



Regulatory Policy for Digital Economy: Holistic Institutional Framework

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ABSTRACT

The article analyzes the nature and specificity of digital economy as an object of regulation from the standpoint of institutional methodology. It reveals the logic of digital economy evolution and its internal contradictions. The authors hold comparative analysis of approaches to defining the essence and forms, functions and structure of digital economy. The categorical apparatus of the theory of digital economy is specified and supplemented. We proposed a conceptual model of a multi-level transition of the economy to a digital development scenario. The conceptual recommendations on the development of the digital economy regulation system are presented. We propose to distinguish between digital and digitized sectors, which cover the industries directly and indirectly related to digital technologies and products. As an indication we proposed to highlight the institutional and company-specific digital sector. The conclusion was made about the importance of creating an institutional environment using hybrid institutions based on a combination of algorithmic and traditional law in a multilevel format and in the mode of experiments like regulatory sandboxes, legal foresight, public discussion.

INTRODUCTION

Digital economy and digitalization in a broad sense are now among the hottest topics on the agenda of the largest global structures, including the G-20, the World Trade Organization, the International Monetary Fund, the World Bank, the Organization for Economic Cooperation and Development, etc. Digital transformation strategies and programs are developed and implemented across countries, regions, cities, sectors, industries, and corporations. Obviously, the problems of legal regulation and self-regulation of digital economy come to the fore. It is also extremely important to consider lessons learned in the regulation of bio and nanoindustry, which, like digital economy, are based on subversive technologies and technologies of wide application. In addition,

it is necessary that the regulatory paradigm should reflect to the maximum extent the specifics of digital economy, and not become another attempt to adapt universal approaches to the regulation of innovative technologies and dependent types and forms of economic activity. The use of the institutional approach methodology makes it possible to more realistically present digital economy in terms of its evolutionary heterogeneity, institutional complexity, and hybridity of regulatory models.

1. METHODOLOGY

This study uses various methods of factorial and level-sensitive subject-object analysis, as part of a systematic approach to identifying limitations of the institutional environment through the hybridity of mixed reality environments which can function as a key factor in developing an accessible urban environment in tourism and determining the digital development potential of territories, including an innovative methodology of post-institutional analysis based on multi-paradigmatic and interdisciplinary synthesis. The scientific and expert community needs to clearly understand that digital economy is not only based on digital technology. Digital economy is based on complexes of interconnected physical technologies and institutions as social technologies (Frolov, 2011); such complexes are proposed to be called *institutional-technological combinations*. Digital technology alone can neither increase the efficiency of economic entities, nor damage them. Everything depends on the institutional “interface” of these technologies, on the inseparable “shell” of rules, norms of behavior, common beliefs and ideas, collective expectations and scenarios, social statuses, models of organization and other forms of social streamlining of economic activity (Frolov, 2016). Any information or digital technology itself can produce directly opposite effects.

For example, social networks unite many strangers to achieve socially significant goals, create conditions for increasing transparency and inclusion, but simultaneously contribute to the mass spread of egoism, narcissism, culture of observation and control, trolling and aggression, fake news, etc. (Radovic et al, 2018). Peer-to-peer networks allow sharing files in a torrent format for public access, promoting collaboration, but simultaneously encouraging piracy and disrespect for intellectual property. Blockchain can dramatically improve the effectiveness of many activities, business processes and transactions but it can create unforeseen difficulties, for example, due to the impossibility of canceling a fully automated smart contract in a force majeure situation.

Only institutes connected with technology allow creating a system of motives to manifest the best aspects of technology and to prevent its destructive capabilities for economic subjects (Zhou, 2018). That is why scientists, experts and businesses need to talk about institutional-technological combinations as indissoluble “fusions” of digital technologies and digital institutions. It is unacceptable to talk about digital economy as an unchanged homogeneous phenomenon. This is absolutely not correct. Digital economy is a highly heterogeneous conglomerate of technologies, types of economic activity, professions, institutions, organizations, infrastructure facilities, business models, markets, goods, services, etc. In this regard, there is an obvious acute problem of defining digital economy since neither collection, nor analysis of data, nor regulation is possible without a framework.

Digital economy, as well as knowledge economy, the information age, or post-industrial society are highly metaphorical terms and therefore figurative, framed, and meaningfully blurred. This is not surprising since all of them are intended for the generalized and therefore highly abstract characteristics of the key metafactor (that is, a higher order factor) of the economic systems in the most developed countries and, accordingly, the reference model for less developed countries. The logic of economic evolution in this case is associated with a change in critical metafactors. It is suggested that metafactors include not only widely used historically alternating technologies or, in other interpretations, technical and economic paradigms, technological structures, but also institutional innovations and social shifts which are also the most important drivers of economic deve-

lopment. Such approach (with all its obvious abstractness) is enough to the task of understanding the formation logic of digital economy, specifically, the task of understanding its background, institutional models and driving forces. It is obvious that economic systems throughout the world are moving “towards an information society or a knowledge society, economies based on brands, signs and meanings, creativity” (Hesmondhalgh, 2014, p. 456) but it is important not to confuse these phases to understand the logic of the ongoing institutional transformations.

Digital economy has originated and develops in the framework of the post-industrial economy and society, and its development passed three stages, two of which relate to the prehistory of digital economy. The "growth medium" for digital economy was created by post-industrialization which is also called tertiarization and servicization. The essence of post-industrial transformations is the evolutionary transition of the dominant role in the economy to the services sector, whose industries (the so-called service industries) provide the greatest contribution both to the number of employees and to the gross value added. Affected by post-industrialization the number of “blue collar workers” (manual workers) decreased, while the number of “white collar workers” (intellectual workers) grew. In parallel, the tertiarization of the agricultural and industrial sectors took place: the chains of service business processes were built into the value chains, service-centric business models were becoming more common, the share of white-collar workers grew in the structure of workers in traditional industries.

The first stage of the evolution of digital economy, which is the stage of *information economy*, is associated with creation of the Internet and its rapid expansion. The volume of information circulating in the World Wide Web was continuously and almost exponentially increasing, the transaction costs of communications were sharply decreasing, and the communications themselves were becoming more interactive (from emails to video calls) and mobile (from stationary computers to smartphones). Neither tangible and even nor intangible assets have become the main resource for business, but it was consumers' attention that has become impossible to attract and retain by standard methods. The Internet stimulated the development of network models of all activities. The most important strategic process in information economy was informatization that includes equipping with computers and software, creating local computer networks, automated workplaces and electronic offices, supporting websites (including portals), etc.

Both information hyperefficiency and exhaustion of the potential of information technologies as a competitive advantage (Carr, 2004 p. 208) have caused an increase demand for highly qualified white-collar workers and cognitive competencies associated with conversion of growing amounts of information into the fundamental and applied knowledge necessary to ensure a continuous stream of improving innovations. This explains the flourishing of the creative class (Florida, 2002; Kacerauskas, 2018), the intellectual “elite” of knowledge workers. They were required in the sphere of production (where clusters, incubators and business accelerators, technoparks, industrial parks and zones and other institutes of innovative systems developed fast), and in the sphere of commerce because it has become possible to reach the consumer only through maximum individualization of goods and services (customization) and a unique emotional proposal (the “economy of impressions” approach). Not only corporations but also territories joined in the struggle for the intellectual capital of creative workers (Florida, 2008, p. 374; Stasiulis, 2017).

Cognitization, i.e. the strengthening of creative components and the intensifying role of intangible assets, increasingly covered business processes. All these changes reflect the second development stage of digital economy, i.e. the stage of *knowledge economy*. Along with the widespread understanding of these evolutionary models (information economy and knowledge economy) as fundamentally new phenomena, there are critical points of view that emphasize the absence of a fundamentally new one. The question arises: “*To what extent has our society become a knowledge society greater now than during the Neolithic, Renaissance or Industrial Revolution?*” (Carlaw, 2006).

However, it appears that this critical position is itself vulnerable to criticism. On the one hand, it is obvious that without a certain amount of knowledge it would be impossible to create a stone ax or wheel, not to mention more complex technologies. In this sense, knowledge is always the basis of any technological innovation. On the other hand, although knowledge was created, spread and applied in all historical eras, it is hardly correct to consider the economic systems of all times as knowledge economies. It is obvious that knowledge-based economies are a phenomenon of a fairly recent past, and the reasons for their occurrence are associated with the transition of the dominant role to intellectual work in the system of social division of labor. It is the emergence of intellectual labor on the leading position in the creation of added value that became the basis of post-industrialization, i.e. displacement of industries based on physical labor, service industries, which was accompanied by mass automation of blue-collar workplaces. In this sense, knowledge economy is a phenomenon of the second half of the 20th century, which continues to evolve. While its evolution the intellectual labor split into routine and creative intellectual labor, creative labor took dominant positions, and creative and cultural industries became the drivers of development (Hesmondhalgh, 2014). This phase of the evolution of knowledge economy is often called a creative or cognitive (cognitive-cultural) economy (Scott, 2014; Cocco and Szaniecki, 2015, p. 288).

The third stage includes formation of *the proper digital economy*. In the mid-2000s, experts concluded that in the field of information technology, incremental innovations were mainly carried out, aimed at guaranteed success among consumers, while breakthrough innovations actually failed to develop (<https://hbswk.hbs.edu/archive/does-it-matter-an-hbr-debate>). It is no coincidence that the governments of the leading countries have stepped up the search for a new wide-spread technology capable to accelerate the economic growth. In 2000, the National Nanotechnology Initiative was officially approved in the USA to recognize nanotechnologies as a wide application technology, and their global market was foreseen at \$1 trillion dollars by 2015. Similar programs have been adopted by all leading and a few developing countries, and investment in nanotechnology has taken on the character of a global nanotechnology race (Hullmann, 2006). Simultaneously, the concept of NBIC-convergence (Roco and Bainbridge, 2003, p. 482; Roco and Bainbridge, 2013) has emerged, expanding the content of nanotechnologies and considering them as the basis for synthesis of the most rapidly developing technologies. However, by 2015, nanotechnology had experienced a crisis and actually turned into an infrastructure technology that had no independent value, "dissolved" in the vast majority of advanced technologies (Frolov and Polyntsev, 2017). In fact, nanotechnologies did not form a separate nanoindustry and became the technology for creating opportunities for other technologies and industries (<https://www.nsf.gov/crssprgm/> ...), and separate strategies and plans for the development of nanotechnology were incorporated into umbrella programs supporting complex technology trends.

It was the time of focus on Big Data. For the first time this term appeared in the special issue of the most authoritative journal "Nature" in September 2008 (www.nature.com/articles/455001a). Big Data has become an impetus for the second wave of information technology development and the transition from informatization to digitalization, from an economy based on Internet technologies to an economy based on a new generation of information technologies - Big Data, machine learning, artificial intelligence, etc. The rapid development of Big Data technologies has led to a radical transformation of the institutional model of knowledge economy. This model was based on the pyramid "data - information - knowledge - wisdom" (DIKW). Data are scattered signals about changes, recorded by people's senses; information - specifically selected (extracted) and structured data; knowledge - conscious and meaningful information; wisdom - non-algorithmic, non-programmable knowledge, intertwined with experience (expert knowledge - Figure 1). All the institutions of knowledge economy were based on this hierarchy, and the most profitable types of business and highly paid jobs were associated precisely with expert knowledge, which is most important, complex and valuable. Therefore, some experts even predicted the evolution of the knowledge economy into the economy of wisdom (Goede, 2011; Walker, 2013).

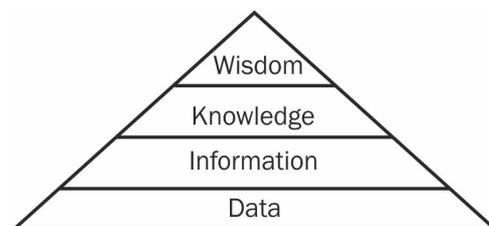


Figure 1. The DIKW pyramid

Source: Ackoff, 1989, pp. 3-9.

Big Data was an invisible resource before the advent of digital processing technologies. The development of these technologies has led to the fact that the pyramid "data - information - knowledge - wisdom" actually turned upside down: now it is Big Data (i.e., diverse data of huge volumes arriving in a high-speed mode) that became the key success factor. Moreover, if in the conditions of economics knowledge, blue collar jobs were mainly subjected to automation and robotization, as well as low and moderately qualified white-collar professions in industrial sectors (Sirkin et al., 2015, p. 28). Now, in the conditions of the digital economy, the phenomenon of the so-called highly qualified automation arose marking a new stage in the "race of machines and people" (Acemoglu and Restrepo, 2016, p. 87; Acemoglu and Restrepo, 2017, p. 91). Artificial intelligence technologies combined with machine learning and Big Data have mastered the ability to perform many specialized tasks that previously required expert knowledge, including in the areas of analytics, decision-making, content creation, design, consulting, etc.

Architects, lawyers, marketers, bankers, doctors, insurance specialists, financial analysts, journalists, auditors, administrators, and many other white-collar workers are experiencing growing competitive pressure from digital technologies. These professions are no longer considered highly qualified and will be replaced with a high probability by technological solutions. It is irrefutable that digitalization will not only lead to disappearance of many professions, but also to creation of new specialties of high qualification (*The Future of Jobs Report 2018*, p. 133), but this process will be quite complicated. Specifically, a big challenge, that has not received a clear solution, is the ongoing automation of middle-skilled jobs that are occupied by the middle class. The erosion of the middle-class leads not only to the growth of inequality, but also to the breakdown of the social order model that has developed in most developed countries.

The identified stages of the evolution of digital economy are embodied in the three currently dominant conceptual approaches to its understanding - the concepts of digital Internet economy, the economy of digital content and the economy of digital technologies (Table 1).

Table 1. Comparative analysis of conceptual approaches to the analysis of digital economy (DE)

Conceptual approach	The essence of DE	Manifestations of DE	Key functions of DE	Key structures of DE
Digital internet economy	Economy based on the widespread use of Internet technologies. The cause is the expansion of the Internet and the transfer of the vast majority of information to digital format	Internet economy, web economy, attention economy	Expansion of available information; ensuring continuity and interactivity of communications; increase transaction speed	Electronic institutions (including electronic government, trade, banks, etc.), network organizations, social networks

Economy of digital content	Economy based on creative work and the creation of information materials for digital devices. The cause lies in the development of mobile gadgets and the growing need for continuous consumption of digital content	Cognitive economy, creative economy, economy of impressions	Growing role of the expert community and the creative class; a course for continuous improvement innovations; competition for consumers in the form of customization and generation of impressions	Creative clusters, art spaces (co-working, lofts, art centers, art quarters, etc.), cultural factories, centers of modern art, digital media
Economy of digital technologies	Economy based on digital technologies for ultra-fast processing of large amounts of data, intelligent robotics, the Internet of things, blockchain, etc. The cause is the second wave of progress in information and communication technologies, combined with the need to replace expensive intellectual capital with technological	Collaborative economy, sharing economy, peer-to-peer economy, access economy	Scaling up decentralized transactions; reduction of ownership rights favoring temporary use rights; the elimination of "blue collar" by industrial robots and "white" by blockchain and chat bots	Platforms, ecosystems

Source: comp. auth.

There is a simplified understanding of digital economy as an umbrella term for a wide range of phenomena (technologies, industries, markets, etc.) one way or another connected with the modern IT industry. This approach is followed by Russian regulators. However, the boundaries between closely related phenomena should not be drawn automatically. It is impossible to prioritize some components of the ecosystem, ignoring others. For example, many technologies of additive production can be equally attributed to digital, and laser, and even to powder metallurgy technologies. Femtosecond laser technology is a laser technology, but it can also be considered digital 3D technology. The digital technologies are not important only themselves but their role in the modern and future digital economy. Past-generation technologies that are conventionally digital, for example, numerically controlled machine tools or automated conveyor lines are of little importance for modern digital economy (and have no meaning for the future), although they are widely used. In turn, flexible automated lines and flexible production systems based on machine learning are the basis of future digital economy, in which smart factories will be a key part of production. If we do not consider differences in generations of digital technologies, then we will inevitably equate the status of a poorly comparable phenomenon, e.g. a laser printer and femtolaser technologies, nanobots and ultrafine powders...

This approach relating digital economy is becoming more common. For example, digital finance includes an unimaginably wide range of technologies, services, and products – magnetic and chip cards, home banking services, electronic commerce, ATMs, applications for smartphones, etc. (Gomber and Koch, 2017). But it is not obvious what has changed in ATMs and e-commerce to make them digital. Digital commerce is also defined broadly as the use of the Internet and Internet technologies for ordering, buying, selling, and delivering goods and services (*Digital Trade in the U.S. and Global Economies*, 201, p. 331). But the way making digital commerce fundamentally

different from electronic one is completely incomprehensible. It seems that in many respects such interpretations are a consequence of the hype that has risen around digital economy, informational noise, which attracts many entrepreneurs, encouraging them to mimic the “digit”. A similar situation at the beginning of the 21st century has developed in the electronic business, leading eventually to the collapse of the dot-com industry. Now the number of startups positioning themselves as fintech companies is growing so fast that it actually makes it difficult to determine the boundaries of the fintech industry (Zavolokina et al., 2016).

Responding to the problem of vague definitions, the International Monetary Fund researchers propose, starting from the early ideas of the Organization for Economic Cooperation and Development experts (*Measuring the Information Economy*, 2002, p. 93), to single out a separate digital sector of the economy (*Measuring the Digital Economy*, 2018, p. 47) and to distinguish it from the digital economy proper. They refer online platforms (including trading, crowdsourcing, sharing, etc., as well as providing platform-related services) and the IT industry to the digital sector. Some authors refer to the digital sector not only the IT industry (producing software and components, IT consulting), but also telecommunications and information services. But online platforms are excluded from this sector, and digitalized economy has been added to digital economy. Moreover, Industry 4.0 and precision agribusiness are combined with e-commerce and network business (Bukh and Heeks, 2017). Such a strange mixture of radically different industries is also a consequence of the highest complexity of digital economy and its continued rapid development.

In our opinion, digital economy covers a wide array of economic activities whose production function includes digital technologies and digital products. Digital technologies primarily include Big Data, the Internet of Things, automation, robotization, additive manufacturing, and machine learning. Digital products include digital technological devices (from smartphones and smart home appliances to industrial 3D printers and unmanned mining dump trucks), a wide range of digital services (from mobile banking and cloud services to robo-advancing, i.e. investment robotic consultant) and digital media content (photos, videos and texts in digital format). Therefore, it is proposed to include the IT industry, the online platform industry and other digital services industries, as well as the media industry in *the institutional digital sector*. In addition, we should single out *the company-specific digital sector*, which is analytically formed by the totality of workers in digital professions engaged in traditional (non-digital) industries. Examples are IT-specialists, digital-managers and marketers of the platform business, media specialists of a different profile.

In the medium term, institutions of regulation and self-regulation of the digital economy will include two large subsystems – *smart institutions* (norms and behaviors based on self-executing smart contracts) and *hybrid institutions* (combining elements of a traditional, written law and algorithmic based on computer codes and programs). Inevitably, *smart intermediaries* will emerge in the digital institutional environment. Among them, we can already distinguish lawyers for smart contracts, technical experts in digital technologies, auditors and managers of digital business processes (Figure 2).

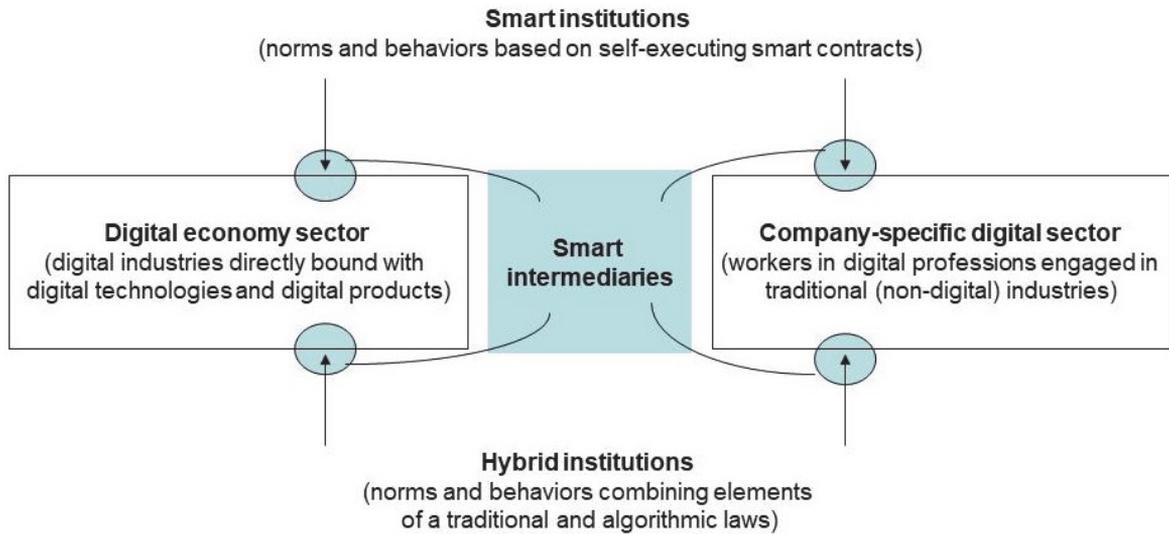


Figure 2. New categories within the digital economy theory

In addition, it is necessary to recognize that digital transformations occur in a multi-level mode, when institutional and technological changes at each level of the digital economy hierarchy are dependent on changes at all other levels (Table 2).

Table 2. Multi-level transition to the digital development scenario

<i>Levels of DE</i>	<i>Objects of regulation</i>	<i>Perspective institutional changes</i>
L ₉	Mega-economic institutions of the global markets of the digital economy - labor, capital, innovation, etc., as well as global digital platforms	Formation of global and international legal regimes for the most significant digital industries. International agreements on key blocks of digital economy - labor, investment, property, taxation, legal proceedings, etc.
L ₈	Mezoeconomic institutions of transnational digital collaborations, corporations and markets	
L ₇	Macroeconomic institutions of the digital sector and the digital economy of the country, national digital industries and intersectoral complexes	Selection of a national model of the digital economy regulation. Adaptation of current legislation to the specifics of digital technologies. The introduction of the institute of regulatory sandboxes. The development of RegTech institutions.
L ₆	Mezoeconomic institutions of local and regional digital clusters and industries, as well as digital (smart) cities and regions	Development of institutions of strategic territory management based on Big Data and artificial intelligence (sensory "digital skin"), institutions of interactive strategic planning, institutions of local democracy (blockchain-referendums, etc.)

L ₅	Microeconomic institutions of digital companies, ecosystems and markets for digital products	Development of the legal framework for smart contracting of legal entities, blockchain, decentralized applications, tokens and other tools of digital economy. Consolidation of the legal status of the institution of a decentralized collaborative organization. Accumulation of the best digital business practices
L ₄	Mezoeconomic institutes of digital business processes of companies	Development of institutes of trusted technical experts in digital technologies, auditors and managers of digital business processes, as well as best practices and standards in the digital environment
L ₃	Mini-economic institutes of digital divisions of firms (company-specific digital sector)	
L ₂	Mezoeconomic institutions of professional groups of workers in digital economy	Legislative determination of the legal status of professions of digital economy
L ₁	Nano-economic institutions of regulation of actions, operations and transactions of individuals, labor relations in digital economy	Development of the legal framework for smart contracting of individuals, including the practice of law enforcement and lawyers on smart contracts

Source: comp. auth. using the base model: Inshakov and Frolov, 2013, pp. 86-99.

The financial system sometimes tends to be unstable due to the fragile nature of its main market players (institutions), including banks, financial organizations and insurance companies. The unstable institutional state of these financial system participants is often transmitted to all other related institutions because of the infectious nature of financial institutions. Transferring negative shocks from one institution to another can cause serious macroeconomic shocks for the economy (Kleinow et al., 2017). The adverse shock of a contagious nature leads to a catastrophe known as systemic risk (Acemoglu et al., 2015).

In the banking sector various specific problems require building strong risk management institutions based on working with big data. The most striking example is the information asymmetry. Asymmetry of information means differences in the information that parties obtain when making a market transaction. For example, the policyholder pays the insurance premium, and upon the occurrence of the insured event, receives compensation from the insurer. But it occurs quite often that there is no insurance market to fully cover the risks. This is the very reason for the market failure. A particularly evident example of market incompleteness is the situation associated with public risks (wars, terrorist acts, hyperinflation, etc.). A private company will hardly undertake the task of insuring the population against such risks. In addition, the opacity of financial institution risk profiles (taking into account the lending and certain product-level difficulties) hides the true characteristics of asset quality which hinders the effectiveness of internal monitoring (Goede, 2011).

The boards failed to manage risks before the financial crisis, partly because they lacked adequate risk-based information (Walker, 2013). In addition, accessing capital markets financial institutions can easily change their risk profiles and thus make it difficult to monitor actual risk profiles in real time (Sirkin et al., 2015). As a result of the transition to the digital economy era using such tools as mathematical modeling and prediction based on big data analysis in the subject areas through artificial intelligence, it is possible to obtain more precise forecasts, build a transparent institutional environment within the financial sector, and simultaneously provide the necessary information protection.

State institutions can play a vital role by providing a strong judicial system, generating information, efficiently allocating capital and attracting foreign investment to countries, which consequently accelerates economic growth and improves the quality of the investment climate. Strong institutions are important for effective regulation of the industry in terms of environmental legislation, and a transparent institutional structure is necessary for the activities of the financial sector (Gazdar and Cherif, 2015). Integral institutional regulation of the government, which is one of the characteristics of good institutions, can minimize the risks arising in the financial sector of a country's economy.

Systemic legal regulation of digital economy is possible only with the parallel implementation of promising institutional changes at all levels of its multi-level structure.

RESULTS

Summing up, we note that the institutional approach to the analysis of digital economy made it possible to determine its specificity as a complex object of regulation. Digital economy includes institutional and company-specific digital sectors; all other sectors experiencing the increasing influence of digitalization are proposed to be attributed to digitized economy. The digital sector should be a priority subject of state regulation and support. It is important to realize that digital economy cannot arise in individual industries, areas, or regions. Digital economy is a complex adaptive ecosystem; therefore, its regulation should be based more on creating conditions, reducing barriers, encouraging, facilitating the legal regime than formalizing and direct subsidizing. Digital economy as an object of regulation will always be ahead of regulatory institutions and mechanisms development. In this regard, it is highly desirable to maximize use of tools such as regulatory sandboxes, public discussions, legal foresight. Although digital technologies will lead to the elimination of excessive mediation in many sectors of economy, smart intermediaries are fundamentally necessary to develop digital economy, which requires appropriate adjustment of the higher education system.

CONCLUSIONS/RECOMMENDATIONS

Regulation of the digital economy is impeded by its complex structure, which continues to evolve rapidly. Predominance of blurry definitions does not allow for accurate measurement and precise adjustment of digitalization. We propose to distinguish between digital and digitized sectors, which cover the industries directly and indirectly related to digital technologies and products. In addition, it is advisable to highlight the institutional and company-specific sector: the first one covers digital industries, the second includes digital specialization workers in traditional industries. Regulation of digital economy must consider the change caused in the legal system: transition to code-based smart contracts and hybrid institutions combining algorithmic and traditional law. Prospective institutional shifts should be carried out in a multilevel format and in the mode of experiments - regulatory sandboxes, legal foresight, public discussion.

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