

Digitization of the Economy of Ukraine: Strategic Challenges and Implementation Technologies

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Abstract — The main directions, challenges, threats of digitization of the national economy of Ukraine have been considered in the paper.

The attention is focused on the found weaknesses and the imperfection of the strategy and the state policy of digitization of Ukraine's economy. The authors have proven the potential and new possibilities of solving public finance management problems with the usage of blockchain technology. It has been justified that activation of transformation processes in the real economy sector due to the introduction of Industry 4.0 concept is important for Ukraine. The paper reveals basic principles and technologies, the experience of the European Union, and characterizes Industry 4.0 view in Ukraine. The development of the latest financial technologies – FinTech – has been recognized as the driver of digital transformation of financial services. The types of FinTech innovations, the features of increasing competition between FinTech companies and traditional financial intermediaries, the tendencies of FinTech development in Ukraine have been characterized.

Keywords—digital divide; digital gap; digital economy; digital transformations; Industry 4.0; BigData; Artificial intelligence, AI; Internet of Things, IoT; innovation; financial innovation; FinTech

I. INTRODUCTION

Globalization, integration and digitization of economic relations and social development are interconnected processes that require well-balanced policy and effective mechanisms of implementation. However, the constraining factors of the development of the economy of Ukraine, along with the chronic lack of financial resources, are accompanied by strategic failures and poor performance of state support mechanisms, the imperfection of the legislative framework and the high risks associated with political and financial instability. Under these circumstances, it is necessary to search and activate drivers of economic growth, which, in our opinion, definitely include a digital economy based on

dominant application of digital technologies, principles of openness and transparency.

At the same time, digital transformations of the national economy, taking into account challenges and threats, should not be projections or extrapolations of modern trends of Western society. They should become a new principle of social and technological organization of the national economy, as well as a new way of life of Ukrainian society.

The theoretical and methodological basis of studying the essence of the digital economy and solving problematic issues of its construction is formed in the works by D. Tapscott, K. Schwab, R. Urban, B. Bain, C. Frey, M. Osborne, C. D'Souza, D. Williams and others.

The scientist D. Tapscott [1] considers the digital economy to be a revolutionary phenomenon, which leads to a fundamental transformation of markets, business, the government policy and the nature of public life. At the same time, D. Tapscott emphasizes that, despite the dynamics of distribution of digital technologies, their pace of perception and implementation is alarming. Modern reality shows that the problems accumulated over many years still remain, institutions and governments do not undergo radical rethinking of their own activities, the relationships between society, business and government do not acquire a new quality. Therefore, according to the scientist, there is an uncertainty that poses a threat to the adoption and successful dissemination of digital innovations. C. D'Souza, D. Williams [2] investigate transformational effects of building digital economy at the level of production processes of an enterprise and in various industries, the impact on macroeconomics, in particular on the labor market, inflation, and monetary policy. The scientists believe that the success of digitization depends on the ability to adapt, the effectiveness of managing these processes, the introduction of flexible levers and tools. C. Frey and M. Osborne [3] consider it important to study digital economy as a social system for predicting the possible

social and economic consequences of profound technological changes. K. Schwab, [4] highly appreciating the benefits of digital technology, points to serious problems which they generate: inability to adapt, inability of governments to use and regulate new technologies for maximum benefit, threats to national security, the growth of social inequality and deepening stratification of society, etc. In addition, the problem issues of the transformational processes of building digital economy at the level of individual countries, especially developing ones, require further research.

II. PROPOSED METHODOLOGY

The vast majority of researchers of the problematic aspects of digital economy use the technical and technological as well as historical and evolutionary approaches to study its essence and to analyze the impact of new technologies on the change of socio-economic institutions, structural shifts in the economy. Authors use the systematic and analytical approaches to generalize the experience of developed countries of the world and to implement this experience in the construction of digital economy in Ukraine.

The aim of the work is to study the prospects for building a digital economy in Ukraine, identifying strategic challenges, identifying priorities and activating the implementation of digital technologies in the field of public administration, the real and financial sectors of the national economy.

III. STATE POLICY OF UKRAINE IN THE SPHERE OF DIGITIZATION OF THE NATIONAL ECONOMY

A. *Strategic Aspects of State Policy in the Sphere of Digitization of the Economy of Ukraine*

The processes of digitization, as well as market relations in general, are characterized by market faults and failures, which require state regulation. The main one is digital inequality or digital divide (digital gap) [5]. The capabilities of modern digital technologies are enormous, but not all can use them to achieve social and economic goals. For example, in Ukraine, with a high mean value and even distribution, the penetration of Internet broadband access has a strongly marked gap between city and village - about 30%. Moreover, a significant part of rural population (up to 35%) does not have Internet broadband access at all. Digital inequality can be also demonstrated in sectoral terms. In particular, only 1% of health care institutions and 47% of secondary schools in Ukraine have broadband access [6].

Digital gap is a problem not only for individuals, but also for entire countries and regions. It is globally high. Thus, according to the Internet penetration rate, Ukraine is among outsiders, because its rating is lower than world average (it ranks 112th out of 201 countries of the world and 44.1% against 54.4% on average) [7]. Although Ukraine has well-developed fast fixed broadband Internet and ranks 47th out of 130 countries according to

Speedtest Global Index, it has problems with mobile Internet access. The country is among the top 10 outsiders countries (it ranks 117th) by this indicator [8]. Such a situation threatens the competitiveness of the country, becomes a severe challenge for its social and economic development in the context of digitization processes development at the stage of transition to post-industrial society.

To solve this problem is the top priority task of the state policy in the field of digitization. All market participants should cooperate actively to overcome digital divide and to ensure active deployment of high-speed networks. It is important for the state to create incentives for attracting private capital and mobilize all national resources to accelerate technological changes [9]. At the same time, key incentives are initiatives to create sustainable digital skills among citizens through such areas as education, medicine, tourism, transport, e-government, etc. The ultimate goal is not just giving the infrastructure of broadband access to the Internet to citizens, but also creating their needs in it, especially those aimed at improving life, comfort, education, business, development, etc.

Unfortunately, it is worth noting that Ukraine still lacks the strategy of digitization of the national economy. Strategic documents such as the Strategy for Sustainable Development "Ukraine-2020", the State Strategy of Regional Development for the Period up to 2020, "Ukraine 2030: Doctrine of Balanced Development" do not meet the requirements of time and need to be updated in line with modern, global, digital trends of economic development. For example, the Concept for the Development of Digital economy and Society of Ukraine for 2018-2020 (adopted by the Cabinet of Ministers of Ukraine in January 2018), is aimed at forming only certain elements of the digital economy. It is limited to the priorities of the development of e-governance and does not take into account the state stimulating complex influence on the digitization of the economy [10].

In our opinion, the priority task is the approval of the project "Digital Agenda for Ukraine 2020" at the state level and its harmonization with the Digital Agenda of the EU.

The structural and logical scheme of the essence, directions and effects of digital economy is shown on Fig. 1. The key targets are the formation of framework legislation for the creation and development of a single digital platform for the state digital services and implementation of effective institutional, infrastructure, legal, organizational, economic and financial mechanisms for the development of digital society. It is very important to mobilize resources of the State Fund for Regional Development to stimulate the digital modernization of the economy based on public and private partnership. In particular, it is necessary to use the competitive potential of the domestic IT industry through its reorientation from the outsourcing of the economies of other countries to the

development of modern digital products for Ukraine, with their further spreading beyond the country and increasing

the potential of intellectual rents.

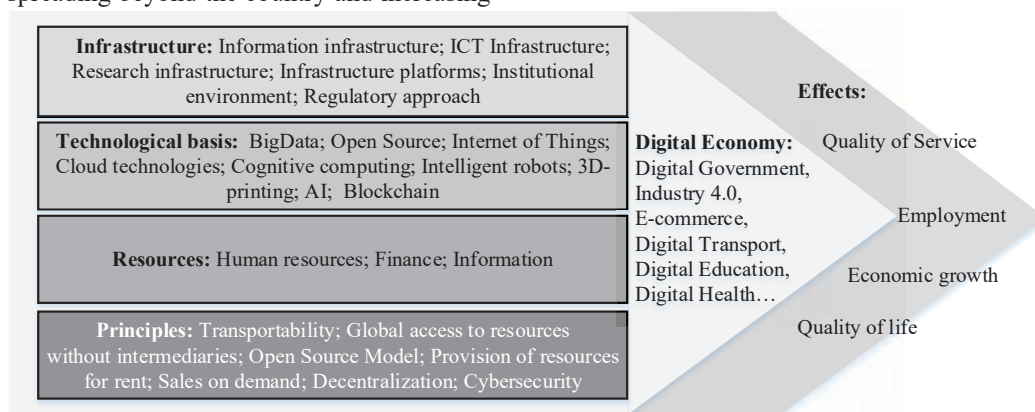


Figure 1. The structural and logical scheme of the essence, directions and effects of digital economy

B. Usage of Blockchain Technology to Solve the Problems of Public Finance Management in Ukraine

Ukraine has a number of unresolved economic problems. They are connected with macroeconomic imbalances, rising debt burden, rising risks in real economy, deteriorating investment climate and lending, excessive centralization of the budget system, inefficiency of government expenditures, etc. All of them point to the need to introduce modern mechanisms and innovative technologies for public finance management. One of these innovative technologies is blockchain technology. According to M. Swan, it aims at reliable accounting of various assets, new organization and coordination of any kind of activity [11].

Let's consider in more detail the application of blockchain technology in the directions of public finance management.

Improvement of the system of electronic purchases. Blockchain technology helps to simplify access and participation in purchases, to create a registry and a single buyer profile automatically, to change approaches to identifying reliability, to optimize operating costs and to improve efficiency, information transparency and security. The technology also allows forming information file from different sources of market data and to ensure effective decisions making process on the basis of multifactorial intellectual analysis. In 2016, the first project based on blockchain technology aimed to reform the system of privatization and lease of state-owned property in Ukraine was the blockchain-auction "E-Auction 3.0", which allowed buying state-owned property with fiat money and cryptocurrency. At the same time, the implementation of blockchain technology into the public procurement system requires the introduction of changes to the tender legislation, the abolition of excessive procedural control, the strengthening of financial control over bidding results, simplifying the procedure and reducing the costs of participation for small and medium-sized business entities, etc.

International organizations give a negative assessment to the public investment management in Ukraine. The reasons for this are the following:

- ≠ the lack of an integrated system of public investment planning and management;
- ≠ the lack of strategic national development plan that defines the list of priority projects;
- ≠ the lack of institutional understanding of the fundamentals of public investment management;
- ≠ excessive politicization;
- ≠ high level of corruption;
- ≠ the lack of development of public and private partnership, etc.

In 2016, Ukraine implemented the monitoring of the state investment projects realizations on the principles of information publicity.

The next step, in our opinion, should be the transition to smart contracts. Important issues of public investment management – the support of project documentation and an effective process of investment projects budgeting – can also be implemented on the blockchain technology basis.

Improvement of state registers maintenance, public asset management. Ensuring of effective budget planning and fiscal risks public management is impossible under conditions of incomplete information about public sector balance, indicating all liabilities and assets, in particular land and real estate, their current condition, level of wear and tear and value. Such information is of strategic importance. It requires reliable preservation, synchronization and protection, and, at the same time, openness, transparency and quick access. All this becomes possible due to the usage of blockchain technology. In this direction, the State Land Cadastre of Ukraine has been transferred to the blockchain technology. This project, along with cost reducing and transactions speed increasing, allows overcoming the corruption risk. However, its technical implementation has revealed the following problems: 1) the necessity for strict control of information reliability; 2) determination

of a mechanism for access rights management; 3) high moral standards of system participants; 4) the necessity for legislative legalization of blockchain technology.

The next project is a specialized platform for conducting electronic online land auctions (CEA). The system was tested. It makes it possible to form a rates rating and a trading protocol, and by synchronizing with banking institutions – to conduct monetary transactions, to pay warranty and registration fees. In the near future, it is planned to introduce the State Register of Real Estate Rights, which will be synchronized with the State Land Cadastre and Electronic Trading System of Arrested Property (CETAM) on the platform OpenMarket. This innovation will help to conduct real-time monitoring of the bidding process and of contract conclusion, to record all actions in blockchain and to prevent any change of historical data, etc.

Thus, blockchain technology transforms land and property relations, preventing manipulation, speculation and fraud. It provides the opportunity to carry out regular monitoring and control, to minimize the influence of human factor and corruption risk. It ensures reliable protection of owner's rights.

IV. DIGITAL TRANSFORMATIONS IN THE REAL ECONOMY SECTOR – INDUSTRY 4.0

A. *Industry 4.0 Concept: Basic Technologies and Principles*

The digital transformations of the real economy are connected with the concept of Industry 4.0 or “the fourth industrial revolution”.

Industry 4.0 is a new approach to building a digital model of production processes (of plants or enterprises) that are becoming more complex, integrated, service-oriented and flexible. It is also a significant potential for restructuring and creation of industrial giants based on the construction of an industrial Internet infrastructure, reducing dependence from the human factor and increasing the level of intellectual work.

The basic principles of Industry 4.0 are: 1) compatibility and the ability to interact for all the components of enterprise ecosystem with the help of technology “Internet of Things” (IoT); 2) transparency – virtual simulation of a real object (process) and creation its digital copy, which allows to collect complete information about functioning and provide the proper level of control and management for real objects and processes; 3) technical assistance – complete automation and robotization, especially routine and dangerous technological processes of production; 4) decentralization of managerial decisions – minimization of uncertainty and human factor in controlling of the production processes of automated systems, automatic control strengthening.

Digital transformations of Industry 4.0 involves full automation and introduction of fundamentally new technologies, in particular by significance degree of

industry impact or business model: “Internet of Things”, Artificial Intelligence, robotics, 3D printing, Augmented and Virtual Reality, drones, blockchain, “big data”, Predictive Analytics, Cloud Computing.

Industry 4.0 involves the digital transformation of all spheres of life, giving them significant economic and social effects, and offers new powerful opportunities for the state, society and citizens [12].

The effects of Industry 4.0, which will change the profile of modern production, may be [13]:

- ≠ IT-enabled mass customization of manufacturing products, meaning that production should be adapted to the needs of the individuals.
- ≠ Production chain's adaptation in a flexible and automatic way to the requirements of the rapidly changing environment.
- ≠ Tracking and self-awareness of different parts and products and their mutual communication with other products and machines.
- ≠ Advanced human machine interaction paradigms, which includes new radical ways to interact and operate in the factories.
- ≠ Production optimization thanks to “Internet of Things” enabled communication in the Smart Factories.
- ≠ Appearance of completely new business models which will contribute to the radically new ways of interaction in the value chain.

The greatest changes from digital transformations are expected from “Internet of Things” technology in such spheres of economy as industry, agriculture, transport and logistics, energy, healthcare. The distinctive features of innovative business models on its basis will be: customer-oriented and service-oriented interaction; integration and processing, corporate principles of working with big data; flexible structure of organization and execution of interrelated business processes.

B. *The Experience of the European Union.*

The evidence of understanding of the importance of building a digital economy in the EU member states are the initiatives, taken by the European Commission, in particular:

- ≠ Europe 2020 Strategy, which covers seven flagship initiatives for the development of a social market economy in the 21st Century – Industrial policy for the globalisation era, Digital Agenda for Europe, The Innovation Union etc., (2010).
- ≠ The Entrepreneurship 2020 Action Plan (2013).
- ≠ The Small Business Act for Europe (2008).
- ≠ Adapting e-business policies in a changing environment: the lessons of the Go Digital initiative and the challenges ahead (2003).

According to the EU evaluation, the digital economy is growing seven times faster than the rest of the economies in the world, in particular [14]: 1) the EU digital economy is growing at 12 % each year; 2) the

Internet economy creates five jobs for each lost; 3) there are 7 million jobs in the ICT sector in Europe; 4) labour productivity has increased by 50%, this productivity growth derives from investment in ICT.

Conceptually important for the EU is the formation of Digital Single Market, on condition that investment is sufficient for the development of modern communication facilities, research, production, artificial intelligence, big data technology. The adoption of special legislation regulating digital market innovations is of great importance.

In its turn, the EU's Digital Single Market Strategy aims at:

- ≠ improvement of access to digital goods and services, which will create open, fair competition and market conditions for consumers, investors and enterprises; harmonization of copyright legislation; reduction of administrative pressure by introducing a unified taxation approach, a single VAT rate, etc.;

- ≠ creation of a legislative basis for the development of digital networks and innovative services – regulation of the EU's telecommunications market; security of data and digital services, increase of confidence; consolidation of global efforts to fight cyber crime;

- ≠ maximizing the growth potential of the digital economy – free movement of information; adoption of uniform standards for data transmission, functional interaction between different sectors of economy; e-society with equal opportunities for all, support for an inclusive digital society [15].

The digitization of the EU's economy aims at ensuring stable economic and social benefits from a Digital Single Market.

C. *Creation of Industry 4.0 landscape in Ukraine*

Priorities of the state policy of Ukraine for stimulating the development of Industry 4.0 landscape are [10]: 1) creation of Industry 4.0 infrastructure – industrial parks, industry centers of technologies, etc.; 2) access to capital to create new innovative productions; 3) development of digital skills for training personnel capable of working with Industry 4.0 technologies.

Today Industry 4.0 landscape is formed by domestic and foreign brands in such directions as Industrial Internet of Things (IIoT), Big Data and new technologies.

Thus, in the direction of Industrial Internet of Things the following companies offer their products:

- ≠ Kaeser Kompressoren (Germany) – Sigma Air Manager 4.0, compressor station with a new business model based on automated life-cycle management, predictive maintenance, adaptive regulation, real-time data processing, cyber security, machine learning and communication management;

- ≠ General Electric (USA) – industrial cloud platform Predix (GE) to test assets and predict their behavior, to manage all types of risks, etc.;

- ≠ SoftElegance (Great Britain) – IT-solutions for automation of business processes and development of corporate systems;

- ≠ IT-Enterprise (Ukraine) – SmartEAM, system for preventive equipment maintenance.

In the direction of Big Data: machine learning – IT-Enterprise (Ukraine) – SmartTender.biz, e-procurement platform for industry; cloud computing solution – Oracle, IBM, Microsoft, etc.

New technologies on the domestic market are represented by: Sensorama (Ukraine) – virtual and augmented reality applications (VR/AR), 3D computer graphics and animation, recording and playback of surround sound, software and hardware video stabilization systems, motion capture systems, etc.; IMATEK (Ukraine) – solution for 3D printing; Fabricator (Ukraine) – tools for rapid modeling and prototype production of industrial equipment [16].

In the process of transition to Industry 4.0., Ukraine faces the following challenges: the necessity to cheapen and accelerate the integration; lack of financial resources; brain drain; the need to replace traditional production technologies by digital ones; insufficient number of new niche segments and related solutions; growing threats to cyber security; the necessity to create a mechanism of encouraging the submission of applications for inventions and state support for the patenting of domestic intellectual property objects, etc.

It is worth recognizing that Ukraine is lagging behind many countries in digitization of the real sector of the national economy. All hopes are mainly based on the existing potential of IT innovators, the formation and cooperation of professional associations and communities, enterprises, integrators and other market participants for the implementation of sectoral road maps, transfer mechanisms, concrete projects of real sector digital transformations.

V. FINTECH: DIGITIZATION OF FINANCIAL SERVICES

Due to emergence and development of the latest financial technologies – FinTech – the financial services industry without exaggeration is experiencing a change in the paradigm of its existence. According to the Financial Stability Board, FinTech is technologically enabled financial innovation that could result in new business models, applications, processes, or products with an associated material effect on financial markets and institutions and the provision of financial services [17].

A. *Technological basis of financial innovations*

According to Ravi Menon, Managing Director of the Monetary Authority of Singapore (MAS), key technologies underlying financial innovations are: 1) distributed ledger technology, in particular Blockchain; 2) Big Data; 3) Artificial Intelligence (AI); 4) Cloud Technologies [18].

According to KPMG experts, such technologies as Machine Learning, AI and Internet of Things (IoT) will be particularly popular in Fintech global industry in 2018, and Big Data analytics, application programming interface (API), robotics and robo-advising – in the nearest three years [19].

The outlined innovations complement and reinforce each other. For example, Cloud Computing uses Big Data, as well as AI and cryptography to create efficient distributed ledgers that are used in Internet. This characteristic complementarity enhances the potential for transformations in financial sector. FinTech popularity may also increase nonlinearly, taking into account network effects.

B. FinTech companies Versus Traditional Financial Intermediaries

The application of the outlined innovative technologies gives FinTech companies a chance:

- 1) to create a wide range of individualized, affordable and user friendly solutions;
- 2) to provide high quality, impeccable, fast and twenty-four-hour service;
- 3) to increase business efficiency and profitability by reducing transaction costs;
- 4) to promptly respond to changes in regulatory requirements;
- 5) to apply the latest payments models of and distribution of financial services;
- 6) to reduce risks (in particular, credit, moral, compliance risk) etc.

As a result, according to KPMG, in 2017 total investment in FinTech global market amounted to US \$ 31 billion, with US \$ 8.7 billion – in Q4 (307 transactions) [19].

The described trends indicate that FinTech companies are turning into a significant competitive alternative that can threaten the dominance of traditional intermediaries in the financial market. According to PwC forecasts, in the next five years FinTech companies can take about a quarter of the financial market. In general, more than 20% of companies in the field of financial services will affect the competition from the FinTech segment by 2020. 28% of the companies providing banking services and 22% of insurance companies and companies with assets management and private capital can be in the “risk zone” [20].

The response of traditional financial intermediaries to competition with the FinTech segment is complicated by burdensome regulation, cultural confrontation to changes, substantial business costs and obsolete IT systems. As a result, the reactions spectrum is quite broad and varies from a defensive position and an orientation towards the internal capability of research and product development (R&D) to aggressive acquisition of young FinTech start-ups. The results of a survey conducted by KPMG experts show that the majority of traditional financial intermediaries (81%) plan to establish and/or intensify

cooperation with Fintech-companies during 2018, 52% plan to focus on their own corporate resources in the development of innovative products, 33% – apply outsourcing, and 37% – to be engaged in mergers and acquisitions of FinTech companies [19].

However, taking into account the fact that traditional financial intermediaries have well-established infrastructure, necessary licenses, significant operations scale, financial resources, reputation, customer and information base, various forms of cooperation between them and FinTech companies can generate significant synergizing effects for both parties.

C. FinTech in Ukraine

According to the study conducted by experts from USAID Financial Sector Transformation Project and UNIT.City Innovation Park, FinTech is at the early stage in Ukraine. About 80 companies are active in the market, the vast majority of them (58%) have appeared since 2015. At the same time, only 84% of FinTech companies have already started to offer products and services, and 16% are currently at the formation stage [21].

Mostly, these projects are created and operate in the direction of payments and remittances (31.6%), technology and infrastructure development (19.3%), lending (14%), marketplaces (7%), InsureTech (5.3%), digital and neobanks (5.3%), etc. [21].

FinTech began to attract attention of players of the financial sector of Ukraine only in 2017. According to a survey of representatives of the banking sector conducted by Mastercard in 2017, 87% of Ukrainian bankers fully support the introduction of financial innovations. At the same time, 58% of respondents proved that their bank is ready for the introduction of FinTech, and 71% consider it appropriate to track and buy effective FinTech solutions [22].

The main challenges for the development of the Ukrainian Fintech market are legislative and regulatory weaknesses; competition and slow recognition by traditional financial intermediaries; absence of open API in the banking system; limited access of FinTech providers to capital and funding.

However, on the other hand, the rapid development of FinTech creates competitive threats to traditional financial intermediaries that potentially could negatively affect the stable functioning of the domestic financial system and the effectiveness of monetary policy. Consequently, Fintech creates significant challenges for financial regulators and the National Bank of Ukraine.

VI. DISCUSSION

Successful experience of many countries of the world (in particular, Estonia, Ireland, Sweden and Israel) shows that the integrated development of digital economy is a significant accelerator of economic growth and positive social transformations. Consequently, it is advisable to prioritize the digitization of the economy for Ukraine.

However, in our opinion, it should be taken into account that along with the expected positive effects, digital transformations generate challenges and threats. In particular, the greatest concern for Ukraine is the threat of staff cuts. Under the conditions of emigration of many young prospective people abroad and lack of proactive measures of professional reorientation, it can slow down the processes of digital transformation, as well as contribute to the growth of society stratification and increase social tension.

In addition, the rising risk for cyber security is a significant challenge for Ukraine towards a post-industrial society. Thus, one of the areas of state policy in the field of digitization of the economy and society should be the state's active opposition to any hostile and unlawful actions in cyberspace or within using cyberspace, as well as protection of confidentiality of personal information, and respecting the rights of users of information and communication technologies.

In addition, the challenges on the way to digitization for Ukraine are challenges related to the problem of intellectual property protection, the lack of state systems for stimulating and developing innovative business and entrepreneurship, a sustainable system of cultivating innovative entrepreneurship skills both at the level of secondary and higher education and in society as a whole, and, finally, the absence of the state's strategy of digitization of the economy.

Thus, the prospects for further research are in the study of world experience in order to solve the problem of normative regulation, cyber security, intellectual property protection, creation of a favorable innovation and investment climate, the formation of entrepreneurial culture, forecasting and optimization of changes and possible social consequences of digital transformations of the national economy sectors of Ukraine.

VII. CONCLUSION

Digital gaps inside the country and Ukraine's lagging behind the world advanced countries in the "digital leap" create significant threats and challenges for the further development of science and technology, the level of education and professional qualifications of citizens, which in its turn can lead to increasing non-competitiveness, further "brain drain" and deepening economic backlog.

Positive changes in the processes of digital transformations of the national economy of Ukraine should be expected on condition that the public and private partnership is intensified, basing on state strategy and policy that correlates with the global digitization trends. For Ukraine, it is important to restore and recover the real sector of the economy. Introduction of Industry 4.0 concept can be a driving force of these changes. Despite the fact that today we observe the overwhelming influence of the financial sector on the economy of Ukraine, there is a stable relationship

between the financial and real sectors of the economy. We can see it in providing financial services, financial investment and lending, etc. In turn, it requires the continuous development of the latest financial technologies – FinTech. Taking into account the global trends and potential of the domestic IT industry, banks as traditional financial intermediaries, have the opportunity and in order to maintain their own positions they are to head FinTech development in Ukraine. Consolidated efforts of banking and business communities and IT professionals will enable the introduction of FinTech startups and moderate regulatory and integration problems with existing services and business solutions.

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