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REVIEW PAPER

Digital Technologies and Cybersecurity in the Strategy of Post-War Economic Recovery

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ABSTRACT

The opportunities offered by digital technologies for the active post-war revival of Ukraine's economy are at the centre of academic debate. Many researchers define digitalisation as one of the factors of socio-economic development, but this issue has not been fully studied. The inequality of spatial development has a negative impact on the inequality of the level of digitalisation in different countries, and thus Ukraine needs to develop directions for the introduction of digital innovations to ensure its economic development during the post-war recovery. Given the relevance of the research topic, the purpose of this paper is to specify the specific features of the use of digital technologies and cybersecurity in the strategy of economic recovery in the post-war period. To achieve this goal, it is necessary to ensure the solution of the following tasks: to determine the current state of digital development of Ukraine; to specify the opportunities that digital development opens up for Ukraine in the period of post-war recovery; to systematise the risks that accompany the processes of digital technology implementation. To achieve this goal, the author used general scientific methods of analysis, synthesis, systematisation and generalisation. The method of analysis was used primarily to process statistical material and identify the main trends in the further development of the digital economy in Ukrainian society. As a result of developing the research topic, it was found that digital technologies open up significant opportunities to ensure the efficient use of all types of resources in the context of post-war recovery. The author also diagnosed the risks, which primarily lie in the area of the need to create conditions for ensuring cybersecurity both in the plane of digitalisation of the public sector and in the plane of business structures. It is proved that in the process of developing a strategy for Ukraine's digital development in the period of post-war reconstruction, the main attention should be paid to the issues of information protection and cybersecurity. This is due to the fact that the current active development of digital technologies creates prerequisites for the misuse of information and may pose a threat not only to the State but also to representatives of enterprises. However, the development of the topic also emphasises that it is crucial for the modern digital economy to focus on cybersecurity to protect data and ensure sustainable development.

HIGHLIGHTS

- It is determined that digital transformation integrates all sectors of the modern economy, and intelligent technologies are the tool that companies or government institutions need to survive and develop in post-war recovery.
- The formation of a strategy for digital development in the conditions of post-war recovery must be carried out with an eye on cyber security to ensure the protection of data from unauthorized leakage or misuse.

Keywords: Digitalisation of the economy, economic development, innovation, prospects, opportunities, material production, services, jobs.

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It is determined that digital transformation integrates all sectors of the modern economy, and intelligent technologies are the tool that companies or government institutions need to survive and develop in post-war recovery.

The formation of a strategy for digital development in the conditions of post-war recovery must be carried out with an eye on cyber security to ensure the protection of data from unauthorized leakage or misuse.

The world is currently experiencing a digital revolution, which has significant implications for both the global economy and individual countries. According to forecasts, the speed of technological innovation and its spread will double in the next five years. Digital technologies and their applications are spreading faster than during previous waves of technological innovation and are completely changing all human activity, including consumer behaviour, social interaction, business models and public policy. In addition, the digital economy stimulates business activity by reducing transaction costs and the asymmetry of information that exists in some areas, such as financial markets. Therefore, the digital revolution is too important for any country to ignore (Cai *et al*. 2022).

For Ukraine, the introduction of modern digital technologies during the post-war recovery period can become a driver of active development and further scaling of the economy on the path to European integration.

Despite the obvious benefits of the digital economy, there are also potential downsides to digitalisation. Increasing digitalisation can lead to both a widening gap between developed and developing countries and to growing inequality within a country, for example, between urban and rural areas, and between educated and uneducated populations (Strielkowski *et al*. 2020). This may also be the case in Ukraine, where it is more difficult to implement modern digital technologies in areas that have suffered greater destruction as a result of military aggression.

For a country emerging from a crisis, such as Ukraine in its post-war recovery, growing digitalisation poses certain risks, including cybercrime. While digital technologies are spreading faster than ever around the world, their use in Ukraine requires significant state control. In general, digitalisation and automation are driving the development of various sectors and industries. Furthermore, in the wake of Ukraine's global digitalisation in the pre-war period, these trends will continue in the future.

Given the considerable relevance of the research topic, its purpose can be defined as specifying the specifics of the use of digital technologies and ensuring cybersecurity in the strategy of economic recovery in the post-war period. To achieve this goal, it is necessary to ensure that the following tasks are addressed:

1. to determine the current state of digital development in Ukraine;
2. to specify the opportunities offered by digital development to Ukraine in the period of post-war recovery;
3. systematise the risks associated with the implementation of digital technologies.

The achievement of all the set objectives will allow us to achieve the research goal and fully disclose its topic.

LITERATURE REVIEW

One of the main directions of modernisation of the modern economy is the introduction of digital technologies in various spheres of economic activity. We can safely say that the digital economy is an economic activity that uses digital technologies (Kashchena *et al*. 2019; Shakhatrekh, 2023). At the same time, it is important to understand that the digital economy is not just the use of computer programs in economic activity, but the creation of electronic services instead of the usual physical services (Oneshko, 2023; Strielkowski *et al*. 2020). The digital economy is implemented not so much through the complete replacement of physical labour as through the merger of virtual (electronic) and contact (real) services that are developed for the convenience of consumers and businesses. The advantages of the digital economy are undeniable: whether it is the speed of service delivery or shopping, the convenience of making purchases, time and money savings, etc.

According to many researchers (Aleksieienko *et al*. 2020; Yuzevych *et al*. 2017; Zintso *et al*. 2023), the digitalisation of the economy involves, first of all, the replacement of physical objects with digital ones,

the transformation of real operations into electronic ones, i.e. the introduction of electronic technologies based on digital electronic computing equipment into the economy. As for digital technologies themselves, despite the current interpretation of this definition as "a system based on methods of encoding and transmitting information to perform various tasks in the shortest possible time", the list of these technologies has been the subject of debate among scientists from different countries for many years.

The difficulty for economists in resolving this issue is that there is a debate about the stage of economic transformation. It is necessary to determine at what stage of development it is in the current conditions. Some scientists (Dorogyy *et al*. 2021; Ionescu *et al*. 2023) call the introduction of IT technologies the next industrial revolution, equating the events taking place in the world today with the beginning of the use of coal, oil, electricity and other resources. The implication is that digital technologies are designed not just to improve the existing economic system, but to fundamentally change it. Therefore, when using the term "digital technologies", scholars (Hryhorash *et al.* 2022; Mazur *et al.* 2023; Shkarupa *et al.* 2022) mean not only electronic and information technologies themselves, but also the processes based on them: the introduction of environmentally friendly power plants, the development of new materials, nanotechnology, etc.

Based on these ideas, the concept of Industry 4.0 was created, which assumes that digital technologies are what allows for the digitalisation of all physical assets and the creation of a digital ecosystem with digital products and services (Grinko *et al.* 2022; Sayed, 2022).

Another point of view (Bulkot, 2021; Doroshenko *et al.* 2023) is that digitalisation is moving in three main directions - the Internet of Things, Big Data technologies, and machine learning (Strielkowski *et al.* 2020). At the same time, it is not denied that there are digital technologies that have long been used for specific economic sectors.

In general, the views of scholars on the essence of the digital economy can be presented in the form of a systematic table 1.

Researchers (Hurzhyi *et al.* 2022; Martin *et al.* 2022) also note that the digital economy is characterised by networking, social and external cooperation. The fastest growth of online platforms in recent years has been in the accommodation and transport

Table 1: Approaches to Understanding the Digital Economy in the Current Scientific Literature

Approach to understanding the smart economy in the scientific literature	**Characteristics of the approach**	**Accent**
A qualitatively new type of economic system development	The novelty of this type of economy lies in the fact that their development requires innovative technologies, the implementation of which minimises costs of various types	Innovative technologies
A system of socio-economic and organisational-economic relations based on the use of digital information and telecommunication technologies	In this context, the smart economy is focused on the development of areas that are primarily important to ordinary citizens, and technologies are useful in everyday life	Technology for citizens and everyday life
A type of economy characterised by the active introduction and practical use of digital technologies for collecting, storing, processing, transforming and transmitting information in all areas of human activity	Information is seen as the main source of benefit and the most valuable resource, and its correct and rational use will allow building an economic system of a new level of development that will automate many simple everyday functions	A new stage in the development of economic systems and innovations
Type of economic system that requires significant investment in technology development	The emphasis is on the costs necessary to implement the smart economy system, but it should be emphasised that investments in building innovative technologies, and smart cities in particular, are temporary, and further funds will be spent on maintaining and improving the smart economy system	Investing in innovative technologies

An innovative way of economic life that offers many prospects and opportunities for companies and citizens	The functioning of the digital economy will provide companies and citizens with quick access to various types of information and services, which is also one of the basic elements of innovative development	Access to information for innovative development
Can only be implemented in countries with high living standards and strong economies	In order to prepare for the introduction and implementation of the digital economy concept, the state must have a financial basis in the form of a sufficiently developed, stable, sustainable economy and a sufficient standard of living for the population to accept innovations	Readiness of the economy to accept innovations
A type of economic system that creates the preconditions for the uniform development of various sectors and industries	Building a digital economy implies that economic development requires uniformity and the ability to gradually focus government efforts on all areas and industries	Focus on economic development

Source: *Compiled by the author based on (Corsi et al. 2021; Sousa et al. 2021; Zaitsev, 2023).*

markets, due to the presence of distributed private assets that can be effectively monetised using digital technologies. The growth of online platforms and the development of the sharing economy (the economy of joint consumption, the "mutual aid economy"), in which people prefer to "share" vital goods with each other instead of purchasing them, are also accelerating (Novikova *et al.* 2022; Sopronenkov *et al.* 2023).

Thanks to online platforms that blur territorial boundaries, the global labour market allows talented people with outstanding abilities to carry out several projects simultaneously in remote or remote modes. At the same time, in some cases, such activities go beyond national jurisdictions and require more and more mechanisms of international interaction, combination, and coordination of various elements of national legal systems.

In addition, digital technologies are creating new opportunities to increase self-employment. Online platforms allow employees to work on a flexible schedule without being permanently assigned to a workplace from home or a café, and the scope for involving people with disabilities, women, and residents of remote areas in production is expanding.

In addition, most modern scholars dealing with the development of the digital economy note the importance of ensuring cybersecurity at the current stage of development of innovative digital technologies, as the risks of losing important information in the current development of digital technologies are quite high.

As the literature review shows, today the scientific space is focused on the development of the digital economy and the formation of preconditions for the active implementation of the latest digital technologies. At the same time, scholars are aware of the challenges posed by the digital economy, in particular, they talk about the need to maintain an adequate level of data security and information protection. However, there are currently no works that address the issue of comprehensive assessment of cybersecurity risks arising in the digital economy in scientific periodicals. This area is too new for scientists, and only in recent years has the issue of cybersecurity, along with the assessment of the risks of non-compliance with data protection in the economic development strategy, begun to attract the attention of researchers.

METHODS

Today, the development of the digital economy is becoming perhaps the most important area of economic growth in developed countries. That is why specifying the specifics of the use of digital technologies and cybersecurity in the strategy of economic recovery in the post-war period is becoming an issue of interest to scholars and requires special attention in the context of planning Ukraine's post-war recovery.

The study is conducted in a mixed format and involves both the analysis of statistical material and the development of directions for ensuring cybersecurity in the strategy of economic recovery in the post-war period for Ukraine.

To substantiate the feasibility of further analysis of the specifics of the use of digital technologies

in Ukraine, the author has processed statistical material, in particular, by applying the methods of comparison, analysis of dynamics and trend analysis. The analysis of statistical data on the selected indicators was also carried out using the graphical method and allowed to determine the dynamics of the state of innovation activity of Ukrainian enterprises and the sources of financing of innovation projects. At this stage of the study, it was determined that the process of development of digital technologies and the development of Ukraine's economy in the period of post-war recovery are inextricably linked, which was achieved through the analysis of scientific literature on the selected topic and the use of methods of analysis, synthesis and generalisation.

The next step is to specify the indicators that can be used to assess the degree of development of those innovation processes that are most important for determining the effectiveness of digitalisation processes in Ukraine. This was done using the methods of specification, generalisation, analysis and systematisation of statistical materials.

The next step was to determine the directions of further development and implementation of the strategy of innovative progress at the national level with the identification of specific steps for the formation of the digital economy in Ukraine. For this purpose, the general scientific methods of induction, deduction, systematisation, and generalisation were applied.

It is also worth noting that the use of a wide range of methods for processing statistical and analytical material has allowed us to obtain reasonable and reliable results.

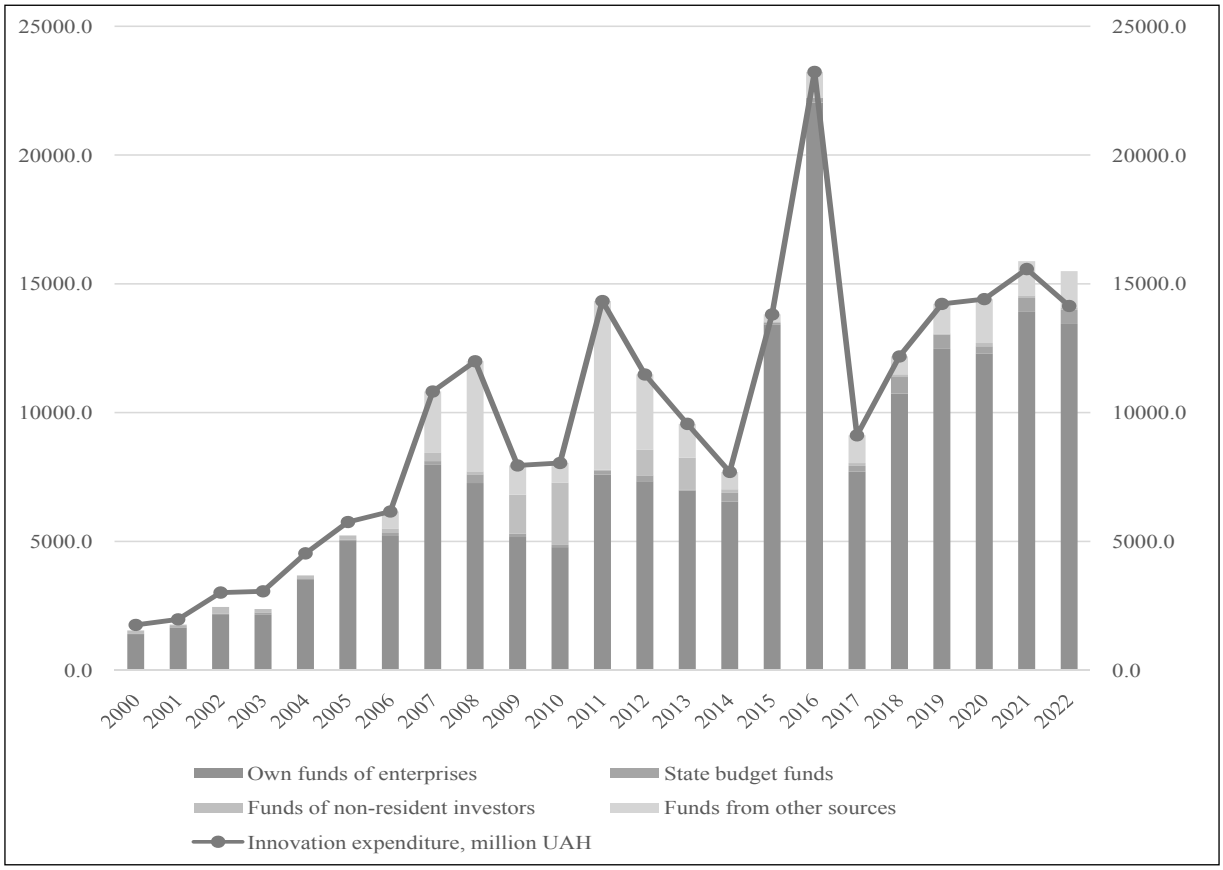
RESULTS

Digitalisation and the active introduction of digital technologies into economic processes during the post-war recovery period can be carried out both at the state level and at the level of enterprises with different forms of ownership. Undoubtedly, a significant part of technological development and innovation takes place at enterprises, often with the financial and organisational involvement of the state. For many business managers, the development of the innovation component of their operations is a key to effective long-term development, as well as providing opportunities for saving various types of resources. The ability of the state to build a modern digital economy depends on how active enterprises are in innovative development (Dykha *et al.* 2022; Golubchikov and Thornbush, 2022). In this regard, statistical materials on the analysed topic are important for understanding the current situation in Ukraine with the introduction of innovations. In order to get a comprehensive picture of innovation trends, it makes sense to focus on the following indicators: the number of industrial enterprises that implemented innovations (products and/or technological processes) as a percentage of the total number of industrial enterprises; the share of sold innovative products (goods, services) in the total volume of sold products (goods, services) of industrial enterprises; and sources of financing for innovation activities of industrial enterprises.

The analysis of statistical data on these indicators allows us to assess the current state of innovation in the Ukrainian economy. Information on the sources of funding for innovation projects and their total number is shown in Fig. 1. It is worth noting that the publication of some statistical material is restricted for the period of martial law in Ukraine, so the most up-to-date data for 2023 is not available for the analysed indicators.

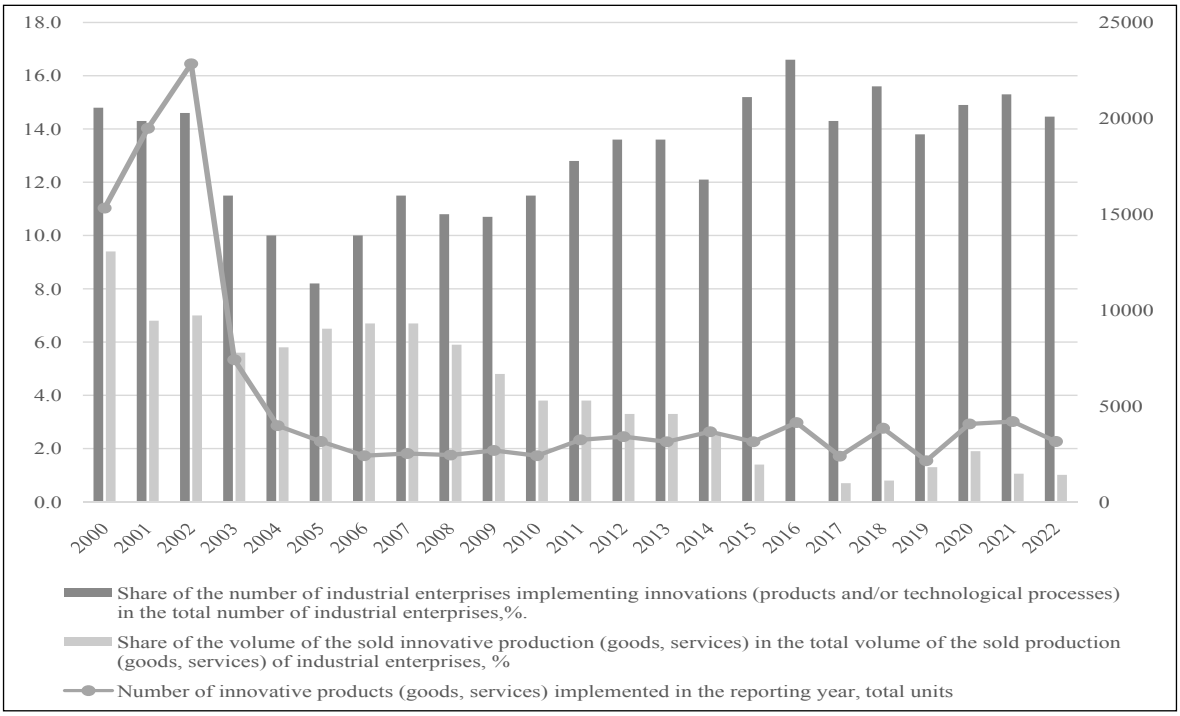
The above statistical data suggests that Ukraine has a huge potential for innovation and digital development, which can be quickly realised after the end of martial law, and domestic companies can quickly cover all costs incurred during martial law. Looking at the statistical data presented in Fig. 1, we can draw a general picture. Returning to the analysis of the statistical data presented in Fig. 2, we can identify a general trend towards the growing importance of self-financing of innovative and digital technologies in business. Accordingly, the majority of digital transformations in the Ukrainian economy should be implemented in the business environment first and foremost.

Just as in Ukraine, in many countries, digital technologies are shaping the competitive advantages of individual companies, industries, and regions. The activities of many economic entities are related to digital technologies and work with large amounts of data. The digital economy in developed countries accounts for an average of 6 to 8% of GDP: France - 5.7%, Germany - 6.3%, the UK - 7.1%, the USA - 7.4%, Sweden - 8.6%, while in Ukraine it is only 3% (Micozzi and Yigitcanlar, 2022).



Source: *Compiled by the author based on (State Statistics Service of Ukraine, 2024).*

Fig. 1: Information on Sources of Funding for Innovative Projects and their Total Number in Ukraine



Source: *Compiled by the author based on (State Statistics Service of Ukraine, 2024).*

Fig. 2: Number of Enterprises Engaged in Innovation Activities

On the one hand, digitalisation in shaping the post-war recovery strategy provides additional benefits for economic growth, but on the other hand, it creates certain risks for further development not only for companies but also for the country as a whole.

The creation of a new way of working based on digital technologies to develop new production and business models is defined as digital transformation (Nykonets *et al.* 2014) in post-war recovery strategies.

Today, virtually all industries use digital technologies to some extent within their operations. Activities related to the creation, distribution and use of digital technologies and related products and services are defined as the digital economy. And for the post-war recovery, the digital economy should be perceived as a symbiosis of the material traditional world with the virtual one.

The most important elements of the digital economy for creating and implementing a post-war recovery strategy are e-commerce, online banking, electronic payments, cryptocurrencies and blockchain, online advertising, and digital innovations in the manufacturing sector (Oneshko and Pashchuk, 2021; Popova *et al.* 2019). The development of these elements is facilitated by digital technologies such as the Internet of Things, artificial intelligence, augmented reality, cloud computing, big data, mobile applications, etc.

The use of advanced digital technologies allows companies to increase the level of automation and digitalisation of production, as well as the efficiency of production processes (Ostropolska, 2021; Petchenko *et al.* 2023). The ultimate goal of the digital economy is to manage the entire value chain, increase the efficiency of the production process, and create quality products and services. The state is interested in the effectiveness of such processes, as the efficiency of business operations determines the budget revenues and the overall development potential of the entire economic system.

It should also be borne in mind that digital technologies can reduce the costs of enterprises, increase their efficiency and competitiveness, expand trade relations and attract foreign investment in the country's economy, which ultimately increases its sustainability. And given the shortage of various types of resources in Ukraine under martial law and during the period of post-war recovery, the introduction of digital technologies in the field of resource saving is a critical area of economic system development strategy.

At the same time, the process of digital transformation is quite complex and requires efforts and a number of factors at both the micro and macro levels, which in the post-war recovery period may be complicated by the lack of financial resources and the need for public funding for various areas and directions of economic recovery.

In the context of state incentives for digital technologies and cybersecurity, it should be borne in mind that most companies do not receive the expected effects and clear benefits of digital transformation in the first year of implementation because they lack experience in managing this process effectively. When it comes to a country, it is necessary to take into account its potential for the development of the digital economy - human resources, digital infrastructure, education system, etc. It is also important not to have, but to effectively use the existing assets of the digital economy. For example, owning intangible assets and digital economy technologies does not guarantee a company's success, as it requires the rational use of these existing assets.

The development of the country's economy in the post-war recovery period is obviously dependent on the digital environment, which creates a number of uncertainties for the state, including cybercrime and data theft. At the same time, it is worth noting that challenges related to digital technologies are outlined in the development plans of a number of countries that seek to mitigate the risks of digitalisation by developing and implementing security strategies. In many countries, the digital transformation strategy is perceived as a holistic action plan related to national and economic security. For Ukraine, many aspects of digital development in the post-war period will depend on the state of the economy in which Ukraine will emerge from the hostilities. Accordingly, the main result of the implementation of Ukraine's digital post-war recovery strategy should be to ensure national security in all its areas: economic, power, digital, social, etc.

Among the tasks of ensuring Ukraine's security in

the context of digitalisation are the following (Schuh *et al.* 2020; Zaiachkovska *et al.* 2021):

- detecting and preventing cyber attacks;
- support for the development and implementation of digital goods and services for government organisations and the business sector;
- protection of infrastructure facilities (primarily critical and energy);
- stimulating the modernisation of education in the direction of digital technologies.

When considering the specifics of implementing a post-war recovery strategy in the context of active digitalisation, special attention should be paid to the use of digital technologies in government organisations. As global practice shows, the introduction of digital technologies in public administration increases the efficiency of decision-making and ensures prompt response to situations and problems. In addition, digital technologies and advanced solutions based on them attract young and active personnel to public administration.

And it is at the state level that the greatest attention should be paid to the risks and challenges that arise in the process of digital transformation. Threats and challenges to information security are created by cybercrime, personal information breaches, data theft, etc. They are able to receive information from physical devices, quickly disseminate it, store and analyse it, thereby increasing the risks of information leakage and various types of cybercrime. Consideration of economic security issues within the digital economy involves identifying its features and threats (Table 2).

As can be seen from Table 2, the main focus in the process of developing a strategy for Ukraine's

Table 2: Features and Problems of Digitalisation that Create Challenges and Threats to Economic Security

Features of digitalisation	**Problems**	**Threats and challenges of digitalisation**
Availability of intellectual assets and digital infrastructure	A country's lagging digitalisation makes its economy inefficient, less competitive and dependent on other countries. Issues related to the technical support of the digital environment and the provision of equal opportunities for all economic actors to access the digital environment during the period of economic recovery after the end of hostilities are of great importance	◆ threats of digital inequality; ◆ the threat of a low level of development and support for their own digital infrastructure; ◆ the need to ensure cybersecurity of national digital systems
Increasing importance of data and the need for effective data management, development of an ecosystem of interconnected information and communication technologies	The cost-effective use of data and data processing technologies (e.g., cloud computing) depends on the level of development of digital infrastructure both at the country level and at the level of individual organisations. The main challenge is ensuring data security. The active adoption of digital technologies by companies depends on the government's stimulating policy	Threats to data security and personal cybersecurity of users (customers of online and offline companies, the country's population, government agencies, companies)
Changes in communication methods influenced by the development of broadband and high-speed internet	High-quality digital infrastructure should be accessible to all potential users	Threats of systemic disruptions in the country's digital system that pose risks to individual enterprises, banks, and public sector organisations
Global nature of data exchange	The country's lagging digitalisation makes it dependent on other countries. In this context, Ukraine will need financial support from international organisations	Threats of digital inequality. Threats of a lack of financial resources to build a cybersecurity system
Implementation and use of the full range of modern digital technologies (artificial intelligence, Internet of Things, e-commerce)	The need to find the optimal set of digital tools to ensure the economic development of various sectors and elements of the economic environment	Threats of personal data leakage and the need for cybersecurity

Source: *Compiled by the author based on (Sermuksnyte-Alesiuniene et al. 2021; Soltovski et al. 2020; Yang et al. 2022).*

digital development during the post-war recovery period should be on information protection and cybersecurity. This situation is due to the fact that today's active development of digital technologies creates preconditions for the misuse of information, which can pose a threat not only to the state but also to business representatives.

DISCUSSION

In the digital age, where information has become a key asset, cybersecurity issues are attracting more and more attention from researchers. Every day, companies, governments, and even ordinary users face threats online. According to researchers (Doroshenko *et al.* 2023), companies in various industries, such as energy, transport, retail, and manufacturing, use digital systems and high-speed connectivity to provide efficient customer service and cost-effective business operations. Just as they protect their physical assets, they also need to ensure the security of their digital assets, as well as protect their systems from unintentional access. Intentionally breaking into and gaining unauthorised access to computer systems, networks or connected devices is known as a cyber attack. A successful cyber attack can lead to the disclosure, theft, deletion or alteration of confidential data. Cybersecurity measures provide protection against cyberattacks and enable a more stable development of the digital environment. Here we should agree with the opinion of the scientific community, however, it is worth adding that it should become a rule for modern companies to think about cybersecurity first when implementing certain systems or technologies, as its provision is perhaps the most important requirement for information security in the modern world.

There is also an opinion in the academic space (Hryhorash *et al.* 2022; Ostropolska, 2021) that companies in certain industries and regions should comply with regulatory requirements to protect sensitive data from possible cyber risks. For example, companies operating in Europe must comply with the General Data Protection Regulation, which requires organisations to take appropriate cybersecurity measures to ensure data privacy. Cyberattacks evolve as technology advances. Attackers are using new tools and inventing new strategies to gain unauthorised access to systems. Organisations implement and improve cybersecurity measures to meet new and evolving technologies and tools for digital attacks. Organisations implement cybersecurity strategies with the help of cybersecurity professionals. These professionals assess the security risks to existing computing systems, networks, storage media, applications and other connected devices. They then create a comprehensive cybersecurity framework and implement protective measures across the organisation.

In the author's opinion, this view is debatable, since not only companies but also the state should focus on protecting against cybercrime. This is because the issue of digital security is not only a problem for companies, but also for the state itself. An effective cybersecurity programme includes training employees in best security practices and the use of automated cybersecurity technologies in existing IT infrastructures, including government ones. These elements work together to create multiple layers of protection against potential threats at all data access points. They identify risks, protect identities, infrastructure and data, detect anomalies and events, respond to and analyse root causes, and help recover from events.

It is also worth emphasising that organisations implement cybersecurity strategies with the help of cybersecurity professionals. These professionals assess the security risks to existing computing systems, networks, storage media, applications and other connected devices. They then create a comprehensive cybersecurity framework and implement protective measures in organisations. This is a view expressed in the literature (Micozzi and Yigitcanlar , 2022) and one that can be agreed upon, as an effective cybersecurity programme includes training employees in security best practices and the application of automated cybersecurity technologies to existing IT infrastructures. These elements work together to create multiple layers of protection against potential threats at all data access points. They identify risks, protect credentials, infrastructure and data, detect anomalies and events, respond to and analyse root causes, and help recover from events.

CONCLUSION

As the study has shown, digitalisation is a process of building a digital economy and an element of the Industry 4.0 model, which permeates all spheres of society, including individual and collective relations, which are directly influenced by digitalisation and require full adaptation from the standpoint of the current theoretical construct, essential features and modern legal regulation.

Different representatives of the scientific community have different assessments of the impact of economic digitalisation on post-war development opportunities. As a result of the study, it is possible to state that digitalisation processes can lead to significant qualitative transformations in all spheres of public life.

The study found that digital transformation integrates all levels and functional areas of the modern economic system. Intelligent technologies provide the most important tools that companies or government agencies need to survive and thrive in the post-war recovery.

It is also proved that when formulating a digital development strategy for post-war recovery, special attention should be paid to cybersecurity, which can ensure the protection of data from unauthorised leakage or misuse.

Today, cybersecurity is essential to protect, firstly, the data stored and processed by an organisation's resources, and secondly, all digital processes. Only an IS-centric approach to strategy implementation can ensure the success of the transformation at every stage. The primary tasks are to implement methods and policies aimed at preventing unwanted access, detecting breaches and responding to security incidents in a successful and timely manner. Network security, endpoint security, data encryption, access control, incident response plans and employee training, as well as general awareness-raising among users of systems and applications are some of the components of a comprehensive approach to building a cybersecurity architecture.

Therefore, new trends in the digitalisation of organisations and public administration, external risks and challenges, the general global situation, and emerging innovative technologies have shaped three main trends in cybersecurity: the need to comply with the concept of zero trust (which implies no trust in any user, device or network); the need to comply with cloud security and the use of data protection systems built into software.

As promising research topics for further analysis, it is worth highlighting the issue of the ethical component in cybersecurity protection, since for most users of Internet services the issue of protecting their personal data is quite acute. Attention should also be paid to assessing the effectiveness of financial investments in information protection and cybersecurity.

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