



Digital Economy and the Evolution of Artificial Intelligence

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Abstract

In the light of our awareness of the immersion in the era of breakthrough technologies of revolution 4.0, this article reflects current issues of recent times and the evolutionary trends of the global economy: the need for digitalization of business processes, the introduction of artificial intelligence in the country's economy, the use of Business Intelligence technologies to improve the efficiency of enterprises, increase productivity of labour and more equitable redistribution of benefits between all participants of the processes of transformation of sovereign states into strongholds of global corporatocracy.

Keywords: *Artificial Intelligence; Digital Economy; Business Intelligence; Business Intelligence Technology; BCS Scorecard; Big Data; Digitalization; Dynamic Economic Systems*

Introduction

Today's world of global technology is based on the search for trade-offs between the interaction and synergy of government and economic actors of different levels of concentration and niche activity. Capital turnover directly depends on the speed of control of participants in the process of creating a final product (goods or services) of all financial, logistical and production chains, processing in the mode of constant monitoring of the feedback of the obtained results [World Economy 2019].

The efficiency of these processes reduces not only the cost of goods (services) received, increasing their competitiveness, but also reveals the trend of redistribution of finance in the right quantity and at the right time at each stage of value creation in the relevant chains in national and international markets [Harlanov 2019].

Artificial intelligence itself (further - AI) contributes to the acceleration of data processing, data accumulation, comparison and contrasting of theoretical algorithms with practically realized results of concrete activities of corresponding machines and mechanisms, people and operating systems, tied to the concrete result of maximizing profits and saving all of all available resources.

Main part*The Concept of Digital Economy and the Need for Digitalization Economic Processes*

The leading economically developed countries of the world are convincingly demonstrating success in the creation and development of digital equipment production and the expansion of the range of information services, which directly and indirectly affects the development of the economy, basic and applied science, education, and society as a whole. In the conditions of digitalization, it is an important resource development and improvement of the company's efficiency [International Economic Relations 2018].

Increased geopolitical competition motivates Russia to follow global trends in economic development and solve the problems of "technological backwardness", which predetermines the relevance of the essence of the processes taking place in the Russian economy, the prospects and problems associated with digitalization.

The importance of issues related to the digitalization of Russia's economy is also noted by Russian President Vladimir Putin. Putin notes that digitalization is the new "basis for the development of the system of state administration, economy, business, social sphere and society". The formation of the digital economy is "a matter of Russia's national security and independence, the competitiveness of domestic companies, and the country's position on the global stage for the long term, in fact for decades to come".

The concept of digitalization has recently rapidly entered the life of society, replacing such concepts as informatization and computerization [Arkipova, Gurieva 2019].

At the same time, the term is used to characterize digital acquisition of information on the scale of the world economy and social life all over the world, which leads to increased efficiency of the economy, its globalization, the erasure of borders between countries and continents and the improvement of the quality of life of people. In this regard, the system of socio-economic relations has changed, and the economy has moved to a new stage of its development, which is called the digital economy, the main trend of which is digitalization.

The Government of the Russian Federation provides for the federal project "Artificial Intelligence" within the national program "Digital Economy of the Russian Federation" for development and approval of the action plan, target values of performance indicators for 2024 and 2030, achievement of goals and objectives, description of risks and ways to minimize them, coordination of activities and monitoring of this Strategy. It will be funded by extra-budgetary state funds, budgets of the budget system of the Russian Federation and extra-budgetary sources, including funds of public companies, joint-stock companies with state participation, development institutions, public corporations and private investment.

The task of the modern model of the national economy is to create universal elements of the management and control system through the unification of standards and norms of all EAEC participants through the adoption of relevant technological regulations of the EEC and the use of the element base at the level of a single chip, a single operating system, a single information space.

This will simplify national security tasks for the concentration of funds and necessary knowledge that can be applied at the level of ministries and agencies, coordination of member states of a single defense and cyberspace, will enable varying degrees of cooperation and localization of digital economy production and networks of global control and data processing. Bigdata technologies in dynamic economic systems can provide predictive values and calculation constants of applied algorithms for

existing capital assets, correlate samples of potentially possible solutions and propose parameters for the use of nonlinear logic that determine the survivability of all economic entities as a whole.

Results and Discussions

Development of Artificial Intelligence and Implementation at the National Level

At the end of 2019, the Russian Government developed the “National Strategy for the Development of Artificial Intelligence for the period until 2030”, which defines the main objectives and goals for the development of artificial intelligence (further - AI) in Russia, as well as measures aimed at its application in order to implement strategic national priorities and ensure national interests, including in the field of scientific and technological development.

Various national projects, such as the national program “Digital Economy of the Russian Federation”, “Strategy for the Development of Information Society in the Russian Federation for 2017-2030” and other federal and regional projects are also taken into account and closely intertwined here, national programs, within the framework of the implementation of which it is possible to the use of AI technologies.

AI technologies are developing rapidly, which is accompanied by a significant increase in not only public, but also the development of AI technologies is growing rapidly, and is accompanied by a significant increase not only in public but also in private investments in their development, especially in the growth is accompanied by a significant increase not only in public investments, but also in private investments in their development. This is confirmed by statistics and international experts:

- investments in AI technology tripled from 2014 to 2017;
- in the last 4 years amounted to about 40 billion USD;
- the global market for technology solutions using AI, was \$21.5 billion in 2018;
- the AI market is expected to reach nearly USD 140 billion already by 2024;
- the world economy will grow by at least \$1 trillion in 2024, thanks to the introduction of AI-driven technological solutions. The world economy will grow by at least \$1 trillion in 2024.

The implementation of the global AI Strategy will create conditions for effective cooperation between the government, companies, including scientific companies, and individuals in the development of AI, which will allow Russian AI technologies to take a significant share in the global space. The Russian Federation has sufficient potential to become one of the leaders in the international development and use of AI technologies. In our country this is facilitated by:

- professionalism in modeling and programming;
- significant natural science school;
- competent level of physics and mathematics education;
- excellent results in student and school international Olympiads in programming, computer science, mathematics;
- number of scientific publications in physics, mathematics, chemistry;
- a growing community of AI data processing professionals;
- modern basic information and communication infrastructure;
- the availability of affordable mobile data communications;
- products and services of domestic companies in the sphere of social networks, search and other services take the leading position on the Russian and EAEC markets;
- new technological solutions, computer vision and natural language processing developed in Russia based on AI.

All of the above already have high export potential and significant commercial appeal in the global market.

Taking into account the current situation on the global AI market and its development according to medium-term forecasts, there are goals and objectives for the implementation of this Strategy as a necessary condition for the technological independence and competitiveness of the country and for Russia to join the group of world leaders in the development and implementation of AI technologies.

Also needed is scientific coordination and breakthrough startups in Silicon Valley and at the Skolkovo campus of relevant competencies in the development and application of AI systems.

Business Intelligence and its Application Prospects

Today, the issues of knowledge management and measurement in business are of particular relevance today. The development of business intelligence technologies has made it possible to provide a solution to this problem with a new and quite systematic approach [Arkhipova, Krapchatova, Merkulov 2013]. It encompasses a wide array of data data, techniques of their analysis and presentation of the results. The successful application of which is determined by the very nature of “Business Intelligence”, thanks to which an organization transforms the information it has in information systems into applied knowledge. Implementation of the corporate strategy using the potential of “Business Intelligence” technologies is an important strategic tool for managing economic and innovative development of a modern organization. Based on a number of relevant theoretical and methodological works in the application of “Business Intelligence” in the economic activities of organizations [Savchuk 2012, Cherkesov 2018, Bayer 2010, Harris 2010], the author’s systematization of which can be divided into interdependent structural elements presented in the table:

Table 1

“Business Intelligence” methodology for building a value chain of organizational performance measures

Development of business strategy
Collection and analysis of indicators of the levels of implementation of the business strategy, followed by primary economic analysis
Selection of KPI indicators of the business process
Marking the selection of KPIs for each level of the strategy algorithm in the process of monitoring and control
Analyzing the results to make the right managerial decisions
Implementation, planning and implementation of innovative measures

It is necessary to note the Balanced Scorecard-BSC, which is one of the leading methodological tools in foreign practice and is gradually being introduced in domestic practice. BSC is able to translate the mission and strategy into a list of specific indicators of the company. The result is a specific type of strategy in business, detailed in the objectives and indicators transferred to the operational level of the business process, including production, sales, logistics, services, and then changes are determined for each operational level, and then for the rest of the business processes. Thus, the BSC balanced scorecard for each direction consists of:

- defining the goal of the business strategy,
- definition of the characteristics taking into account the key indicators,
- definition of the target values for all indicators,
- planning activities to achieve the goals,
- ensuring the innovative development of the company,
- making effective management decisions and their implementation.

The methodology of information support for strategic management contributes to the development of the concept of managing the overall performance of the company. Here the value of “Business Intelligence” system is confirmed practically in the form of modern information technology tool, the use of which is aimed at improving business management, increasing the quality of economic analysis, and thus increasing the effectiveness of management decisions.

To assess the impact of the use of “Business Intelligence” technology and related solutions on the economic efficiency of the organization should be used both financial and economic and non-financial indicators [Lubinin 2013].

Table 2
Assessment of the impact of “Business Intelligence” technology on the economic efficiency of the organization

Financial-economic indicators	Non-financial indicators
Sales revenue growth and profit	Improving the effectiveness of communication in the organization
Cost reduction	Speed in making innovative decisions
Project payback	Quality of data and information
Improved cash flow	Improving reputation
Increase in working capital	Increased customer satisfaction; Increased employee motivation, increasing the validity of analytical, management and innovative decisions

It should be noted that the implementation of “Business Intelligence”. The implementation of Business Intelligence + Big Data is significantly hindered by the lack of adapted methodology and professional specialists with knowledge at the intersection of the subject areas of Business Intelligence, Big Data and economic analysis, despite the high innovative potential of this area, defined as promising for Russian conditions of business entities’ activities. In Russia, the training of specialists in this area is poorly organized both theoretically and methodologically, which requires a solution to this problem at the state level. Further integration of Business Intelligence and Big Data into Russian organizations involves a huge amount of work by specialists from different fields of science and practice [Izmalkova, Golovina 2015].

“Business Intelligence” technology, thanks to the data algorithm it incorporates, meets the requirements of information-intelligence. The “Business Intelligence” technology, due to its algorithm of working with data, meets the information requirements of the economic analysis methodology, and it is the use of “Business Intelligence” technology that gives the company a better opportunity to transform data into the applied knowledge than in case of using only human resources, according to a certain algorithm, in which the point of direct correlation of the economic analysis methodology is observed. The content of this algorithm can be used to improve the effectiveness of management decisions, which is a chain of transformation of data and information into knowledge [Sokolyansky, Pashkov 2015].

Conclusion

In accordance with the Decree of the President of the Republic of Uzbekistan from February 17, 2021 № PP-4996 “On measures to create conditions for the accelerated introduction of artificial intelligence”, and approved the list of pilot projects on the introduction of artificial intelligence in 2021-2022 in the following areas:

- in agriculture: application of AI technologies in the process of monitoring soil and crop conditions based on remote sensing data, as well as the operation of agricultural equipment, including harvesters;
- in banking: the use of AI technologies to improve the efficiency of monitoring commercial banks and facilitate their compliance with regulatory requirements (SubTech and RegTech), as well as to analyze the quality of banking services, remote biometric identification (Face-ID) of users and credit risk assessment;
- in finance: application of AI technologies to analyze and improve efficiency of budget expenditures, pension, social and insurance payments, as well as benefits;
- in the tax sphere: application of AI technologies to analyze tax revenues of legal entities, to identify deviations of tax deductions;
- in transportation: application of AI technologies in the process of locomotive control to track locomotives and warn drivers in dangerous situations, analyze the movement of public transport and determine their optimal routes, as well as monitor traffic and traffic jams;
- in the energy sector: application of AI technologies for forecasting the generation and consumption of energy resources and optimizing the operation of technological equipment;
- in healthcare: application of AI technologies for diagnosing pneumonia based on the analysis of human lung computed tomography, as well as breast cancer in its early stages based on the analysis of mammography;
- in the field of pharmaceuticals: application of AI technologies for analysis and forecasting of market demand for medicines and medical products;
- in the field of electronic government: application of artificial intelligence technologies for remote biometric identification of users in the provision of electronic government and financial services (Face-ID).

Therefore, the guidelines for further transformation of the Uzbek economy in the digital space, such as the regulation of payments, settlements, research, sales and creation of qualitatively new goods and services of the future, will always be tied to two systems of online and offline platforms - participation of network solutions and human-to-human contact zones. It is the symbiosis of complementary capabilities of intellect and emotions, human and machine creativity and control that will be able to outline the boundaries of the coming digitalizing society, capable of adequately responding to all challenges and threats, as well as taking into account the evolutionary trends of the world economy in the transformation of the MEO and in a more equitable redistribution of benefits between all participants in the transformation of sovereign states into strongholds of global corporatocracy.

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