

# Modern Management Technologies in the System of Ensuring the Security in the Context of Socio-Economic Development and the Digital Economy

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## Abstract

The main purpose of the study is to determine the main aspects of the introduction of modern management technologies into the security system in the context of socio-economic development and digitalization of the economy. Socio-economic development and a high level of security include growth in income, labor productivity, production volumes, increased competitiveness, changes in the institutional environment, consciousness, activity, social security, the quality of the education system, healthcare, etc. Despite the root cause of economic development, it is not an end in itself, but a tool for ensuring social development. Gaining access for citizens to education, health care, observance of the principles of equality and justice, ensuring protection are directly dependent on the level of economic well-being, the level of economic potential of the country or regions. The research methodology involved the use of both theoretical and practical methods. As a result of the study, the key elements of the introduction of modern management technologies into the security system in the context of socio-economic development and digitalization of the economy were identified.

## Key words:

*Management, technologies, security, economic development, digital economy.*

## 1. Introduction

Socio-economic development is an important prerequisite for the effectiveness of the functioning of socio-economic systems, a significant competitive advantage and a guarantee of success, and the market environment for its functioning is a reflection of the state and dynamics of economic and social processes in the enterprise and the state as a whole.

The approval of a new organization of society brings states and nations both new incentives for evolution associated with the development of the global

information space, international information exchanges, the possibility of operational use of best practices, new scientific achievements, and new contradictions that arise in public relations between obsolete and new social structures. , causes new problematic situations in interstate relations. Such contradictions are especially exacerbated in connection with the uneven development of nations and states in the modern world and at the same time the establishment of global informatization on the basis of electronic information technologies, which has become a common denominator for all indicators of this development, to form a new hierarchy in interstate relations, characteristic of the information society.

At the current stage of development of the information society, the system of social contradictions is multifaceted, since it covers the problems of an industrial society that is gradually fading into the past, the problems of the formation of a new society, and the synthetic manifestation of some contradictions in others.

The rapid development of information technologies leads to an increasing interdependence of the socio-economic potential of states and such an indicator generally accepted in the world community as the rating of the development of information and telecommunication technologies.

In modern conditions of development of socio-economic systems, information technologies penetrate into almost every sphere of human activity. They have rapidly become a vital driver of the global economy and have enabled individuals, firms and

business communities to more effectively and creatively address economic, social and security challenges in a digital economy. The study of information technologies in the national and regional economy of the country is extremely important, since they are one of the decisive factors in socio-economic development. That is why the study and systematization of information technologies, the features of their use in the economic sphere should be the focus of attention of modern researchers.

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## 2. Methodology

The methodological foundations are a set of methods for determining the key aspects of the introduction of modern management technologies in the security system and socio-economic development. The article uses the following research methods: the dialectical method of cognition; logical; system analysis; abstract-logical for summarizing the results of the study and the formation of appropriate conclusions.

## 3. Research Results

In modern conditions, the Internet technology has the greatest significance and prevalence, which has provided enterprises with unlimited opportunities in the field of transferring, distributing and distributing information, which has made it possible to carry out financial and banking operations, operations for the purchase and sale of goods, despite distances and borders. However, in addition to the positive effect, some of the features of this technology, which helped it to spread around the world, at the same time create favorable opportunities for many types of criminal activity.

Computer programs and, in many cases, alien computers, using a local network, the Internet, wireless technologies, can obtain secret information that is not intended for them. Therefore, the complexity of access control mechanisms should be in parity with the value of information, i.e. the more

important or valuable the information, the more complex the mechanisms for controlling access to it should be. Data integrity means that the data has not been changed during any operations performed on it, be it transmission, storage, or display. Authentication provides for the authentication procedure of the other party: authentication of the user by comparing the password entered by him with the password stored in the user database; confirmation of the authenticity of an email by verifying the digital signature of the email with the sender's public key, etc. The main measures to counteract computer crimes are also: control of the work of computer system developers, protection against unauthorized access to the system, prevention from computer viruses, careful selection of personnel, exclusion of cases of particularly important work by only one person, protection of security facilities, installation of backup power supply systems, equipment rooms with combination locks and alarms [1-3].

The main characteristics of each measure is the cost of protection and the effect of use. So, with the development of computer information technologies, the problem of computer crimes has become aggravated, which can cause both financial and information losses to an enterprise. The main thing in organizing a business is not only to correctly use the available information, but also to ensure its high-quality protection by all available means.

But not only in business, modern security management technologies are used, but also in socio-economic development at the highest level.

The digitalization of the economy, like previous technological transformations (industrialization, electrification, etc.), is associated with a set of significant changes. The current stage of world economic development is accompanied by a significant increase in a new type of inequality, namely the digital divide, which is an inequality in access to digital technologies (access to all types of communication services), as well as to management technologies in the digital environment [4-5].

The main differences between management technologies in the digital economy and more traditional ones are presented in Table 1.

Table 1: The main differences between management technologies in the digital economy and more traditional ones

<i>Digital technologies</i>	<i>Traditional technologies</i>
Remote control technologies	On-site management
Automation system management	Capital management
Internet banking	Physical terminals
Social networks	Advertising in newspapers

The web economy, the new economy, the Internet economy have a common meaning and are combined in the single name "digital economy", defined as an economy focused on digital and computing technologies. New information technologies, the economic environment in which they exist, as well as the activities and behavior of mankind, are fundamentally changing under the influence of the globalization of the new economy. The new (digital) economy occupies all types of business, economic, social, cultural and other activities supported by digital communication technologies in terms of ensuring security and socio-economic development. As you know, digital economy technologies have a number of advantages for ensuring security and socio-economic development. Because the goods are virtual, you can save on shipping costs, as the Internet provides near-instantaneous delivery around the world. Also, thanks to the global information network, the speed of money transactions has increased significantly. Thus, the Internet has

become the leading, key technology of modern economic interaction. The basis of the digital economy is digital technologies that need to be qualitatively involved in everyday life in order to avoid difficulties in their use. The main difficulties are associated with the use of modern control technologies presented in Table 2.

Table 2: The main difficulties are associated with the use of modern control technologies

<i>Nº</i>	<i>Elements</i>
1	The growth of technological unemployment
2	Changes in the structure of the distribution of productive forces
3	Lack of qualified personnel for the implementation of a digital transformation strategy
4	Lack of an algorithm and regulatory framework for the use of digital technologies for competition and innovation

The main advantages of digitalization processes in the context of security and socio-economic development are [6-8]:

1. The development of digital technologies is a new source of GDP, thanks to which new software products and services are created and implemented.
2. Digitization promotes the use of the Internet. Nowadays, most of our daily work can be done on the Internet. The massive growth of Internet technology that began in the United States led to the formation of a worldwide web. In this regard, there is a rapid increase in investment in all objects and

activities associated with this process, namely equipment, technological research, software, services, digital communications. Thus, the new economy has cemented the presence of the Internet in our lives, as well as web businesses.

3. Digital management technologies stimulate the development of e-commerce. Companies that have adapted the use of the Internet to engage in online business have been doing well over the past decade. Not only direct sales, but also production, marketing and distribution have been made easier by the digital economy. The digital economy has accelerated the development of the e-commerce sector.

4. Digitalization causes the emergence and distribution of digital products and services. Most products today are available in digital form. The need for some material products and services has disappeared, primarily such as insurance, banking. Currently, there is no need to visit the bank as any transaction can be done online. Thus, some goods and services have been fully digitized in the new economic reality.

5. Digitalization contributes to the transparency of the economy. Most transactions and their payment in the digital economy take place online. Cash transactions are becoming rare, which helps reduce corruption and makes the economy more transparent, when in fact, during the demonetization, the government made a push for online transactions to promote the web economy.

6. Digital development of the economy helps to reduce costs. Firms can save on building rentals by moving more of their business online. The digital economy allows firms to skip the retail stage and ship personalized goods from factories or warehouses directly to the consumer, rather than through stores.

7. Digital technologies create a need for personalization of data. The digital economy allows for a higher percentage of personalization than the traditional economy. For example, in a traditional store there may be enough space to store a certain number of goods, however, in a digital economy, the consumer has the opportunity to choose any product, and then the product can be made to order according to his individual preferences and wishes.

8. The digital economy removes barriers in the market. In some markets, the digital economy makes it easier for new companies to enter. If an entrepreneur has an innovative idea, then he can create a new product that will challenge traditional

firms. The digital economy has given rise to many new services that were previously impossible, such as home delivery of groceries over the Internet, applications for communicating on the Internet.

On the other hand, along with the undeniable advantages of digitalization, there are a number of disadvantages associated with the active development of the digital economy, which include the following in terms of threats to security and socio-economic development:

1. The impact of monopolies on the digital economy. Despite the potential of new start-ups, many aspects of the digital economy are dominated by firms with monopoly rights. For example, Amazon has cornered the online shopping market, which means that many businesses have to go through the Amazon marketplace to reach consumers who normally shop on this platform. Similarly, "Google" and "Facebook" have developed a fairly high degree of brand loyalty and captured a significant market share. Such processes have turned some of the technology giants into the most profitable ones. In particular, Google, with its monopoly ownership, has the power to charge high prices for online advertising, and Amazon has the bargaining power to force traditional sellers out.

2. Decreased social interaction. A traditional bookstore can act as a focal point for a local community. With the digital alternative disrupting traditional firms, traditional bookstores are being squeezed out of business. Even though e-books may be cheaper, the physical interaction between the seller and the buyer is lost, which has always been an important aspect when buying a product.

3. Depending on technology. While theory has the potential to save time using the internet, it's the time saved that we spend checking social media and searching the internet. In addition, a large amount of information can lead to the fact that users are lost in the information space. Being able to choose does not necessarily lead to better results, as a large range of options requires a significant amount of time to make a decision.

4. Threats to privacy. The use of databases has become big business. For example, Facebook collects a significant amount of data about users in order to provide them with targeted political advertising.

5. Failure to comply with labor laws. The digital economy has created a negative trend of using self-

employed freelancers who are not protected by labor laws. This allows firms to cut labor costs, be more flexible, but may deprive workers of their traditional labor rights.

6. Job cuts. The more economic development becomes dependent on technology, the less it depends on human resources. The development of the digital economy can lead to the reduction of a large number of jobs, and the development of artificial intelligence threatens the availability of jobs in the service sector. As all processes in the world become automated, the need for human resources is reduced. In theory, however, new technologies will lead to a change in activity patterns, not to an increase in unemployment, in which some unskilled workers increasingly give way to skilled ones. A striking example of such processes are digital payment systems, which have significantly reduced the need for bank employees.

7. Lack of professionals. The digital economy requires the use of complex processes and technologies. To create platforms and maintain them, there is a need for experts and specialists in those industries that are not available, especially in the regions.

The characteristic features of digital markets in the context of socio-economic development are:

1. The dynamics of development, that is, the high speed of technological change, the result of which is the transformation of old markets and the emergence of new ones. The creation of market capital occurs in a relatively short period of time.

2. Business expansion. A company that is in high demand expands its activities and creates related products and services, which can lead to a stronger system that is controlled by one group of companies. The consequence of such processes may be the monopolization or oligopolization of markets.

3. High degree of innovative activity. With this feature, researchers link the problems of intellectual property. Intellectual property rights and trade secrets are often used to make it harder for potential entrants to gain access to the technologies used by dominant companies. An effective intellectual property protection system in the long term can harm consumers and act as an obstacle to the development of the digital economy.

#### 4. Discussions

Information technologies, which emerged as a single system in the 70s of the XX century, already in the 80s became the fundamental basis for the processes of socio-economic development of territorial public systems and security management systems. At the turn of the millennium, the influence of modern information technologies on the development of the productive forces of individual regions of any country is constantly intensifying. Note that such influence can be limiting or stimulating [8-11].

Internet technologies provide new opportunities for the management, development and functioning of socio-economic structures and institutions. In essence, these changes will be decentralized and competitive. In turn, this means the appearance of both positive and negative aspects. It is expected that in the near future, life for the majority of the population in countries with a dominant network economy will become cheaper and provide more opportunities for people's self-realization and security. At the same time, competition will become tougher and will require additional efforts to master the new principles of survival in the new social reality. A new factor of socio-economic inequality should be expected: those who have better access to the network and are better adapted to its features will have advantages over others [12-15].

Currently, the rapid development of digital control technologies has affected all areas of human activity and the security system as a whole. Its influence could not but be experienced by culture as the level of development of mankind, the creative forces and capabilities of man, expressed in the types and forms of organization of life and human activity, in their relationships, as well as in the material and spiritual values created by them. In addition, as a result of this influence, a new phenomenon has emerged in society - the information culture, which has led to significant changes in the culture of production, business, organization of work, leisure, consumption, communication, etc. Both the formation of information culture and changes in the culture of production, business, organization of work, leisure, consumption, and communication took place under the influence of a number of factors, the most important of which were: the accelerated process of objectifying information and knowledge, increasing

the possibilities of transmitting information through telecommunications to the general population and new activities that are based on the use of such knowledge. Therefore, it is obvious that the emergence of new digital management technologies has affected not only socio-economic development, but also the promotion of the entire public sphere. The depth of impact and breadth of these phenomena not only actualizes their study, but also requires scientists to pay due attention to their study in the future.

## 5. Conclusions

Summing up, it should be noted that the trends in the development of the modern information society cause the reorientation of management and business entities to the use of information technologies in their activities. The use of IT significantly contributes to the modernization of the information and telecommunications management system, reduces management costs, changes the system of relations between economic entities, and expands the access of producers and the population to information sources. It is important to change the possibilities for obtaining, storing, disseminating information, increasing the efficiency of economic contacts between market participants and strengthening the level of security.

The process of managing economic processes and ensuring security in the context of socio-economic development is primarily an information process associated with the collection and processing of information. Therefore, information technologies have a direct impact on the effectiveness of management, they change working conditions, in particular, management and attract information as a subject of labor. In this context, the main goal of using IT in management is defined as obtaining completely new information by processing primary information, analyzing it and making appropriate decisions on its basis to ensure and enhance socio-economic development and ensure a high level of security.

Information technologies have a number of properties that allow us to consider them as one of the most important catalysts for socio-economic development, accelerating the increase in the efficiency of various sectors of the economy and

economic growth, the achievement of specific goals of social development, as well as the expansion of citizens' participation in the political life of society and the achievement of a qualitative level management of socio-economic development and territorial planning in conditions of ensuring a high level of security.

## References

- [1] Markeeva, A. V. 2021. Conceptualizing and Key Development Factors of the Sharing Economy in Contemporary Environment. *Postmodern Openings*, 12(3Sup1), 94-112. <https://doi.org/10.18662/po/12.3Sup1/353>
- [2] Sylkin, O., Buhel, Y., Dombrovska, N., Martusenko, I., & Karaim, M. 2021. The Impact of the Crisis on the Socio-Economic System in a Post-Pandemic Society. *Postmodern Openings*, 12(1), 368-379. <https://doi.org/10.18662/po/12.1/266>
- [3] Sylkin, O., Kryshchanovych, M., Bekh, Y., & Riabeka, O. 2020. Methodology of forming model for assessing the level financial security . *Management Theory and Studies for Rural Business and Infrastructure Development*, 42(3), 391–398. <https://doi.org/10.15544/mts.2020.39> .
- [4] Kryshchanovych M., Dragan I., Chubinska N., Arkhireiska N., Storozhev R. 2022. Personnel Security System in the Context of Public Administration. *IJCSNS International Journal of Computer Science and Network Security*, Vol. 22 No. 1 pp. 248-254 <https://doi.org/10.22937/IJCSNS.2022.22.1.34>
- [5] Chlivickas, E. 2006. Development of the potential of human resources in private and public sectors. *Business: Theory and Practice*, 7(2), 98-107. <https://doi.org/10.3846/btp.2006.12>
- [6] Chromjakova, F. 2017. Process stabilization-key assumption for implementation of Industry 4.0 concept in industrial company. *Journal of Systems Integration*.
- [7] Faller, C., & Feldmüller, D. 2015. Industry 4.0 learning factory for regional SMEs. In *Procedia CIRP*, 32, 88–91. <https://doi.org/10.1016/j.procir.2015.02.117>
- [8] Gasparènie, L., Remeikienė, R., & Schneider, F. G. 2017. Concept, motives and channels of digital shadow economy: consumers' attitude.

- Journal of Business Economics and Management, 18(2), 273-287.  
<https://doi.org/10.3846/16111699.2016.1214620>
- [9] Cardona, M., Kretschmer, T., & Strobel, T. 2013. ICT and productivity: conclusions from the empirical literature. *Information Economics and Policy*, 25(3), 109-125.  
<https://doi.org/10.1016/j.infoecopol.2012.12.002>
- [10] Bolek, V., Kokles, M., Romanová, A., & Zelina, M. 2018. Information literacy of managers: models and factors. *Journal of Business Economics and Management*, 19(5), 722-741.  
<https://doi.org/10.3846/jbem.2018.6906>
- [11] Ceccobelli, M., Gitto, S., & Mancuso, P. 2012. ICT capital and labour productivity growth: A non-parametric analysis of 14 OECD countries. *Telecommunications Policy*, 36(4), 282-292.  
<https://doi.org/10.1016/j.telpol.2011.12.012>
- [12] Cuadrado-Roura, J. R., & Garcia-Tabuenca, A. 2004. ICT policies for SMEs and regional disparities. The Spanish case. *Entrepreneurship & Regional Development*, 16(1), 55-75.  
<https://doi.org/10.1080/0898562042000205036>
- [13] Kılıçaslan, Y., Sickles, R. C., Atay Kayış, A., & Üçdoğruk Gürel, Y. 2017. Impact of ICT on the Productivity of the Firm: Evidence from Turkish Manufacturing. *Journal of Productivity Analysis*, 47(3), 277-289. <https://doi.org/10.1007/s11123-017-0497-3>
- [14] Ruiz-Real, J. L., Uribe-Toril, J., Torres, J. A., & De Pablo, J. 2021. Artificial intelligence in business and economics research: trends and future. *Journal of Business Economics and Management*, 22(1), 98-117.  
<https://doi.org/10.3846/jbem.2020.13641>
- [15] Cavalcante, R., Brasileiro, R. C., Souza, V. L. F., Nobrega, J. P., & Oliveira, A. L. I. 2016. Computational intelligence and financial markets: A survey and future directions. *Expert Systems with Applications*, 55, 194-211.  
<https://doi.org/10.1016/j.eswa.2016.02.006>