

BASIC ASPECTS OF THE FORMATION AND DEVELOPMENT OF THE DIGITAL ECONOMY IN THE REPUBLIC OF UZBEKISTAN

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Abstract: *The article shows the main aspects of the formation and development of the digital economy in the Republic of Uzbekistan. Such concepts as digital economy, digitalization, digital technologies are considered. The perspective directions of development of the national economy in the field of ICT are investigated, the urgent tasks of digital development in the republic are considered. The main achievements in the implementation and use of information technology in public administration and various sectors of the economy are presented.*

Keywords: *Digital economy, digitalization, digital technologies, information technologies, economic efficiency, information society, public administration, innovations.*

Introduction

Currently, the level of development of digital technologies used in economic, government and other spheres of the state determines not only its economic and social development, but also significantly increases the country's competitiveness on the world stage. The next wave of transformation of business and social activity models is unfolding, caused by the advent of a new generation of digital technologies, which, due to the scale and depth of influence, are called “end-to-end” - artificial intelligence, robotics, the Internet of Things, wireless communications technologies etc. Their implementation is estimated to be able to increase labor productivity in companies by 40%. In the near future, it is the effective use of new digital technologies that will determine the international competitiveness of both individual companies and entire countries¹ that form the infrastructure and legal environment for digitalization.

Literature review

In the Address by the President of the Republic of Uzbekistan Shavkat Mirziyoyev to the Oliy Majlis on January 24, 2020, important tasks were noted, such as “Completing and implementing within two months the development of the “Digital Uzbekistan-2030 program”, which provides updating all sectors of the economy based on digital technologies, increasing the share digital economy in GDP by at least 30%, thereby reducing corruption, radical change in the digital economy this year is the implementation of the “1 million programmers” project with our foreign partners in order to accelerate the development of science and the digital economy and train highly qualified specialists in this area.”

Let us consider in further detail concept of digital economy and digitalization. The term "digital economy" is an umbrella. It is used to describe markets that focus on digital technology and reflect the transition from the third industrial revolution to Industry 4.0, that is, to the replacement of analog electronic and mechanical devices of the 20th century on digital². There is a wide variety of interpretations of the digital economy.

¹International competitiveness of the national economy is a combination of institutions, public policy measures and factors that determine the level of a country's productivity [WEF, 2016].

² Digital economy: concepts and directions of development. B. Panshin. Science and innovation. Scientific and analytical journal. No. 3 (193). March 2019

So, in the fundamental work of R. Bucht, R. Hicks, more than two dozen meanings of the term are given and some uncertainty of their boundaries³ is noted. The concept of "digital economy" was introduced by N. Negroponte in 1995 as a metaphor for a new information culture, the organic part of which was digital content (music, films, paintings, games, etc.), which was initially defined as "computerization."

Over time, it has become increasingly applied to the economy, which confirms the thesis of the dominant role of culture in creating new meanings and values.

According to the definition of the World Bank, digital economy is understood as a system of economic, social and cultural relations based on the use of ICT. However, this definition is not complete enough, it does not take into account the key role of creating "seamless" information systems, when a digital signal "permeates" all levels of production and marketing of products, from the purchase of goods (services) by the client to the system for creating an order for raw materials and components for production.

The new economy is a product of the development of the information society. Over the past 30 years, it has gone through three stages:

- *1990s - the emergence and development of the Internet, which caused qualitative shifts in production and management, which have become the basis of the digital economy;*

- *beginning of the 2000s - when the digital economy was considered as business activity based on the Internet (electronic commerce, including trade in digital content);*

- *2010s - the digital economy began to be considered in conjunction with the development of ICT and the introduction of digital sensors (Internet of things), which created the prerequisites for changes in the business processes and the economic system of enterprises.*

Research methodology

The article used various types of analyzes: heuristic and expert evaluation, statistical grouping, correlation, economic-statistical, graphical analysis and other methods.

Analysis and results

Thus, we can say that the accelerated introduction of digital technologies in the economy and social sphere is an ambitious goal that is successfully realized only in very few leading countries. It is achievable only if a number of essential conditions are met.

Firstly, business and the social sphere should be ready for digital transformation, development strategies must mature and take shape, suggesting a radical change in the organization and conduct of activities due to the planned intensive implementation of digital technologies, demanded by organizations and promising to stakeholders the return on investing their own funds.

Secondly, the country should have a relatively mature sector of the technological offer, which, if it does not aspire to international leadership, is at least capable of a quick transfer and adaptation to foreign technological solutions and a rapid increase in its own activities.

Thirdly, the demand of the population for digital technologies should constantly grow, since it is the needs and capabilities of consumers that ultimately determine the adequate demand for digital technologies for them from organizations, especially in the B2C sphere⁴.

³ Bucht R., Hicks R. Definition, concept and measurement of the digital economy // <https://iorj.hse.ru/data/>

⁴ What is a digital economy? Trends, competencies, measurement of Ch-80 [Text]: dokl. to Apr 20 Int. scientific conf. on the problems of economic and social development, Moscow, April 9–12. 2019 / G.I. Abdrakhmanova, K.O. Vishnevsky, L.M. Gokhberg and others;

According to experts of the World Economic Forum, the potential of digital transformations (and as a result of the massive use of digital technologies to reduce various costs, and as a means of optimizing processes in the economy, society, and as a result of the emergence of new industries) is estimated at over \$ 100 trillion⁵. Many countries have identified digital development strategies as high priority and are implementing a set of measures to digitalize the economy and society.

Returning to the term "digital economy", it should be noted that the directions, forms and types of activities associated with the use of ICT, digital technologies and big data analysis are developing so rapidly that even definitions cannot keep up with them. In this regard, both the refinement of the conceptual apparatus of digitalization and the assessment of its current state and prospects are relevant, which requires appropriate theoretical justifications for this phenomenon. Two main aspects should be pointed out: digitalization and the digital economy.

The first is a long, complex and multi-faceted process of translating production and management technologies and information resources into a state suitable for the effective use of digital devices and technologies and involves achieving the following goals⁶:

- cheaper and more reliable data collection, systematization, transmission and analysis of data (due to discrete sensors - the Internet of things, RFID tags, etc.);
- cost reduction and simplification of communications in the economy and society (digitalization of content and communication channels);
- creation of a system for multi-interaction of people and business processes vertically and horizontally (interorganizational digital systems).

Just like computerization, automation and digitalization, according to J. Naysbit, is a megatrend of economic development, which is based on cybernetic methods and controls, big data analysis tools and artificial intelligence⁷. Achieving a critical mark in digitalization of any business process (or the enterprise as a whole) leads to its qualitatively new state (transformation), characterized by higher efficiency.

It should be noted that the reform processes carried out in recent years in the Republic of Uzbekistan are accompanied by the active introduction of modern information and communication technologies, the availability of telecommunication services for the population is increasing, various types of government services are being phased into electronic form, more and more this type of service is provided on a "one-stop-shop" basis". It should also be noted that the position of Uzbekistan in the UN ranking on the development of e-government is gradually being strengthened.

In order to accelerate the development of digital technologies, increase the efficiency of public administration, improve the quality of public services, create an enabling environment for the development of innovative technologies, and, ultimately, increase the competitiveness of the country, documents such as the Decree of the President of the Republic of Uzbekistan "On Approving the Concept of National "Digital Uzbekistan 2030" strategy (Id-10574 PROJECT), Decree of the President of the Republic of Uzbekistan dated February 19, 2018 "On measures to further improve the field of information technology and communications"; Decree of the President of the Republic of Uzbekistan No. PD(Presidential Decree)-5598 dated December 13, 2018 "On additional measures for the implementation of

scientific ed. L. M. Gokhberg; National research University "Higher School of Economics". - M.: Publishing House of the Higher School of Economics, 2019. - 82, [2] p. —250 copies. - ISBN 978-5-7598-1974-5 (in the region). - ISBN 978-5-7598-1898-4 (e-book)

⁵ Naysbitt J., Eburdin P. What awaits us in the 90s. Megatrends. Year 2000.M., 1992.

⁶ Digital economy: concepts and directions of development. B. Panshin. Science and innovation. Scientific and analytical journal. No. 3 (193). March 2019

⁷ Naysbitt J., Eburdin P. What awaits us in the 90s. Megatrends. Year 2000.M., 1992.

the digital economy, e-government and information systems in the public administration of the Republic of Uzbekistan”; The Strategy for Action on Five Priority Directions of the Development of the Republic of Uzbekistan for 2017-2021 defines as priorities the issues of widespread and effective implementation of the digital economy and ensuring information security in the country on the basis of the decree of the President of the Republic of Uzbekistan dated July 3, 2018 “On measures for the development of digital economy in the Republic of Uzbekistan ”, as well as other legal acts.

The main objectives of the digital development of the Republic of Uzbekistan are identified⁸:

- ensuring a systematic and consistent process of development of the digital economy, e-government, information and communication and innovative technologies;
- increasing digital literacy of the population and training highly qualified personnel in the field of digital technologies, creating favorable conditions for the retraining of personnel, popularizing methods of remote work;

- expansion of telecommunications infrastructure and data centers, the formation of the necessary infrastructure to provide the scientific community and the implementation of innovative projects;

- improvement of the legal regulation of the digital economy, the creation of "regulatory sandboxes" for conducting legal experiments related to the regulation of relations when introducing new technologies;

- increasing the efficiency of data collection and processing, creating new economic values through effective data utilization, increasing the availability of data for the population and business entities;

- introduction of modern forms of financing for IT projects and companies (venture financing, crowdfunding, IPO, asset tokenization), increasing transparency and accessibility of state orders in the field of information technology, creating venture capital funds and technology parks, attracting foreign investment and stimulating the development of export-oriented products, support in the monetization of digital products and services;

- expanding international cooperation in the field of digital development, actively studying and introducing foreign experience, establishing cooperation with large foreign companies on the implementation of joint projects.

Consider the current state of digitalization in our republic, as well as the prerequisites for its further development.

In recent years, the Republic of Uzbekistan has made significant progress in the introduction and use of information technology in public administration and various sectors of the economy, including⁹:

- the provision of public services in electronic form and through an extensive infrastructure of public service centers;

- the formation of a system of interagency electronic interaction;

- creation of basic state information systems and resources;

- regulation of relations in the field of personal data;

- the widespread use of electronic means of payment;

- the use of information technology in the real sector of the economy;

- the beginning of the implementation of the “Smart City” and “Safe City” projects.

⁸ Decree of the President of the Republic of Uzbekistan “On approval of the concept of the national strategy” Digital Uzbekistan 2030 (Id-10574 PROJECT).

⁹ Decree of the President of the Republic of Uzbekistan “On approval of the concept of the national strategy” Digital Uzbekistan 2030 (Id-10574 PROJECT).

Over 25.6 thousand km of fiber-optic communication lines have been laid. More than 67 percent (22.5 million users) of the country's population have access to the World Wide Web Information Network (hereinafter referred to as the Internet), while the number of third and fourth generation mobile users has exceeded more than 16 million subscribers.

At the same time, the share of the costs of supporting and developing the field of information and communication technologies (hereinafter referred to as ICT) from government spending in 2019 amounted to only about 1.5 percent (\$ 7.8 million), which is a low indicator for effective digitalization of the republic both in the short and long term. A similar minimum indicator for the developed leading countries (Great Britain, Finland, Denmark, the Netherlands, Sweden, the USA, France, Norway, Japan) in this direction is more than 12 percent of all government spending.

The export of telecommunication and information technology services in 2018 amounted to \$ 154.5 million (5.1 percent of the total services export), and the import - \$ 47.1 million (2.1 percent of the total import services).

The share of ICT specialists among the employed population in 2019 amounted to 0.5 percent, which is almost 7 times less than, for example, on average in the EU countries (3.7 percent). At the same time, the demand for ICT specialists in the country is rapidly growing, and therefore, the shortage of personnel in this area can lead to negative consequences both for the private sector and for effective public administration. The rapidly growing demand for qualified specialists, as well as their shortage, leads to an increase in the level of salaries of ICT specialists, which undoubtedly exacerbates the problem of the provision of qualified specialists to government bodies.

Also, a number of elements of the innovative digital ecosystem have been created in the republic, in order to increase the export of digital technologies, stimulate the development of business models related to digital technologies and increase investment in the field, the Innovation Center for supporting the development and implementation of Information Technologies “Mirzo Ulugbek Innovation Center” has been created and is functioning, Technology Park of software products and information technologies, together with leading foreign partners, the Center for the implementation of educational programs of the University of Webster (USA), the universities of Inha (Korea) and Amity (India) were created to train highly qualified specialists in the field of digital technologies. The innovative technoparks “Yashnabad” and “Khorazm” carry out activities.

Today, the Republic of Uzbekistan is represented in many foreign and international indices and studies that indirectly assess the level of readiness of the country for digital transformation.

So, the results of work over the past years in the field of development and implementation of the e-government system have a positive impact on the positions of the republic, in particular¹⁰:

- in the “UN Electronic Government Development Index 2018” - 81 places (0.6207 points) among 193 countries (Fig. 1);

¹⁰ Decree of the President of the Republic of Uzbekistan “On approval of the concept of the national strategy “Digital Uzbekistan 2030” (Id-10574 PROJECT).

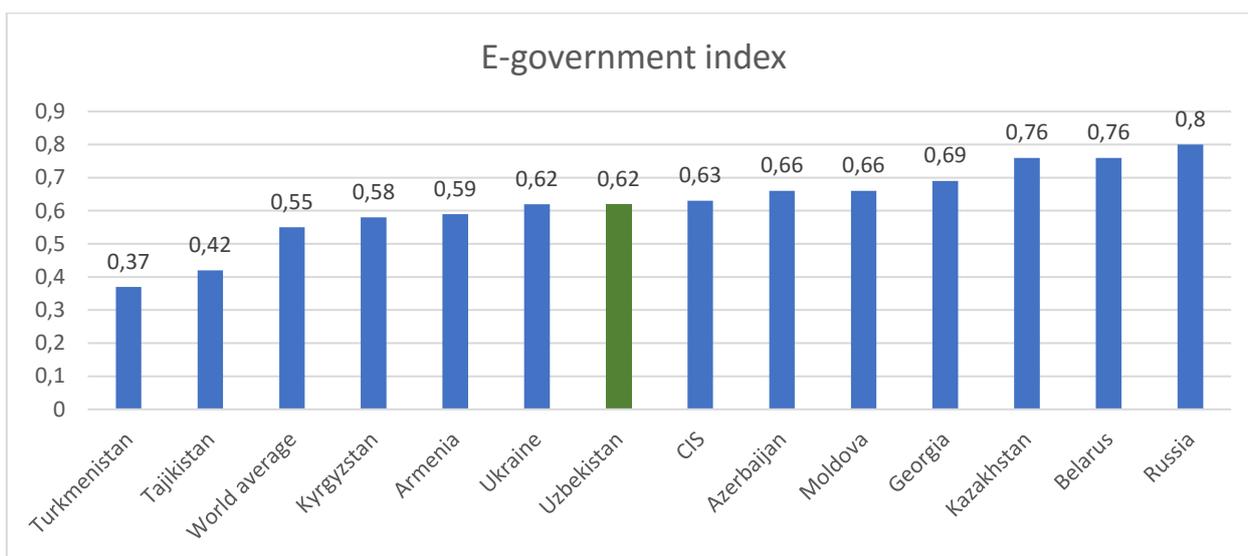


Figure 1. E-government index¹¹

- in the “Electronic Participation Index 2018” - 59th place (0.7584 points out of 1,000). At the same time, South Korea and Denmark turned out to be leaders in this rating with 1,000 points each;

- in the "UN Development Program Human Development Index 2018" –105 place (0.710 points) among 198 countries, rising by 2 positions compared to 2016 and entering the group of countries with a high human development index;

- in the “Index of Development of Information and Communication Technologies 2019” (according to the International Telecommunication Union) - 103rd place among 176 countries (Fig. 2);

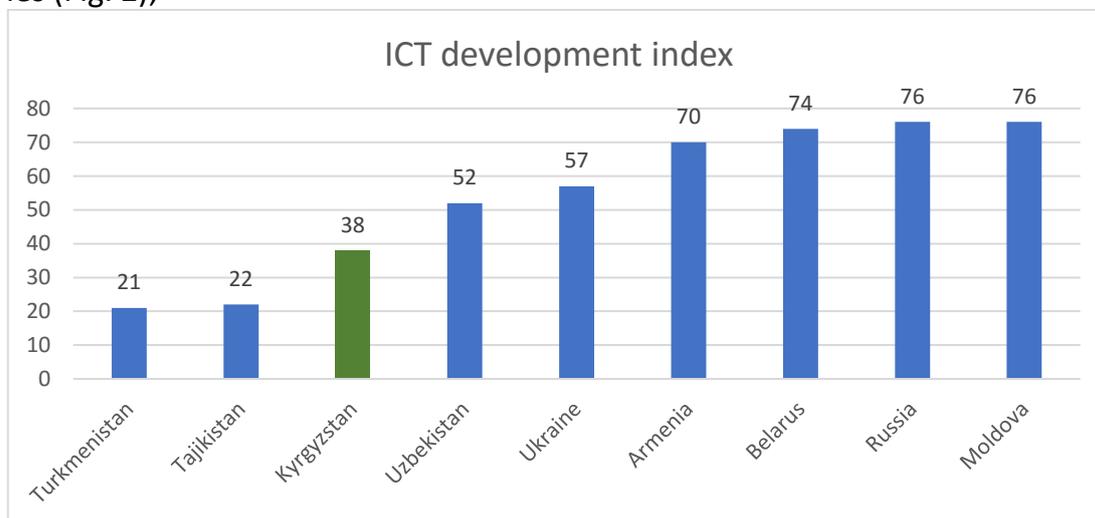


Fig. 2. Information and communications technology development index.¹²

- in the "Rating for the Development of Telecommunication Infrastructure 2018" – 114 place among 193 countries (this indicator took into account the presence of the following main components: fixed-line telephony subscribers per 100 residents - 10.85, mobile subscribers per 100 residents - 73.98, percentage of Internet users - 46.79, subscribers of the wired Internet access service for 100 residents - 8.73, subscribers of the wireless mobile Internet access service for 100 residents - 53.47) (Fig. 3);

¹¹ Source: UN E-Government knowledge base 2018

¹² Source: ITU data

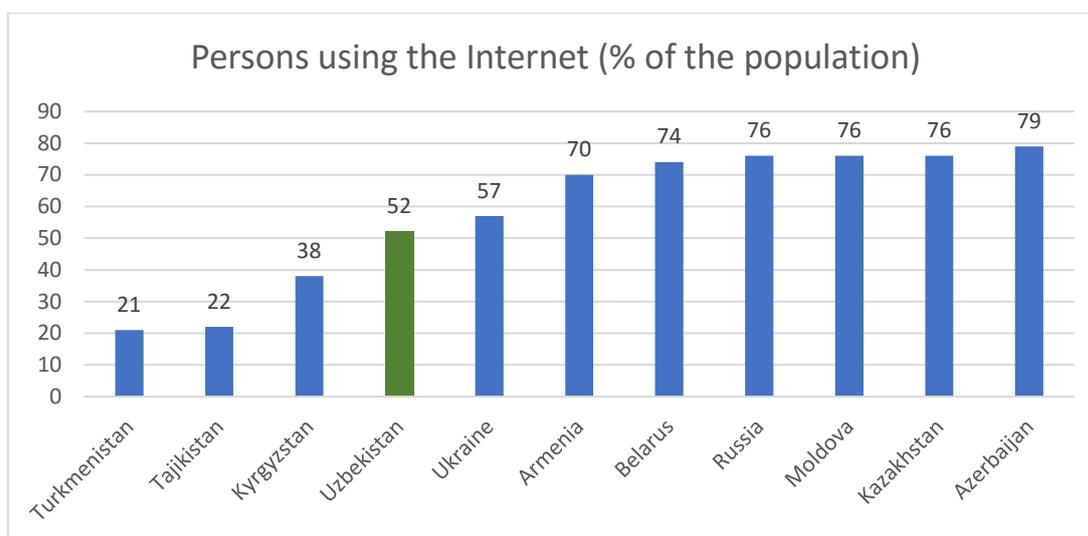


Fig. 3. Persons using the Internet (% of the population).¹³

- in the “Ranking of countries by Internet speed” for 2019 - 129th place among 137 countries;
- in the “Global Cybersecurity Index” of the International Telecommunication Union - the republic rose to 41st position and took 52nd place, thereby standing on a par with the leaders of the CIS countries to strengthen cybersecurity;
- in the "Rating on the cheapness of mobile Internet" - 69th place among 230 countries.

Nevertheless, the measures taken in the direction of digitalization of the economy of our republic are insufficient, as evidenced by low rates in some ratings and studies.

For example, according to a World Bank study “Women, Business, and Law” on the level of gender equality conducted in 2019, Uzbekistan, gaining 70 points, took 127th place (among 187 countries), which is the lowest indicator among all CIS countries. This is due to several factors, including the low employment of women in the field of information technology.

At the same time, in the “Network Readiness Index” (a comprehensive indicator characterizing the level of development of information and communication technologies in the countries of the world), as well as in the “Internet Development Index” (a comprehensive indicator characterizing the level of influence of the Internet on various spheres of public life in countries world) The Republic of Uzbekistan is not evaluated due to lack of data.

Indicators of international ratings, as well as the lack of a country in some of them indicate stagnation in the development of telecommunications infrastructure and mechanisms for providing high-quality statistical information in this field in the public domain.

Given the above, it can be noted that the main factors holding back digital development are as follows:

- maintaining the digital divide in terms of telecommunications infrastructure;
- insufficient public confidence in digital documents and services, as well as their adoption in state bodies and the judiciary;

¹³ Source: World Bank

- the lack of highly qualified specialists in the field of digital technology, including in connection with their outflow;
- inefficiency, lack of transparency and lack of state funding for projects to introduce digital technologies, as well as the lack of incentive mechanisms to attract funds from extrabudgetary funds, especially in the context of the country's regional development;
- heterogeneity and fragmentation of state information systems and resources.¹⁴

Conclusions and recommendations

Based on the goals of the country's long-term development, the priority tasks for the development of digital infrastructure are:

- a) expanding the telecommunications network, as well as stimulating the use of innovative access technologies using current infrastructure;
- b) the creation of additional mechanisms to stimulate investment activity of mobile and satellite communications operators to expand access in the regions of the republic by studying the existing barriers to the development of the industry;
- c) stimulating the creation of narrow-band communication networks for the collection and processing of information for the effective development of the Internet of Things technology by providing a common approach to implementation, development of unified data transfer protocols and rules for their management;
- d) using the cloud-based approach to digitalize the branches of public administration and build complex systems by transferring the public administration apparatus to the service model of consuming data from services and data center services, which will increase the stability of the functioning of information systems, the security of information contained in information resources and reduce development costs and infrastructure upgrades;
- e) updating the state policy in the field of providing free market competition, ensuring transparency of access conditions in the development of digital infrastructure by reducing the degree of its presence in economic sectors, with an emphasis on guaranteeing consumers the right to choose at lower prices and high quality new services, access to the Internet, broadcasting services, as well as processing, storage and transmission of data;
- f) ensuring the stability of communication networks for the continuous operation of digital devices through the application of innovative technologies in business models and the public sector;
- g) the consistent implementation of the Smart and Safe Cities projects in order to solve problems related to transport logistics, technical and social urban infrastructure, the quality of the urban environment, and the effective management of the development of the city, public, business and residential space by introducing digital technologies into management city infrastructure.¹⁵

Thus, the analysis of the existing situation in the field of formation and development of digital technologies and digitalization processes of the national economy, as well as the main trends in their development, allowed us to determine that the digital economy is formed on the basis of digitalization and has its own specificity, determined by the nature of creating added value by increasing and systematization of digital content (the subject of

¹⁴ Decree of the President of the Republic of Uzbekistan "On approval of the concept of the national strategy" Digital Uzbekistan 2030" (Id-10574 PROJECT).

¹⁵ Decree of the President of the Republic of Uzbekistan "On approval of the concept of the national strategy "Digital Uzbekistan 2030" (Id-10574 PROJECT).

labor), the growth of intellectualization of the algorithms for its processing automatically (without human intervention) and depending on the signals of the external environment.

We also note that one of the key characteristics of the digital economy is the rate of change in the production of goods and services, in the applied business models and management. The digitalization of the economy will also contribute to the formation of digital ecosystems, as a result of the ever-increasing complexity of the economy, as well as the growth of information activities to ensure the interaction of all links in the production of goods and services and the greater consideration of individual consumer needs.

And the further formation of the electronic segment of the economy can be described as a transition to smart management - a qualitatively new stage when digital technologies will be considered as labor-saving, reducing trade, transport and time costs, creating a new entrepreneurial culture and an active “biological view” - digital ecosystems that allow automatic customer personalization and individualization of orders, optimization of production and supply chains.

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