Digital Transformation of the National Economy: Problems and Solutions

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Abstract

The article examines the essence and problems of digital transformation of the national economy in the context of the Republic of Tajikistan. It substantiates the thesis that digitalization is not only technological modernization, but also a fundamental civilizational shift affecting the social, economic, and anthropological foundations of society. It reveals the key characteristics of the digital transition, such as the transition to networked management models, the formation of a new "infosphere," and the dual nature of digitalization, which carries both enormous opportunities and new risks and threats. The main systemic problems faced by Tajikistan on the path to digital transformation are highlighted: limited infrastructure, especially in rural areas; a shortage of skilled personnel; institutional contradictions; threats in the field of cybersecurity; and socio-cultural barriers. Specific ways to overcome the identified problems are proposed as solutions, systematized in the form of a roadmap that includes such priority areas as infrastructure development, digitization of public administration, support for innovation, transformation of education, modernization of the agro-industrial sector, and ensuring cybersecurity. The conclusion draws on the need to synthesize technological progress and humanistic values to ensure the sustainable and strategically independent development of Tajikistan's digital economy.

Keywords

Digital Transformation, National Economy, Digital Inequality, Digital Infrastructure, Human Capital, e-Government, Cybersecurity, Roadmap

1. Theoritical and Philosophical Foundations of Digital Transformation

The modern era is characterized not only by the acceleration of scientific and technological progress, but also by humanity's transition to a new state of being, in which digital technologies are becoming an integral part of the very structure of social, economic, and cultural reality. The digital transformation of the information system is not a private process of informatization or automation of individual spheres, but a fundamental change in the principles of knowledge organization, communication, and management. In this context, there is a shift in emphasis from traditional forms of human-information interaction to integrated digital environments where knowledge is created, distributed, and consumed in a continuous flow.

The essence of digital transformation lies in the transition from linear, hierarchical models of information processing to networked, flexible, and selflearning systems. This transformation affects not only the technical parameters of the functioning of information structures, but also the foundations of human thinking, perception, and value orientations. As M. Castells notes, in the information age, knowledge is becoming a key factor in production and power, and communication networks are becoming a new form of social space where "information flows are more important than territorial boundaries" [1]. Thus, digitalization is not so much a technological process as an anthropological one, transforming the very nature of human existence.

At the same time, digital transformation has a dual nature: on the one hand, it opens up enormous opportunities for the development of science, economics, management, and education; on the other hand, it creates new forms of dependence, inequality, and vulnerability. The large-scale integration of artificial intelligence, big data, and algorithmic solutions into everyday human life is forming not only new tools, but also new structures of power and control. In essence, the digital age is creating a new "ontology" of information, where the boundaries between the real and the virtual, the natural and the artificial, the human and the machine are gradually blurring.

The issue of digital transformation of information systems requires interdisciplinary analysis. It intersects with philosophy, sociology, computer science, economics, psychology, and cultural studies. Digital transformation cannot be reduced to technical innovations alone; it is part of a broader civilizational transition in which a new type of rationality is being formed. As E. Toffler noted, humanity is entering the "third wave" — the era of knowledge and information, where the key resource is not material production, but the production of meaning [2].

However, this process is far from straightforward. Behind the external glamour of digital progress lie deep contradictions between the speed of technological change and society's ability to adapt; between global connectivity and the loss of local identities; between the growing volume of information and the lack of understanding of it. In this context, the philosophy of digital transformation should be seen as a reflection on the new position of humans in the

world of technology, on how their consciousness, freedom, responsibility, and selfdetermination are changing in the age of algorithms.

2. Digital Transformation as a Civilizational Transition

It is particularly important to consider digital transformation through the prism of the information system, which is becoming the "nervous system" of modern society. It unites the economy, government, education, culture, and politics into a single interconnected network where data exchange is of crucial importance. The information system is becoming the basis for the functioning of the state, business, and the social sphere, and its stability determines not only the effectiveness of institutions but also the quality of life of citizens. Consequently, digital transformation is not simply the modernization of tools, but a profound change in the logic of social management.

The introduction of the digital age is accompanied by a whole range of problems: from a lack of digital literacy and fragmented infrastructure to ethical and legal dilemmas related to the protection of personal data, the transparency of algorithms, and digital inequality. That is why the study of the digital transformation of information systems requires not only technical solutions, but also a philosophical understanding of its consequences. Without the development of humanistic guidelines and value criteria, digital development can lead to the dehumanization of society, when technology begins to determine not the means, but the ends of human activity.

The latter necessitates a systematic and thoughtful approach to digital transformation, involving not only technological modernization, but also a rethinking of the very essence of information, knowledge, and human interaction in the age of digital networks. It is important to build a theoretical and methodological framework that allows us to view digitalization as a form of evolution of social organization and culture, rather than simply replacing analog tools with new technologies.

The digital transition is not just a stage in the technological development of civilization, but a qualitatively new type of social evolution in which information processes become the central mechanism for the reproduction of economic, cultural, and intellectual life. Its nature is deeply systemic: it is not a linear consequence of scientific and technical discoveries, but the result of the accumulation of knowledge, changes in ways of thinking, and a rethinking of the role of humans in the information space.

The emergence of the digital society is accompanied by the formation of a new ontology of reality, the so-called "infosphere," in the words of L. Floridi [3], where the boundaries between physical and virtual space are becoming blurred, and information is acquiring the status of the primary substation of being. If production was the basic category for the industrial era, then communication is the basic category for the digital era. Production is shifting into the realm of meaning, and the main object is no longer a material product, but a flow of data that contains economic, political, and symbolic power. In essence, digital transformation is a transition from an industrial to a cognitive type of civilization, where knowledge, rather than energy or raw materials, becomes the key resource for development. As K. Schwab notes, "the digital revolution is disrupting established models of business, governance, and interaction between the state and society, creating a new architecture for the global world" [4]. This transition is not limited to the introduction of digital technologies; it changes the very structure of thinking and perception: people become part of the digital ecosystem, and their activities are increasingly mediated by algorithms, interfaces, and platforms.

3. Human, Machine, and Society in the Digital Age

The digital transition, in essence, can be viewed as a metamorphosis that combines three interrelated dimensions: technological, social, and existential. The technological dimension is associated with the widespread use of artificial intelligence, big data, the Internet of Things, blockchain technologies, quantum computing, and other digital tools that are shaping a new infrastructure for life. The social dimension is expressed in changes in models of communication, employment, education, governance, and identity. The existential dimension touches on the deepest aspects of human consciousness—the perception of time, space, truth, trust, and meaning in the digital environment. Modern science increasingly argues that the digital transition is not only technological but also civilizational in nature. It marks humanity's transition from the "era of industrial intelligence" to the "era of network intelligence," i.e., a form of collective thinking based on data exchange and collaborative knowledge creation. At the same time, the very logic of knowledge becomes nonlinear: instead of sequential reasoning, there is parallel information processing; instead of stable systems, there are dynamic networks; instead of static forms, there are continuous processes. This type of rationality reflects the transition from the modernist idea of universal reason to a post-classical understanding of knowledge as a selforganizing system [5].

One of the fundamental manifestations of the nature of the digital transition is that it forms a new relationship between humans and machines. Whereas technology was previously perceived as an external tool subordinate to the will of the subject, it is now becoming an active partner in interaction. Artificial intelligence, neural networks, and machine learning algorithms not only perform computing or automation functions, but also participate in decision-making, forecasting, and data interpretation processes. This creates a new cognitive environment where the boundaries between the subject and the tool, between the author and the performer, are increasingly blurred.

As Yuval Noah Harari notes, the digital age is creating the conditions for the emergence of a "new form of power," dataism, in which humans lose their monopoly on the meaningful exploration of the world, giving way to algorithms

capable of interpreting reality faster and more accurately [6]. This shift brings both new opportunities and threats. On the one hand, technology opens up unprecedented access to knowledge, accelerates exchange processes, and democratizes participation in economic and social processes. On the other hand, it creates dependence on digital infrastructures, increases control over behavior, and creates the illusion of universal transparency while eroding privacy and personal autonomy.

4. Digital Transformation in Tajikistan: Challenges and Strategic Directions

The nature of the digital transition is paradoxical: it frees people from routine tasks, but at the same time increases their dependence on technological systems; it expands communication possibilities, but reduces the depth of human interaction; it simplifies access to information, but exacerbates the lack of understanding. This gives rise to the phenomenon of "digital antagonism," or the contradiction between the speed of technological development and the moral and psychological maturity of society. As N. Postman noted, each new technology not only solves old problems, but also creates new, more complex ones [7].

It is important to emphasize that the digital transition is not a universal process with the same results for all societies. Its nature and consequences are determined by the cultural, institutional, and economic characteristics of specific countries. In societies with a high level of technological maturity, digitalization becomes a factor of sustainable development, while in developing countries it can exacerbate social inequality and dependence on external centers of technological power. Thus, the nature of the digital transition is always contextual and must be considered in close connection with the socio-cultural specifics of the region, the level of digital infrastructure, and the quality of public administration.

In this sense, the digital transition can be seen as a process in which humanity faces the challenge of self-identification. Technology not only expands human cognitive abilities, but also raises questions about the boundaries of humanity-where the subject ends and the algorithm begins, where the line between creativity and automation, between knowledge and simulation, lies. In this sense, digital transformation acts as a mirror reflecting the level of spiritual and intellectual maturity of society, its ability to combine innovation with humanistic values.

The latter shows that the nature of the digital transition lies not in technology itself, but in how it is used. It is not technology that determines the future, but the people who give it meaning. And it is precisely this meaning that determines whether the digital era will become an era of flourishing human intellect or an era of technocratic alienation. Digital transformation should be seen as an opportunity for a new synthesis, a combination of scientific and ethical, rational and spiritual, individual and collective experience, which defines the true essence of digital humanism.

Despite the strategic focus of digital policy and positive trends in the development of the national information system, the process of digital transformation in Tajikistan faces a whole range of systemic problems. These affect not only infrastructure and human resources, but also the institutional, cultural, and ideological foundations of society. As Tajik researchers note, the key challenge at this stage remains the imbalance between the pace of technological change and the ability of state institutions to perceive it [8].

One of the central problems is the limited digital infrastructure, especially in regions where access to stable internet and modern communication services remains low. This creates pronounced digital inequality, which exacerbates socioeconomic differentiation between the center and the periphery. Studies show that uneven infrastructure coverage reduces the effectiveness of government digital programs and limits the potential of e-government [9].

Another barrier is the shortage of skilled personnel. The transition to a digital economy requires new competencies in data analysis, cybersecurity, digital governance, project management, and artificial intelligence. However, the education system has not yet fully adapted to these demands. According to H. H. Khushvachtzoda, modern training of specialists should take into account not only technical knowledge, but also the ability to work in a digital ecosystem where professional boundaries are becoming increasingly blurred [10].

The difficulties are exacerbated by institutional contradictions—the imperfection of the regulatory framework, the fragmentation of interdepartmental interaction, and the insufficient level of coordination between government agencies. The formation of a digital government requires systematic data management and a unified logic of digital document flow, but in practice, there remain gaps between departmental platforms, which reduces the overall effectiveness of public administration [11].

The issue of cybersecurity deserves special attention. The transition to a digital economy opens up new risks associated with data leaks, cyberattacks, and information manipulation. As Sh. N. Yusupov notes, the development of digital technologies must be accompanied by the creation of sustainable mechanisms for protecting critical infrastructure, improving legislation in the field of information security, and training professionals in the field of cyber defense [12].

The cultural aspect of digitalization is no less important. Tajik society has a rich historical and humanitarian tradition based on collective forms of consciousness, and the transition to digital formats of governance requires a certain degree of adaptation. As Sh. Yu. Nizomova rightly points out, digitalization must take into account the peculiarities of the national mentality, the values of mutual assistance and respect for knowledge, otherwise the process risks becoming formalized and devoid of sociocultural depth [13].

Solving these problems is impossible without a targeted state strategy based on the principles of openness, inclusiveness, and long-term thinking. Digital transformation should be viewed as a process involving three interrelated areas: infrastructure development, human capital strengthening, and the formation of a digital culture. It is the combination of these factors that can create a sustainable foundation for a digital society. An important element is the improvement of the education system. It is necessary to develop the competencies of the future, critical thinking, digital literacy, data analysis skills, creativity, and ethical responsibility. Initiatives are already being implemented in this direction to digitize universities and introduce electronic educational platforms, but they require further methodological and technological strengthening [14].

The development of the regulatory and legal environment also plays a significant role. It is necessary to introduce legislation regulating the storage and use of data, electronic signatures, online transactions, and the protection of intellectual property. An important step in this direction was the adoption of legislation on cybersecurity and electronic services, which lays the legal foundation for the functioning of the digital economy. Particular attention should be paid to the issue of digital trust. Without the formation of an ethical culture of data handling, digital transformation can lead to increased mistrust, tighter control, and alienation of people from technology. Here, it is important to strike a humanistic balance between efficiency and freedom, transparency and privacy. As global trends show, trust is the main resource of the digital society, along with data and technology.

Philosophically speaking, digital transformation is not only about modernizing tools, but also about rethinking the very concept of progress. The coming era requires a new type of rationality, where technological and humanitarian knowledge are not opposed but complement each other. In this context, Tajikistan's digital strategy should focus not on catching up, but on forming its own model of digital humanism based on the country's spiritual, cultural, and intellectual traditions.

In the long term, it is the synthesis of innovation and culture that can ensure the sustainability of the Tajik model of digital transition. Overcoming infrastructural and institutional barriers must be accompanied by human capacity development, support for scientific research, and integration into global technological networks. The country's digital future is not only a question of technology, but also a question of worldview, responsibility, and moral choice.

Overall, the digital transformation of Tajikistan's information system is becoming an integral part of the national development strategy, reflecting society's desire for modernization and self-realization in the context of the global technological revolution. The success of this process largely depends on the ability to combine technological rationality with humanistic content, transforming digitalization from a technical project into a strategy for national progress.

The development of the digital economy in Tajikistan in recent years has been uneven and fragmented, which is primarily manifested in the digital divide between different sectors of the national economy. In a context where digitalization has been declared one of the key priorities of state policy, there remains a significant discrepancy between the dynamics of technology adoption in the financial, banking, trade, and communications sectors on the one hand, and in industry, agriculture, and social infrastructure on the other. As noted by I. I. Karimov, despite the existence of strategic documents, digital transformation in the agro-industrial complex remains at an early stage and does not cover the entire production and logistics cycle [15].

The country's financial sector is the most advanced in the adoption of digital tools. Online payments, instant transfer systems, and remote banking services are actively developing here, forming the technological core of the digital infrastructure. However, industry and the real sector remain predominantly analog : production automation is fragmented, and the use of digital platforms is limited to accounting and statistical reporting. This discrepancy reflects the asymmetric digital maturity of industries, with banking and telecommunications acting as "locomotives" and manufacturing and agriculture as "lagging" segments of digital progress.

The digital divide is particularly noticeable in the agricultural sector, where the potential of digital technologies is still only partially realized. As P. M. Abdulloeva points out, the introduction of digital solutions in agriculture can increase land use efficiency and improve farmers' access to markets and credit resources, but the lack of coordination and low level of digital literacy among workers are hindering this process [16]. A similar situation can be observed in the trade sector. Research by H. H. Khoshimzoda and S. H. Kholova shows that the digital transformation of retail enterprises is limited to individual elements—online sales and electronic payments—while management, logistics, and analytical processes are still not integrated into the digital ecosystem [17].

Such sectoral heterogeneity of digitalization reflects not only technological but also institutional imbalances. State policy in the field of digital development is largely focused on creating infrastructure conditions and regulatory frameworks, while issues of sectoral integration, data exchange, and standardization remain unresolved. According to S. J. Komilov, the lack of coordinated management mechanisms hinders the transition of enterprises to digital operating models, as each department develops its own digital platforms without interconnection [18].

Along with sectoral imbalances, the imbalance between the labor market and the education system is becoming increasingly apparent. The digital economy requires a new type of specialist: data analysts, digital production engineers, IT system architects, and innovation managers. However, the educational programs of most universities are still focused on traditional economic and management areas. The content of training is not keeping pace with the dynamics of

technological change, and as a result, a paradoxical situation is forming in the labor market: the demand for digital professionals far exceeds supply.

As noted by a team of researchers led by Y. P. Dovgyallo, the transition to a knowledge economy requires not so much an update of curricula as a change in the very philosophy of education, from the transfer of information to the formation of competencies, self-learning abilities, and interdisciplinary thinking [19]. Otherwise, the higher education system will continue to produce specialists for yesterday's economy.

The imbalance between education and the labor market is further exacerbated by regional factors. In large cities and private universities, there is a demand for digital professions, and IT centers and start-up incubators are developing, while in rural areas, the education system is still limited to basic computer skills. This creates a "secondary digital divide" not between sectors, but between social groups, reinforcing inequality of opportunity. Digital literacy is becoming a new form of capital that determines access to resources and careers.

Resolving these contradictions requires the synchronization of the state's educational, industrial, and innovation policies. It is necessary to form stable institutional links between universities, research institutes, and business structures. This approach is in line with current global trends, where universities are becoming not only educational but also entrepreneurial institutions—centers of digital competence and incubators of technological ideas. In our view, Tajikistan's digital development strategy should be developed along these lines.

The issue of structural adaptation of the labor market deserves special attention. Research by M. R. Kurbonzoda shows that the introduction of digital technologies is accompanied by changes in the structure of employment and an increase in the share of temporary and remote forms of work, which requires a review of social guarantees and approaches to labor evaluation [20]. Otherwise, digital transformation may lead not to development, but to increased social inequality and instability.

In short, the digital divide between industries and the mismatch between education and the labor market are key challenges for the national digital strategy. Overcoming them requires a comprehensive approach, from reforming educational standards to integrating industry-specific digital platforms. Systematic coordination of these areas can help turn digital transformation into a source of sustainable development rather than a factor in new social stratification.

The problems of digital transformation in rural areas in Tajikistan reflect the most profound contradictions of the national digital development model. While basic infrastructure is being developed in cities, including high-speed internet, eservices, and educational platforms, digital processes are progressing extremely slowly in rural areas. This spatial imbalance exacerbates inequality between regions, creating a kind of "digital divide" within the country, where cities become centers of new opportunities and villages become areas of technological marginalization.

The main constraint on rural digitalization remains the underdeveloped telecommunications infrastructure. In most rural areas, the internet is only available in administrative centers, and the quality of the connection does not provide stable access to digital services. In addition, many settlements face power outages, which makes it impossible to use digital technologies in economic and educational activities on a stable basis. All this creates barriers not only to the introduction of new solutions, but also to the simple participation of the rural population in the exchange of information.

The issue of human resources is particularly acute. Most rural residents do not have basic digital skills, which limits their ability to use even accessible online services. Educational institutions located outside cities usually do not have modern computer classrooms, laboratories, or qualified computer science teachers. This creates a vicious circle: low digital literacy hinders the development of technology, and the lack of technology does not stimulate learning and self-development.

The institutional unpreparedness of local government bodies is also a significant problem. Rural hukumats often lack the necessary technical resources and qualified personnel to work with electronic systems. Electronic document management, which is gradually being introduced in state structures, remains in its infancy in rural administration. As a result, digital transformation in rural areas is fragmented, limited to individual elements of reporting or statistical accounting.

The unevenness of digital development is also evident in the economic structure. While agriculture remains the backbone of the regional economy, the level of digitalization of agricultural production remains extremely low. Most farms do not use geographic information systems, digital platforms for monitoring crop yields, or land and water resource accounting. Precision farming and smart irrigation technologies, which could increase productivity, remain isolated experiments. This hinders the growth of agricultural competitiveness and makes the agricultural sector vulnerable to external fluctuations and climate risks.

Alongside economic factors, the social dimension of digital backwardness should also be highlighted. For rural populations, digital technologies could become a tool for expanding opportunities, particularly in terms of distance learning, remote employment, online entrepreneurship, and telemedicine. However, the lack of infrastructure and low level of trust in digital platforms effectively deprive people of these opportunities. This creates new forms of social isolation: people living in rural areas find themselves cut off not only from information, but also from modern means of self-realization.

Digital inequality in the spatial dimension ceases to be a purely technical problem and becomes a factor in socio-economic stratification. The digital backwardness of rural areas leads to the reproduction of poverty, youth migration, and the weakening of local human potential. Moreover, a new dependency is forming: the higher the degree of digitalization of society as a whole, the greater the gap between those included and excluded from the digital space.

Solving these problems requires a comprehensive approach based on the idea of territorial justice. Rural digitalization should be viewed not as a secondary issue, but as a strategic component of national digital policy. It is important to create sustainable access points, stimulate the development of local innovative initiatives, introduce mobile forms of education, and expand the range of remote services. State support should be directed not only at building networks, but also at forming a culture of digital participation, where every citizen, regardless of income or place of residence, has an equal right to be part of the digital society.

The digital transformation of rural areas is not just about introducing technology, but a process of profound social change. It requires a new way of thinking, combining technological progress with humanistic content, where digitalization becomes a means of uniting society rather than alienating it. This is one of the key challenges of the modern digital age for Tajikistan: to turn technology into a tool for equality and sustainable development, rather than a source of new divisions between urban and rural areas.

In order to systematize the directions of digital renewal of the national economy and improve the coordination of actions between government agencies, businesses, and educational institutions, it is advisable to identify the key priorities of the digital transition. These are reflected in the roadmap for accelerating Tajikistan's digital transformation, which establishes the relationship between institutional reforms, infrastructure development, and the development of digital skills.

Приоритетное направление	**Основные шаги реализации**	**Ожидаемые результаты**
Development of Digital Infrastructure	Expansion of high-speed internet coverage; establishment of regional data centers; modernization of telecommunications networks	Improved accessibility of communication services; reduction of the territorial digital divide
Digitalization of Public Administration	Implementation of e-Government systems, electronic document management, and online services; development of a unified data registry	Increased transparency and efficiency of government institutions; reduction of administrative costs
Support for the Digital Economy and Innovation	Establishment of technology parks and IT clusters; promotion of startups; introduction of electronic platforms for SMEs	Growth in the number of innovative enterprises; diversification of the economy
Digital Transformation of Education and Science	Development of digital educational platforms; training of ICT-oriented teachers; establishment of artificial intelligence research centers	Formation of human capital for the digital economy
Digitalization of the Agricultural and Industrial Sectors	Implementation of smart farming systems, digital logistics chains, and industrial automation	Increased productivity and export potential of the agro-industrial complex and industry
Ensuring Cybersecurity and Digital Trust	Development of a national data protection system; improvement of legislation; training of cybersecurity specialists	Protection of critical infrastructure; strengthening public trust in digital services

Table 1. Roadmap for accelerating digital transformation in Tajikistan's economy Priority area Key implementation steps Expected results Development of digital infrastructure Expansion of high-speed internet coverage; creation of regional data centers; modernization of telecommunications networks Improving access to communications; reducing the territorial digital divide Digitization of public administration Introduction of e-Government systems, electronic document management, and online services; development of a unified data registry Increased transparency and efficiency of government structures; reduction of administrative costs Support for the digital economy and innovation Creation of technology parks and IT clusters; stimulation of start-ups; introduction of electronic platforms for SMEs Growth in the number of innovative enterprises; diversification of the economy Digital transformation of education and science Development of digital educational platforms; training of ICT teachers; creation of artificial intelligence research centers Building human capital for the digital economy Digitization of the agricultural and industrial sectors Introduction of smart farming systems, digital logistics chains, and industrial automation Increasing the productivity and export potential of agriculture and industry Ensuring Development of a national data Protecting critical cybersecurity and digital trust protection system; improvement of legislation; training of cybersecurity specialists infrastructure; strengthening public trust in digital services Compiled by the author

The roadmap presented reflects the country's strategic shift from fragmented initiatives to a comprehensive digital ecosystem. Its implementation requires close cooperation between the state, business, the scientific and educational community, and the civil sector. The priority is not the speed of technology adoption, but the quality of its integration, the ability of digital solutions to improve management efficiency, enhance social services, and create new forms of employment. The implementation of this roadmap will not only accelerate the digital transformation of the economy, but also form a sustainable institutional foundation for a digital state, where technological progress is underpinned by a culture of trust, transparency, and participation.

Lagging behind in digital technologies, including weak infrastructure development and insufficient integration of ICT into management, education, and production, may result not only in technological backwardness, but also in the loss of the country's strategic independence in the global digital space. This could cement the peripheral position of the national economy, limit its innovative potential, and create new forms of social and territorial inequality.

The latest digital technologies, including artificial intelligence, big data, blockchain, cloud computing, the Internet of Things, machine learning systems, and quantum communications, are currently becoming widespread. Their introduction is radically changing the nature of economic processes, the forms of interaction between the state and society, and the mechanisms of information production and consumption. These technologies are forming a new management architecture based on automated decision-making, data analytics, and network integration of all spheres of public life.

At the same time, digital solutions are becoming not only a tool for increasing efficiency, but also a factor in transforming thinking, as they create qualitatively different conditions for the perception, storage, and processing of knowledge. Their influence extends far beyond the economy—it affects culture, education, healthcare, ecology, and even the system of social values. That is why the transition to a digital economy is seen not as technological modernization, but as a civilizational shift that is shaping a new understanding of progress, responsibility, and sustainable development.

Currently, the latest digital technologies are becoming widespread, including artificial intelligence, big data, blockchain, cryptocurrencies and fintech technologies, cloud computing, the Internet of Things, machine learning systems, and quantum communications. Their development is changing not only the technological basis of the economy, but also the very structure of social relations, forms of resource ownership, and value distribution. As modern researchers note, blockchain and cryptocurrency technologies are becoming the core of financial digital transformation, forming new models of trust, distributed accounting, and value exchange [21].

The combined effect of these technologies is shaping a new architecture of the economy and governance, where information is becoming a key resource and the main factor of competitiveness, in other words, the ability of the state and society to adapt to the rapid changes in the digital environment. Thus, digital transformation ceases to be a private area of scientific and technological progress and becomes a systemic process affecting all aspects of public life, from production and financial activities to education, culture, and ethics.

Thus, the digital transformation of the information system is a complex, multidimensional, and irreversible process that encompasses all spheres of public life. It is not just a technological stage of modernization, but a systemic transition to a new model of socio-economic and cultural development, where information becomes a key resource and the main condition for progress, i.e., the ability of society to adapt and self-. For Tajikistan, digital transformation is a strategic direction for the modernization of the state, aimed at improving the efficiency of governance, strengthening economic sovereignty, and forming a sustainable model of development. However, at this stage, the process of digitalization is accompanied by a number of challenges: uneven infrastructure development, insufficient integration of ICT into production and management structures, a shortage of personnel, and a persistent digital divide between urban and rural areas. Overcoming these limitations requires a comprehensive approach that combines technological, institutional, and humanitarian measures. It is necessary to strengthen digital infrastructure, develop human capital, improve the education system, and foster a culture of digital trust and ethics of interaction in the information space. It is important to ensure coordination between the state, business, science, and society, transforming digitalization from a set of disparate initiatives into a unified strategy for sustainable development. The philosophical meaning of the digital transition is that technology should serve people, not the other way around. The digital age should be a time of expanding individual opportunities and growing the intellectual and spiritual potential of society. Only by combining innovation with humanistic values can we ensure the genuine quality of digital progress, in which technological development is accompanied by human development. The success of digital transformation in Tajikistan will be determined not by the speed of technology adoption, but by the depth of its understanding and the degree of its integration into the system of social goals. Digitalization should be seen not as an end in itself, but as a means to achieve a sustainable, just, and culturally meaningful future for the country.

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