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Education as a factor of cognitive society development in the conditions of digital transformation

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ABSTRACT

The purpose of the study is to conceptualize the cognitive development of society as a factor of digital transformation. The solution of this problem contributes to the formation of a new theory that requires the introduction of innovative technologies that play a very important role in the sustainable development of society. The research methodology used consists of axiological, comparative, synergistic, structural-functional methods and approaches. The emergence of a new "digital person" is explored, whose essence is that the technological revolution has made it possible for everyone to connect to the network, to contribute to the network effect, allowing people to work in real time and generate income by moving in the markets. The concept of the formation of the digital economy has been structured, as a factor in the cognitive development of society, and new digital strategies have been revealed for firms, companies, organizations, companies that face immeasurable challenges and opportunities for digitization and for achieve success.

KEYWORDS: Education, society, computer literacy, Economic systems, information.

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La educación como factor de desarrollo de la sociedad conectiva en las condiciones de la transformación digital

RESUMEN

El propósito del estudio es conceptualizar el desarrollo cognitivo de la sociedad como factor de transformación digital. La solución de este problema contribuye a la formación de una nueva teoría que requiere la introducción de tecnologías innovadoras que juegan un papel muy importante en el desarrollo sostenible de la sociedad. La metodología de investigación utilizada consiste en métodos y enfoques axiológicos, comparativos, sinérgicos, estructural-funcionales. Se explora el surgimiento de una nueva "persona digital", cuya esencia es que la revolución tecnológica ha hecho posible que todos se conecten a la red, para contribuir al efecto red, permitiendo que las personas trabajen en tiempo real y generen ingresos moviéndose en los mercados. Se ha estructurado el concepto de la formación de la economía digital, como un factor en el desarrollo cognitivo de la sociedad, y se han revelado nuevas estrategias digitales para firmas, empresas, organizaciones, empresas que enfrentan desafíos y oportunidades inconmensurables para la digitalización y para lograr el éxito.

PALABRAS CLAVE: Educación, sociedad, alfabetización informática, sistemas económicos, información.

Introduction

The relevance of the topic is that formation of cognitive development of society as a factor of digital transformation, which opens the progress of the Fourth Industrial Revolution. The main difference between the Fourth and previous epochs is that time and space in a digitalized society begins to shrink, distances are reduced daily due to the global communication systems, people live in a global world where everyone is connected to others (Voronkova et al., 2020a). The revolution has given literally everyone an unprecedentedly powerful (by the standards of the past) computer and the opportunity to connect to a global network that stimulates innovation. Being online, a person makes a convincing contribution to the network effect, which is growing exponentially, because now everyone can make deals, exchange digital assets, communicate and communicate with each other in a peer-to-peer mode (P2P - network, decentralized) (Azhazha et al., 2020). People are tied to a single platform - the Internet - open banking, which is a modern service that allows you to manage your own accounts, make payments and transfers funds,

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platforms, API (Application Programming Interface) and machine learning (artificial intelligence subsectors) and more (Buhaichuk, 2019). The fourth (digital) era digitizes values, contributes to the formation of a cognitive society, which indicates the birth of a new type - cognitive, associated with the dissemination of knowledge, information, advances in information (breakthrough) technology. Under the leadership of Tim Cook, technology and talent were developed so that the company would not run out of talent and the corporation would be absorbed by competitors, carrying out a cultural revolution in Apple and surpassing all expectations. Smart (breakthrough) technologies were created by the cognitive post-industrial society, which put high-quality work based on information and knowledge in the first place, i.e. on the creative component and on a harmonious approach to the team, which plays a huge role in forming a cognitive digital team and all interconnected (Goodman, 2019).

1. Methodology

The method of axiological analysis allowed us to present digital values as those that ushered in a new era of humanity and influenced human relations, as well as led to major changes in many areas and challenged the mechanisms of management and control. A comparative analysis examined the emergence of the digital economy as a factor in the governance of the digital world, where each country occupies its own niche and the shared Internet access of billions of people breaks down barriers to global digital services. In addition, changes in the digital environment are constantly pressing. When everything around is regularly updated, the digital system comes under pressure and requires technical support. It is a kind of "arms race" in the field of innovation, which leads to an innovative system of the digital economy (Kelly, 2018). The axiological method helped to understand the values of digital transformation and to think about our business and, above all, about what we will have to deal with in the future, what values will become dominant in the future society. For Tim Cook, these were values such as accessibility, education, environment, involvement and diversity, privacy and security, supplier responsibility (Nikitenko et al., 2021). The synergetic method (approach) allowed us to study the nonlinear and bifurcation processes of their origin., self-organization and transformation of the digital society as a complex social phenomenon and a nonlinear process that is dynamically evolving in a nonlinear world and leads to the emergence of a new type of

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society. With mobile technology, 7.5 billion people will interact in real time, and universal Internet access and technology transparency will finally break down barriers to the global reach of digital services (Cook, 2019). For the first time in history, humanity has a chance to involve all people on earth in digital (financial) transactions. The synergetic method (approach) allowed to analyze the dynamics of development of the nonlinear digital world, which is beginning to benefit everyone, to allow people to share digital data.

As a result of the research it was possible to build an analytical model of cognitive development of society as a factor of digital transformation, which succeeded due to the anatomization of the studied object into components of its development - the nature of society, labor, man, technology. The analysis gnosticizes the object using arguments, proofs, definitions. Thanks to the methods of analysis and synthesis it was possible to obtain results that led to the identification of the digital economy as a factor in the development of cognitive society in real-practical and mental-intellectual plane, based on intellectual and technological factors (O'Neill, 2020).

2. Theoretical framework

To solve the problems of cognitive development of society as a factor of digital transformation, we start from the idea that this development takes place against the background of new trends - globalization, Industry 4.0, Enlightenment 2.0, Agile-management, the development of "big data" affect the doubling of information (Voronkova, 2015b). The digital economy is at the same time generating digital crime, as criminals are constantly updating techniques and tools to apply the latest technology in their activities, so a high level of awareness is needed to create well-functioning commercial networks across all countries (Goodman, 2019). The authors analyze the need to control the circulation of cryptocurrency, as well as the analysis of ways to combat, launder and legalize proceeds from illegal cryptocurrency. That is why international cooperation and strengthening cooperation of different states in the field of cryptocurrency regulation. The Smart City project stimulates the formation of the digital economy as a factor in the development of cognitive capitalism in terms of digital transformation by stimulating the activation of the most technological and innovative areas of activity and a positive impact on the development of small and medium enterprises involved in this area. It is no coincidence Kelly Kevin believes the technology industry that shapes our future, which is

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already the most dynamic in today's world and can significantly change our lives in the near future thanks to the new technologies (Kelly, 2018). It is proposed to form a model of regional human resources dynamics, which reflects the demographic situation in the regions, migration flows, social system, economy and social environment, as well as the functions of regional administration. Considerations are given to the consequences of this system for the economy and society, in the context of which the digital economy is seen as a complex, adaptive system prone to catastrophic disorders and growing inequality, where a small number of superhubs enjoy an unknown (huge) level of economic and political power. online (Navidi, 2018). In the work "Transformations of Consumer Behavior In The" New "Economy" it is noted that most large companies in economically developed countries rely on intellectual and technological factors to ensure competitiveness. The question of the formation of the digital economy as a factor in the development of cognitive capitalism in the context of digital transformation is devoted to the work of O'Reilly Tim (O'Reilly, 2018); Tepscott Donna & Tepscott Alexa Blockchain Revolution (Tepscott, et al., 2019); Skinner Chris «Digital Man» (Skinner, 2020); Schwab Klaus. "The Fourth Industrial Revolution (Schwab, 2019).

The purpose of the study is to conceptualize the cognitive development of society as a factor of digital transformation, which requires the development of technology, and based on knowledge, information, development of breakthrough technologies that play a huge role in the digital economy.

2.1. Objectives of the study

-To analyze the evolution of the development of a new type of capitalism - informational, cognitive, intellectual, digital, which originated in the depths of late industrial capitalism, which transformed the nature of man and labor.(Trusova et al, 2021).

-Investigate the emergence of a new "digital man", the essence of which is that the technological revolution has given everyone the opportunity to connect to the network, make their own contribution to the network effect, the ability to work in real time and generate financial flows for markets.

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-Identify new digital strategies that face the immense challenges and opportunities that have reformatted most industries and businesses to beat competitors and succeed, one of which is blockchain

3. Results and discussion

3.1. Education as a factor of mastering of cognitive digital technologies

The basis of cognitive society is a "knowledge society", the formation of which is also assisted by non-professional organizations, in particular the Institute for the Humanities of the Future at Oxford University, The Institute for the Study of Machine Intelligence, the Institute for Future Life, and the Cambridge Center for Existential Threats (Goodman, 2019). One Silicon Valley company is developing software based on the human brain's computing principles, i.e., a piece of intellec that can be self-learning. We should also mention the Khan Academy, a non-profit educational organization founded in 2006 in California by educator Salman Khan to provide high quality education for anyone and everyone. All of the Academy's resources-lectures, workshops, and resources for teachers-are freely available online throughout the world. The project is funded primarily by the Bill & Melinda Gates Foundation. "Knowledge Society," which is the basis for the formation of smart knowledge, is the flagship of technological progress and the growth of a creative class that makes our century more informed and intelligent. Stem-consciousness forms an analytical mind, which allows us to form a high IQ, enabling us to get a better job, have higher wages, have more achievements, and with its level grows the national level of the country and its exposure to cognitive digital technology. The developing countries are also leaders in this area and are often even ahead of the West in the use of digital technologies, smartphones and add-ons such as mobile banking, educational programs and real-time market monitoring. Economist R.V. Geifer found that the average IQ is predictive of further growth of per capita GDP, as well as growth of noneconomic welfare indicators such as longevity and permissions.

The United Nations Development Program, with its founders Mahboub ul Haq and Amartya Sen, proposes an index of human development based on three main characteristics: average life expectancy, GDP per capita and education (healthy, wealthy and intelligent people), indicating the achievement of progress. Intelligence, knowledge,

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science, and humanism have laid the foundation for modern development, and our ability to think rationally helps us to evolve and become intelligent human beings, which is also supported by education, which is the basis of a competitive society and the further development of progress to the benefit of humanity. Progress is about using knowledge in such a way that all of humanity can develop the way each of us wants to develop. The goal to maximize human development as a basis of a cognitive society, which includes education, knowledge, intellect, intelligence, life, health, happiness, freedom of knowledge, wealth of experience, can be called humanism (Cherep et al., 2019a). In the opinion of humanists, education and science are the best method of determining this knowledge, as well as the development of favorable technologies, as a result of which the society becomes enlightened and safe. The call to action concerns everyone who wants a better, more intelligent and human world.

Since today's world is overpowered devices, gadgets, it is necessary that the population has mastered the technological literacy, had an understanding of how technology works around them. And the first place should be education in the field of cyber security, so that citizens could protect themselves. Education is also necessary for the private business sector, as companies are attacked not only by criminal corporations, but also by spy structures that exploit intellectual property and corporate data. The security measures, which at times were necessary only for top secret organizations, are now extremely necessary for the entire business world, and here the educational resources are also extremely limited. And the time to change this situation, if we want to achieve any progress in opposing the technological threats facing them. The human factor can derail all technological safety measures, and the main reason for this is the marriage of professionalism and education, which a highly intelligent and highly intellectual society demands (O'Neill, 2020).

3.2. Evolution of cognitive development of society as a factor of digital transformation

The evolution of cognitive development of society as a factor of digital transformation, which originated in the depths of late industrial capitalism, whose nature of labor was transformed into cognitive labor, which took place through "production of knowledge by means of knowledge" (Nikitenko, 2021b). Paul Mason sees the cognitive

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development of society as a new way of explaining "what a knowledge- and information-based society can be." Paul Mason in his work "Postcapitalism" assumes that a new type of society is based on knowledge, meaning the ability to act, while information is knowledge processed for applied tasks based on information and computer technology, "which led to the emergence of a new economy (neo-economy, Internet economy, network economy), based on the production of new goods as an increment of new knowledge, which is impossible without the constant development of science and technology, gaining a dominant position in society as an object of accumulation (Mason, 2019).

As a result, there was a view that the whole "society has become an innovative factory", and the mechanisms of exploitation have changed to credit, a monopoly on information, transforming consumer trends. McKinsey, an international consulting firm, estimates that the availability of digital (financial) services has increased overall productivity by 3.7 trillion. per year (Skinner, 2020). It is projected that by 2035, no one will suffer from poverty, at least as it did in the twentieth century, everyone will have access to the network and will be able to use it to gain knowledge and any information, and therefore opportunities and ways for self-realization and development of a new "economic miracle", supported by new values of the digital economy.(Oleksenko, 2017) The Smart City project stimulates the evolution of cognitive development of society by stimulating the process of activation of the most technological and innovative areas of activity, and a positive impact on the development of small and medium enterprises involved in this area. In a cognitive society, everyone will be able to start their business from scratch at any time and anywhere, representing the greatest transformation of the digital economy within the Fourth Industrial Revolution (Voronkova, 2021).

The digital revolution will provide a radical transformation of the economy (India, China, Brazil), which will form a completely new ecosystem, which is developing on the principle of "automate everything possible." Thanks to the digital economy, everything possible is digitized, and as it becomes, everything is interconnected, fast and cheap. This is the purpose of the Internet of Things - to connect everything quickly and cheaply - and this vision is the basis of cognitive development of society (Cherep et al., 2019b). Tim Cook mastered what is called the material competitive advantage of cognitive development of society, to which he attributed capital efficiency, logistics, supply chains, cost, speed

(Carlgaard, 2017). Cognitive development of society as a factor of digital transformation is the development of a new phase of economic relations, in which the priority is the priority of knowledge and innovation, which are the basis of capital accumulation, the main source of value, and is opposite to the previous stage of industrial development, flexible creative digital and communicative abilities and competencies, teamwork skills, cooperation, interaction, knowledge exchange, intelligence, intelligence, erudition, resulting in changes in the labor market, which requires an intellectual and erudite specialist, whose work is based on briefcase, laptop computer and mobile phone (Nikitenko et al., 2019b; Oleksenko et al, 2017).

Contrasting the old economy with that which is and is to come, suggests the profound changes that have arisenfrom the rise of digitalization and knowledge, regardless of what that transition is called. The changes will disrupt marketsand society in ways more radical than any "disruptive technologies" (as we usually call them) can do. Progress toward thedigital society is marked by punctuations and hiccups, and opposed by powerful entrenched interests, but is inexorable (table 1).

3.3. Consequences of cognitive development of society

Cognitive development of society as a factor of digital transformation contributed to the emergence of a new "digital person", the essence of which is that cognitive development has enabled everyone to connect to the network, contribute to the cognitive network effect, work in real time and develop financial flows for markets (Schwab, 2019). In the context of the cognitive development of society as a factor of digital transformation, Africa has bypassed other markets for instant access to financial services, the same is true for China, India, Indonesia, the Philippines, Brazil, where billions of people work in networks and access digital services. thanks to the Internet and algorithms. Algorithms as factors in the cognitive development of society as drivers of the new generation that open opportunities for employees and increase company profits (O'Reilly, 2018).

The fourth epoch of human history is the cognitive development of society as a factor of digital transformation. In this regard, the evolution of society took place as follows: the first era - the cradle of mankind, when there was homo sapiens; another era - wine cash flow, which appeared as a management mechanism; the third epoch - the industrial revolution, when banks appeared as a tool for managing the economy; the fourth epoch is

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the epoch of digitalization, bitcoins and internet banking, the origin of which is mentioned by Chris Skinner (Skinner, 2020).

Table 1. Old economy versus new economy (Phillips et al, 2017)

Old Economy	New Economy
Materialistic consumption	Dematerialization of daily life (Magee & Devezas, 2017, cit. Phillips et al, 2017)
Commerce depends on efficiency and security of physical logistics	Commerce depends on data encryption
Difficulty of duplicating analog media	Rights to digital intellectual property.
Land, labor, and capital are the only "factors of production."	Knowledge is a key factor of production (Drucker, 1993, cit. Phillips et al, 2017)
Physical laborers are replaceable and interchangeable. Hiring halls	Knowledge workers are not interchangeable. Selecting them is a key challenge for HR departments
Marketers use product differentiation to justify raising prices	Customers expect decreasing prices for high-tech goods
Selling is location-bound	"Place" matters for some types of commerce; not for other types
"Bricks": Physical retail store and warehouses	"Clicks" or "bricks and clicks" (Phillips, Donoho et al., 1997)
Products, services	Platforms (Phillips, Ochs, and Schrock, 1999).
Hierarchical, command-and-control organizations. "Managers"	Decentralized organizations. Leaders, coordinators, strategists, champions (Drucker, 1993)
Clear boundaries between industries. "Sustainable competitive advantage" strategies	Dissolving barriers between industries. Companies not sure what industry they are in (Satell, 2015)
Widely accepted accounting conventions for valuing and depreciating physical assets	Guesswork concerning what data are worth and how long they will retain value
Cash and checks	Non-cash, non-paper payment systems
Owning	Sharing.
Value grows with the number of customer	Value grows with the square of the number of customers (Metcalf's Law)

Note that cognitive development is the highest stage of development of society, which transformed human nature, contributing to the emergence of man - network. In the conditions of network cooperation the network (digital) person who works in the field of neoeconomics and promotes transformation of the information on digital cost was formed. The 250-year-old trend of industrial capitalism has declined and transformed into its new form - information-cognitive. This type of society contributed to the improvement of the

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intellectual (information) component, which transformed the human type into a network one. In this regard, everything is evolving - the dynamics of regional human resources, which reflects the demographic situation in the regions, migration flows, education, economy and social environment, as well as the functions of regional administration.(Ladychenko et al, 2021).

Thus, the first major consequence of cognitive development is that billions of people work online today; the second is related to the nature of digital currencies, cryptocurrencies, bitcoins, and distributed ledgers. It is at this level that new tracks are built and channels are laid for fourth-generation finance, and banks meet the challenges of new network systems, improving the situational and regulatory approach to the work of managers.

3.4. New directions of digital development of society and economy

New directions of digital development of society and economy are revealed, in particular development of digital strategies for firms, companies, organizations, enterprises, facing challenges, threats and at the same time new opportunities of digital transformation, thanks to which most industries and business initiatives have been reformatted. winning over competitors and achieving success. *At fig. 1 shows of the relationship of the knowledge revolution's main components* (Phillips et al, 2017).

According Phillips et al (Phillips et al, 2017) the knowledge society encompasses commercial, social, governmental, and educational activities, and all four elements are revolutionized by the new primacy of knowledge as a factor of production. Digitalization supports their respective revolutions, but the revolutions cannot succeed without trust. Digitization (more properly, digitalization) provides one important element of trust, that is, secure communication. The remainder of society's trust comes as always from human attitude and experience. This remainder has not proven scalable beyond workgroups or social groups of a few hundred and many current studies address that barrier (Dietz,et al., 2013).

Digital transformation appears as a cornerstone of the restructuring of the digital economy as a factor in the development of cognitive society in the digital transformation, its impact on consumer behavior and firm strategy, creating platforms for digital innovation and improving digital thinking to address pressing challenges (Schwab, 2019). Bitcoin,

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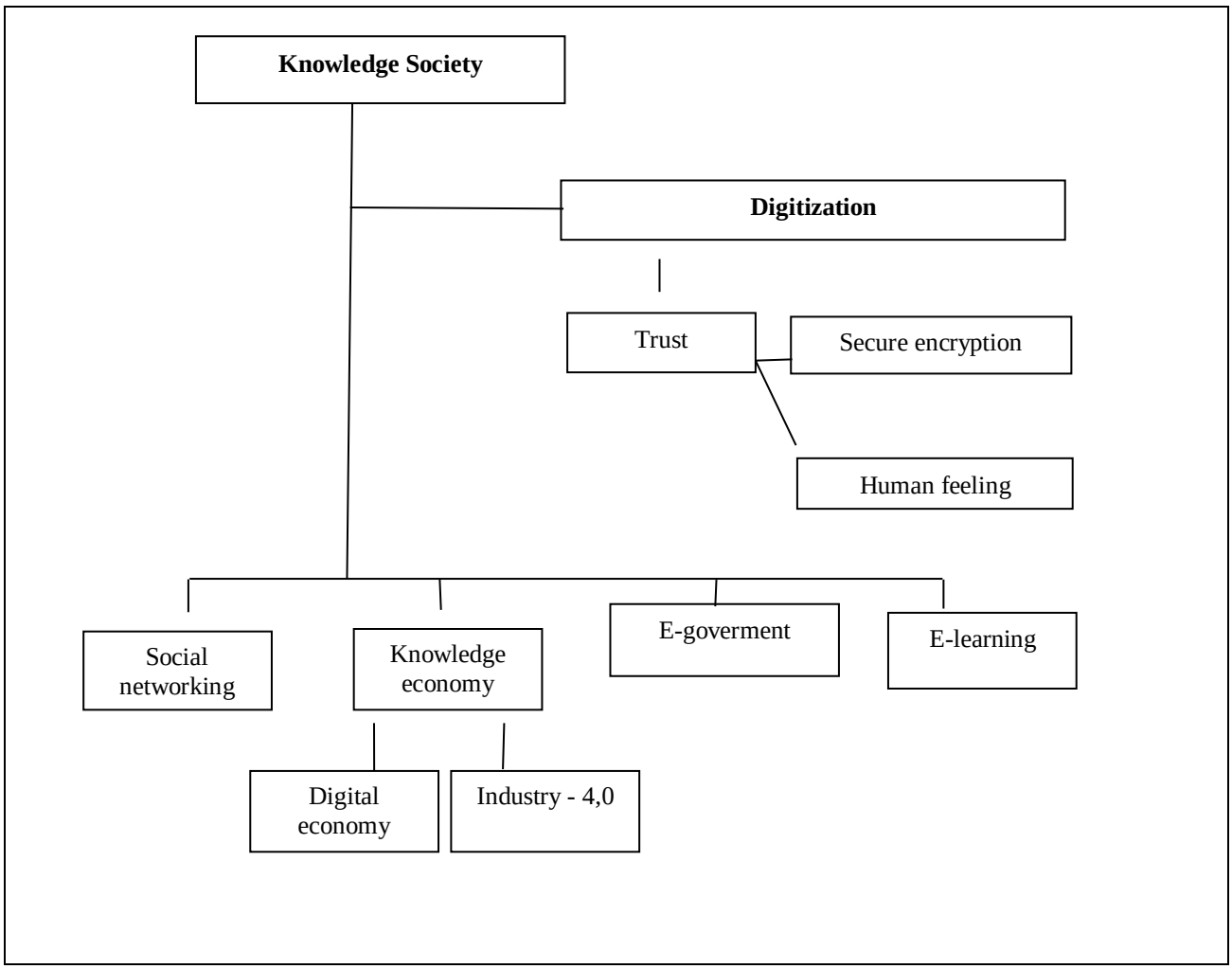
which plays the role of new money on the Internet, has an incredible impact on the economy, culture, financial system and its contribution to all areas remains large. Bitcoin and blockchain are digital technologies designed to work with distributed applications based on smart contracts (a continuous chain of blocks about transactions made on the Internet).

Fig. 1. The knowledge society: A map of concepts (Phillips et al, 2017)



They have enormous potential, representing a powerful digital wave of new technologies underlying bitcoin, and are developing ways to form a digital global financial system capable of revolutionizing industry, finance, and public administration using digitization (Tepscott, D, et al.,2019). Blockchain revolution significantly reduces the

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operating costs of finding, negotiating and concluding contracts, constructing distributed registry technology, the use of blockchain as intelligent control (Nikitenko et al., 2019b). The problems of the blockchain revolution, which led to an explosive jump in the value of cryptocurrencies, contributed to the expansion of a new class of assets: cryptocurrencies, protocol tokens, service tokens, security tokens, natural asset tokens, government mission tokens and stablecoins. We have witnessed perhaps the greatest transformation of wealth in human history: from paper analog assets to digital ($ 265 billion). Today, developers of digital platforms are actively working to expand opportunities that promise to overcome disparate problems, as well as combine all blockchains into a single giant digital network to create social capital and bring companies to the level of unattainable (Punchenko et al., 2019).

Conclusions

Thus, the 250-year trend of industrial capitalism has declined, as the old economic model has broken and can not restore economic growth and transform into its new form of information and cognitive, also called "post-capitalism", digital or network, intellectual society (Tepscott, D. et al., 2019). In companies whose activities are related to information, digital technologies and the digital economy are radically changing the modern market, management, education, culture. Digital technology is helping to democratize our planet, now called the "semantic web", which he defined as enabling machines to understand the semantics of documents and data. Since then, this term refers to the stage of development of cognitive development of society - the Internet, which has penetrated into all spheres of human life (Mason, 2019), when the most popular skills are creative and research, our quality of life will be improved, during this period we can automate almost all black work.

Practical recommendations

At the heart of the cognitive development of society as a factor of digital transformation (late twentieth - early twentieth century) - the development of "knowledge society", information, services (Gupta, 2020). We are experiencing a fundamental revolution in human history, not just the technological breakthrough or accelerated evolution that has taken place so far. Digital technologies have access to vast knowledge

and data in real time, and thanks to artificial intelligence, robotics solves creative and complex problems. If we follow the proposed rules, focusing on partnership, technological outsourcing and expanding cooperation, we will witness an explosive growth of cognitive development of society as a factor of digital transformation. Cognitive development of society contributes to the rapid introduction of technologies that affect economic development and form an innovative economy, creating opportunities for the transition to network, modular, nonlinear work. The new level of coverage by financial systems helps to overcome the shortcomings of the industrial system, based on the use of transactions and the transfer of digital assets almost at the speed of light. Already today, banks are part of the new economy as a value system that includes digital currencies, access to financial services, micropayments, P2P payments. All this suggests that the cognitive development of society indicates that digitalization has already begun, computing power, algorithms are increasingly regulating our lives - from creditworthiness to politics. Blockchain guarantees a huge financial reward to those who develop a successful, large-scale and popular technology based on cryptanalysis, as a single blockchain still exists, and hundreds of platforms compete, duplicate functions and complement each other.

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