media/files/9gFM4FHj4PsB79I5v7yLVuPgu4bvR7M0.pdf. Retrieved on December 20, 2018.

[10] 'Council for Strategic Development and Priority Projects meeting. July 5, 2017', a verbatim report. URL: http://en.kremlin.ru/events/president/news/54983. Retrieved on December 20, 2018.

 DOI: https://doi.org/10.30564/jesr.v2i1.468