DISTRIBUTED CAPITALISM MODEL AS A REFLECTION OF CHANGES IN PRODUCTION FORCES IN THE DIGITAL ECONOMY

Igor Stepnov, Financial University under the Government of the Russian Federation, MGIMO-University
Julia Kovalchuk, Moscow Aviation Institute (National Research University), MGIMO-University
Nurul Mohammad Zayed, Daffodil International University

ABSTRACT

The article concerns the interpretation of the essence, content and characteristics of productive forces in the digital economy formation and development. The research background is in the fact that digitalization does not change the essence of capitalist relations in society, but technological changes dictate the need to clarify the digitalization impact as a new factor in economic theories, as well as to consider the competition between two new models of capitalism - centralized (platform) and distributed ones, which makes it possible to correctly provide an economic picture of the digitalization effects. If the first model tends to continue the development of the vertical integration concept (including data), then the second is more attractive for horizontal integration. It is substantiated that the productive forces in a digital society should include not only material but also information factors, and the newly created information and communication means of production associated with them. The research results include both an assessment of the shared economy impact and a new balance of competition and coordination in the markets. The thesis about the distributed decisions definition through the proprietary right (in contrast to the classical one - through the proprietary right) made it possible to formulate the goals and limitations of the development of a capitalism distributed model in the modern economy.

Keywords: Capitalism, Platform Capitalism, Distributed Capitalism, Digital Economy, Tenure, Productive Forces, Income-Generating Asset, Competition, Coordination, Interaction.

INTRODUCTION

Digital transformations in modern society lead to an increase in irreversible changes that require the creation of fundamentally new interaction forms in all areas, including the economic one. Among these changes is the emergence of new business models that outline the contour of the new economy, which N. Negroponte named electronic in 1995 and later digital, in which there is a *"bit exchange"* replacing an *"atom exchange"* (Negroponte, 1970; Negroponte et al., 1997). The new exchange formats implemented in such business models are based on the widespread use of data, allowing, based on information technology, to achieve a result similar to previous business models, without realizing (or reducing) the material transformation of labor material objects. One of the striking examples of the rejection of the labor material objects transformation is the media, in the activities of which there is a significant structural shift: during

the period of digital advertising dominance, which is a means of monetization in the Internet space, the income from the circulation of printed newspapers and magazines exceeded the income from the placements in them advertising (PwC, 2017), and the share of paper media is declining by at least 3% per year on average in the world (Newman, 2017) and 3.2% in Russia (PwC, 2017) with a significant increase in prices already recorded them (for example, in Russia - about 35% over the past three years). At the same time, an electronic newspaper (in the form of blogs, tweets, live magazines, etc.) is saved and transmitted in the form in which it is created, without reducing consumer cost, without requiring the processing of wood into pulp and then into paper, without requiring work printing plants and the functioning of a network of distributors. From the point of view of filling news channels (in this case, we abstract from the reliability parameter) and broadcasting news, significant material transformations are associated only with ensuring timely access to information and are by no means mandatory.

The accumulation of the solutions' critical mass of similar to the given example allows us to state that digital transformations (commensurate with the beginning of the practical use of steam energy, electricity, then the Internet, etc.,) lead to the formation of a new technological structure that penetrates into all spheres of human activity, In this, each revolutionary decision causes a chain of economic and social consequences, which is currently happening. If we consider the digital economy not as a description of individual facts and decisions, but as a comprehensive transformation of economic relations, then the current stage of development should be defined as the stage of expectation of explosive growth.

The uncertainty of "explosive growth" and the future digital arrangement leads to the fact that modern economic relations are influenced by two fundamentally different economic organization models of society, while focusing on the use of the same technological solutions of the digital world. The main content of these models is the competition between concepts and the practical implementation of platform capitalism (Stepnov & Kovalchuk, 2018) and distributed capitalism - the latter is the subject of consideration in this article

LITERATURE REVIEW

Consideration of the above facts allows us to conclude that digitalization in many respects changes the productive forces' composition of modern society. The productive forces in the classical sense are *"a common set of all means of production and people who possess the knowledge, skills and abilities to use these means to produce the desired material goods"* (Marx, 2005; Chagin & Kharchev, 1958).

Productive forces in a digital society should include not only material but also information factors, and the newly created information and communication means of production associated with them. In this case, the informational component carrier of productive activity ceases to be exclusively the labor force (as the carrier of knowledge, experience, competencies), which brings into interaction material factors, gradually transferring its functions to artificial intelligence, for example, integrated with intelligent robots. At the same time, man ceases to be the only source of knowledge and experience, the bearer of the intangible factor of productive forces - these are various artificial intelligence systems (independent or awaiting future convergence with man). Therefore, the changes concern not only the labor force and additing the material part of the productive forces to the information component, but also the formation, for example, of big data as a productive force. At the same time, the digital economy development also indicates that the means of production are changing due to the fact that the share of the

material in the modern concept is reduced, as well as the need for material. As a result, digital platforms are also becoming a productive force, a new means of production.

Undoubtedly, a significant contribution to the productive forces change in modern society is made by globalization, when a significant advance in the rate of growth of labor productivity in a particular territory and the use of local technological solutions (largely thanks to the theories of M. Porter (Porter, 1980; Huggins & Izushi, 2011; Cho & Moon, 2013) was no longer possible without the introduction of special regimes for extracting superprofits due to territorial or other isolation, which led to the fact that the digital advantage cannot be realized in a separate territory for a long period or the restriction or development of the digital economy has been reinforced by globalization processes.

The modern digital economy makes significant adjustments to the understanding of the very conceptual physical essence of products when products become complex systems and their development is performed not so much by engineers, but mostly by programmers (Porter& Heppelmann, 2015). The digital solution does not wear out, has the possibility of prolongation and unconditional replication (when the original and the copy are not distinguishable).

In addition, it should be noted that digital capitalism is now largely determined not only by market relations, speculative expectations, but also by the active role of the state. The change in productive forces is largely associated with the state support, when not only startups, but also large corporations around the world strive to actively attract state resources. In addition, the state acts (for example, in government development programs of the economy of South Korea, China, Canada, New Zealand, Russia, etc.) as a kind of the digital economy accelerator. The state, in addition to investment support, has social responsibility for workers partially employed on various platforms. It is not only about traditional state public functions, which include national security, defense, education, health care, pensions, but also the infrastructure forming, the housing programs implementation, the transport development, etc.

Another factor that significantly changes the idea of productive forces is the change in the ownership structure with the active development of a shared economy (Sundararajan, 2016). The created blockchain models make it possible to build new relationships not on an entailed property of absolute ownership, but on the proprietary right, confirmed by an independent registry. This approach has caused associations among a number of researchers that the blockchain concept is the path to socialist relations. However, it should be noted that capitalism in its network form (distributed capitalism) can effectively use the tools of a shared economy.

METHODOLOGY

In the scientific and popular literature, the term *"digital capitalism"* is gaining ground, which, in our opinion, is not quite correct, as it focuses on the technological component, and not on the essence of the processes (Schiller, 1999 & 2015). For example, digital capitalism seems to be the dominant socio-economic model of the 21st century, the exchange of digital information becomes the main factor and the object of economic phenomena and processes, and the Internet is the basis of all services and activity in the economy, which is being transformed into one large network (Daum, 2015). Therefore, along with *"digital capitalism"*, there is also *"network capitalism"*. Moreover, it is very important that capitalism itself, in principle, has a place to be - it is only transforming under the influence of technical revolutions (now they talk about the fourth industrial revolution in the interpretation of Schwab (Schwab, 2017) and in the format of Industrie 4.0, the industrial revolution of the *"makers"* of K . Anderson (Anderson, 2011) and the new (fifth) industrial revolution of P. Marsh (Marsh, 2012).

Based on comparative analysis and scientific generalization in a number of works (Webster, 2014; Ghasemkhani, Soule, Westerman, 2014; Kim, 2014; Parker et al., 2016; Soule et al., 2014), we identified the two most essential features affecting the organization of economic relations in the digital environment, namely, "platform" and "distribution", understanding their unity (based on common information and communication technologies) and the struggle (based on the level of productive forces concentration), which is the basis of many current ideas about the structure of the digital world, realizing that the information infrastructure is in perfect harmony with any of the signs in the new model of capitalism, organizing access to digital data.

First of all, we note that the hypotheses put forward by a number of authors that digitalization will lead to the disappearance of capitalist relations in society (Acemoglu, Robinson, 2012; Boichanka, 2017; Yudina, 2018), we do not consider, justifying this with the historical phenomenon of conservation, which capitalism demonstrated at every stage of its development. At each stage of the capitalism transformations, estimates were presented that this stage is the last, final, etc., and that capitalism will cease to exist, primarily because of the complete centralization danger. Nevertheless, in each critical period, the fundamental principles of a market economy made it possible to find the forms and models that developed and defended market institutions, and there has still not been total management centralization. Therefore, in our opinion, digital transformations will not affect the market economy foundations, its regulatory mechanisms and ensure compliance with classical principles.

Today (considering the idea of slowing down globalization and the destabilizing effect of the pandemic), this significant period again begins when the existing theories do not fully explain the facts, and attempts to modernize theories only lead to the consideration of individual phenomena (or attributing them to the field of assumptions and limitations), but they do not provide an opportunity for a theoretical generalization of digitalization. From our point of view, it is the consideration of competition between two new models of capitalism - platform (vertical concentration) and distributed (horizontal cooperation) - that makes it possible to correctly present the economic picture of the digitalization consequences, taking into account the prospects for overcoming the current crisis.

The following are the modern economic activity manifestations that require clarification of their place in theoretical constructions:

a) the translation of ideas about the economic agents' activities in a digital format that distinguishes two types of digital agents: those who really operate in a digital environment, and those who create a digital double to manage their activities; note that the existing approaches to describing the economic agents' activities do not distinguish between the first and second;
b) Obtaining the expected familiar result using digital technologies (including automation of routine operations), without copying existing business models (for example, by building digital platforms), which requires a different consideration of the role of coordination, coopetition and competition in creating added value;
c) the cryptocurrencies distribution based on new principles of issuing and making transactions, which requires not denying this phenomenon (as is done by a number of investors and financiers (Buffett, 2018; Laundau, 2018; Popper, 2016)), but adjusting the existing theory of finance;
d) a change in the role of energy (electric energy) in modern society, which is associated not only with the fact that information technologies significantly increase energy consumption, but also with the fact that there are questions of ensuring the safety of activities that depend on the electricity provision;
e) The predominance of the role of coordination and coopetition in competitive digital strategies and behaviors;
g) The reduction of barriers to entry into industry segments for digital startups, previously typical only for the initial stages of capitalism.

RESULTS & DISCUSSION

The above factors and phenomena make it possible to say that the transformation of the society's capitalist structure is currently an objective process, and if the features of platform capitalism are considered by us in another article (Stepnov & Kovalchuk, 2018), then in this article we study the features of the distributed capitalism formation. The category of "distributed capitalism" does not yet have its final definition and is debatable in nature, and one of the digital economy signs, "distribution", is put in the category title, as opposed to a hierarchical approach formed on the basis of platforms. A key feature is the construction of market relations based on a distributed registry of smart contracts without the concentration of big data from one or more participants in market relations.

As noted above, distributed capitalism is gaining ground largely due to the development of a shared economy. The possibility of precise control (due to the Internet) allows to automatically finding the possibility of successful use of one item by several users. The fact that ownership of property will not be decisive for generating income, but the decisive factor will be the software environment that ensures the distributed interaction of all participants, suggests that there will be no monopolization (or oligopolization) of the market segment characteristic of platform capitalism. For example, a homeowner seeking to earn rental income quickly enough decides to place information on the basis of those software and hardware systems that will provide the most effective interaction, but if this information environment, in addition to finding a tenant, starts using a digital profile landlord, the landlord will quickly switch to other solutions. As a result, for the distributed capitalism model, the ownership value (generating income in proportion to the use of real estate) will be of great value, in contrast to the value of property (generating fixed income).

When evaluating the characteristics of distributed capitalism, one should pay attention to the argument of critics of the digital economy that it strengthens rather than reduces the inequality of different layers of the population and individual groups. The supporters' arguments for the digital divide intensification are based on the principles of the productive forces of the pre-digital era, that is, in other words: if production factors do not undergo significant changes in the near future, the degree of the digital divide will only increase. For the model of platform capitalism, the growth of digital inequality is objective (Stepnov & Kovalchuk, 2018), and only the state can find ways to reduce these imbalances. For the model of distributed capitalism, the best way is to accelerate digitalization, which will ensure a more even distribution of income and eliminate the effect of digital platform "slavery".

In fact, the famous giants of digital technologies have formed the victory of the big data use, which allows us to simulate human decision-making and reduce the cost of preparing and substantiating decisions, despite the fact that irrational behavior still remains beyond the limits of artificial intelligence. Most of them form models more inherent to platform capitalism, and the of knowledge bases accumulation, the large data arrays formation is more oriented to the hierarchical structure of data accumulation, management and updating. When using a hierarchical structure, it should be remembered that when it is created, it is progressive, but after completion of its creation, it becomes conservative, and it is necessary to look for ways to update it.

The distributed capitalism development in the digital economy has the following expected consequences:

- the global network is initially technologically more oriented for an external user to a peer-to-peer network, and at present there is no technical possibility of creating a single platform for the entire global economy;
- Social networks and professional associations of many solutions are focused on functional interaction, rather than confirming a vertically oriented management or broadcasting such management. Reducing the need for management becomes a significant factor that reduces costs, and, at the same time, reduces the probability of achieving a goal. For example, a search for a passing car on the Bla bla car platform is more effective than the ability to "fit" into the current intercity transport schedule, but in the latter case, the receipt of the result will be more likely than the peer-to-peer interaction with the car driver. Consequently, the peer-to-peer network must be supported by the control of contract execution on the basis of its obligation, which, in turn, will require a rise in price;
- the distributed registry in the classical form avoids the formation of a "digital phantom" by large corporations and the use of this digital phantom, despite the fact that the digital clone is a more convenient unit of use.

Thus, if classical capitalism can be defined through private property rights (Friedman, 2020), then distributed capitalism, without violating property rights, involves the use of ownership. Historically, capitalism went through several stages of development, each of which confirmed the priority of this method of management, based on market decision-making criteria. The ideal model of distributed capitalism is based, like the classical one, on market freedom, saying that artificial markets will most often fail, since it is almost impossible to take into account all the parameters of economic activity, and the choice of counterparties is limited. It should be understood that the higher the competition level, the lower the market participants profitability (for which capitalism as such exists). Thus, the capitalist market participant for the sake of profit: a) will seek to violate market freedoms, forming his preference for creating a platform approach, thereby testing the system for stability; b) will in every way reduce costs (if possible) in order to make a profit where possible; c) after a certain potential and market position is achieved, the rational participant will strive to create (strengthen) barriers for entering this market segment, overcoming of which is impossible for newcomers.

This state of affairs creates the opportunity for the distributed capitalism formation precisely on the basis of scientific and technological progress and network interaction:

- Digital solutions provide the possibility of a partial restoration of the early capitalism period, when the initiative allowed achieving a certain level of wealth.
- Digital barriers have been largely reduced, and now their size is becoming smaller than other barriers to entrepreneurial initiatives, including initial placement. The initial placement cost of digital solutions is significantly lower than any other way of financing.
- Bias in solving problems by focusing on "functionality" rather than management. Distributed databases allow a) to significantly reducing the control and management costs, b) to strengthen the role of functional solutions.
- The partial-employment model implementation, which will ultimately significantly increase labor productivity.

CONCLUSION

The distributed capitalism development will be accompanied by two significant problems, the solution of which will determine its appearance in the future:

- Increasing energy consumption, its role in such a digital interaction system will only increase;
- The information environment formation (including Internet channels, etc.) as a public good, which should provide consistency as well as stability and reliability. It is the establishment of the Internet as a public good that should become the state's primary task.

A key advantage of distributed capitalism in the digital environment can be an increase in the share of private ownership of information resources.

Thus, distributed capitalism, instead of distributing capital and concentrating information, has the opportunity to ensure the participation distribution, access and form a barrier-free environment and become a more promising model compared to platform capitalism, ensuring the preservation of market principles and freedoms, ensuring the efficient functioning of markets, creating the possibility of added market reality formation.

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