

Studies on current digital economic development in Ho Chi Minh City, Vietnam

Nguyen Thi Thu Hien

Industrial University of Ho Chi Minh City
E-mail: nguyenthithuhiendhcntphcm@gmail.com

Received date: 11.01.2025; Accepted date: 15.03.2025;
Publication date: 29.04.2025, doi:10.56334/sei/8.3.24

Abstract

According to the draft, the digital economy is an integral component of the national economy, which is formed based on the use of digital technology and digital data as the main means of production, using the digital environment and digital economy. Digital platform as the main activity space Facing the comprehensive and strong impact of Industry 4.0, determining the importance of digital transformation, Ho Chi Minh City has taken basic steps and prepared to develop the digital economy. The year 2022 and the whole period of 2022 - 2025 will be an acceleration period with specific implementation actions for each industry, each field, and each locality. Digital transformation will help Ho Chi Minh City quickly recover from the COVID-19 pandemic. Therefore, understanding the theoretical and practical issues of digital economic development in the current period in Ho Chi Minh City is one of the urgent issues for the largest economic center of the country. Vietnam. The article with the topic: Digital economy development in Ho Chi Minh City is structured into 3 parts: (1) Digital economy and basic contents; (2) Developing digital economy in Ho Chi Minh City in the current period; (3) Solutions to develop the digital economy in Ho Chi Minh City in the current period.

¹ **CC BY 4.0.** © The Author(s). Publisher: IMCRA. Authors expressly acknowledge the authorship rights of their works and grant the journal the first publication right under the terms of the Creative Commons Attribution License International CC-BY, which allows the published work to be freely distributed to others, provided that the original authors are cited and the work is published in this journal.

Citation. Nguyen Thi Thu Hien. (2025). Studies on current digital economic development in Ho Chi Minh City, Vietnam. *Science, Education and Innovations in the Context of Modern Problems*, 8(3), 429-441. doi: 10.56352/sei/8.3.24. <https://imcra-az.org/archive/358-science-education-and-innovations-in-the-context-of-modern-problems-issue-3-volviii-2025.html>



Keywords: Studies, current digital economic development, Ho Chi Minh City, Vietnam

Introductions

The 13th National Congress of the Communist Party of Vietnam emphasized: "developing the digital economy on the basis of science and technology and innovation" [2,115] and set a goal that by 2025 the digital economy will contribute about 20 % GDP, in 2030 about 30% of GDP in Vietnam. In forecasting the situation in the world and in the region, especially new factors, new and important characteristics will have a great influence on the development of Vietnam's land in the coming years, Industry 4.0 said. In general, the digital economy in particular is always emphasized. The political report of the 13th National Congress of the Communist Party of Vietnam has an assessment: "The Fourth Industrial Revolution, especially digital technology, has developed strongly, creating breakthroughs in many fields, creating both opportunities and challenges for all nations and peoples" [6,106]. In Decision No. 6179/QĐ-UBND dated November 23, 2017 of the People's Committee of Ho Chi Minh City approving the Project "Building Ho Chi Minh City into a smart city in the period 2017-2020, with a vision to 2025", has identified one of the overarching goals in building Ho Chi Minh City into a smart city to "ensure economic growth, towards a knowledge-based and digital economy". Implementing the National Digital Transformation Program, Ho Chi Minh City (HCMC) is the first locality in the country to develop and implement a digital transformation program with a vision to 2030: "Ho Chi Minh City will becoming a smart city with fundamental and comprehensive innovation in the operation of the digital government apparatus, of digital businesses, and the prosperity and civilization of a digital society. The Resolution of the 11th Congress of the Party Committee of Ho Chi Minh City, term 2020-2025 also defines the target of striving for the digital economy to account for 25% of GRDP by 2025 and 40% by 2030. set out the goal: "Key program for business development, innovative start-up and key product development in Ho Chi Minh City", including 13 projects and component programs [3]. Along with determining the vision and goals in their development process in the context of strong integration and development, it is urgent to identify the main solutions to develop the digital economy in Ho Chi Minh City. current period.

Research question

Question 1: What is the basic content of the digital economy?

Question 2: What are the basic contents of digital economic development in Ho Chi Minh City in the current period? What is the problem?

Question 3: What are the solutions to develop the current digital economy in Ho Chi Minh City?

Research purposes

The purpose of the article is to analyze and clarify theoretical and practical issues related to the current digital economy development in Ho Chi Minh City.

Research Methods

- Group of theoretical research methods: using methods of analysis, synthesis, and systematization of theories to identify instrumental concepts and build a theoretical framework for the article.

- Group of practical research methods:

+ Observational method: Observe the current development of the digital economy of Ho Chi Minh City to learn about the problems of the digital economy in Ho Chi Minh City.

+ In-depth interview method: Collect opinions from managers, researchers, to find out about issues of concern as well as solutions to develop the digital economy in Ho Chi Minh City today.

In addition, the article also uses a combination of specific research methods such as deduction and induction, logic and history, comparison and contrast between theory and practice.

Results and Discussion

Digital economy and basics

Digital economy is an economy in which all economic activities are based on a digital foundation, developing the digital economy is using digital technology and digital data to create new business models. In the digital economy, digital technology and digital data are the main driving forces, in which, digital technology is an open infrastructure, a connection intermediary, allowing producers and consumers to interact online with while digital data is likened to the fuel of the digital economy. Digital data is at the core of all digital technologies such as: data analytics, artificial intelligence (AI), blockchain, internet of things (IoT), cloud computing and all services internet based. Therefore, the digital economy is sometimes also called the internet economy, the new economy, and the network economy. In essence, we can see that these are organizational models and operating methods of the economy based on the application of digital technology. We can easily see every day the manifestations of digital technology appearing anywhere in life such as e-commerce sites, online advertising or applications for food, transportation, and delivery. ... also integrates digital technology to meet the convenience needs of customers. But if considered at a more macro level, the digital economy also has significant contributions to the integration of Vietnamese enterprises into the global technology chain and creates great economic values to promote land development. country.

Practice shows that, in order to build and develop a digital economy, economies need to go through basic steps, which are: First, digitization to transform socio-economic information data is being stored, reflected on physical forms into digital format (digital signal), this activity needs to be

organized with the participation of actors in the economy (state, enterprises, people) in all socio-economic fields; Second, to develop and promote the application of digital technology in economic activities, from business and production management activities of enterprises to commercial activities and economic transactions of entities in the region. economy; Third, operate and manage the digital economy (including the promotion of digital economic activities and the State's digital economy management and control activities). In addition, in order to build and develop the digital economy, the State needs to pay attention and synchronize in building a digital economic ecosystem to promote the development of the digital economy, including: institutions, infrastructure numbers and human resource issues.

Digital economy development in Ho Chi Minh City in the current period

Ho Chi Minh City has set a vision to 2030. Ho Chi Minh City will become a smart city with fundamental and comprehensive innovation in the operation of the digital government apparatus, digital businesses, and the prosperity and civilization of the city. a digital society. The overall goal of Ho Chi Minh City's digital transformation is to develop digital government, digital economy, and digital transformation in industries with the spirit of becoming the economic locomotive of the whole country, taking the lead in implementing the growth model. new chief. Developing rapidly and sustainably on the basis of strong research and application of science and technology, the movement of innovation and increasing labor productivity, is the largest creative start-up center in the country, leading in the field of innovation. taking advantage of opportunities of the fourth industrial revolution, strongly developing the digital economy, sharing economy, and circular economy. Encourage and support to form large-scale, strong potential and highly competitive enterprises in the region. The basic goals of Ho Chi Minh City's digital transformation program to 2025 include: 100% of online public services (DVCTT) level 3, 4 popular, related to many people and businesses integrated. to the National Public Service Portal; 100% of transactions on the National Public Service Portal, the Public Service Portal and the Ho Chi Minh City One-Stop Information System are electronically authenticated [7]; 40% of people and businesses participating in the city's e-government system have their e-identifications verified smoothly and unified from the central system; The rate of dossiers settled according to the level 3 and 4 of the total number of dossiers reached 50% or more; 80% of administrative procedures meet the requirements of implementing public services at levels 3 and 4; at least 90%[7] people and businesses are satisfied with the handling of administrative procedures. Along with that, by 2025, 60%[7] information systems of departments, branches, districts related to people and businesses have been put into operation and exploitation to be connected and interconnected. through the Integrated Platform for sharing data, information of people and businesses has been digitized and

stored at the City Data Center without having to provide it again; 90% of work records at the provincial level, 80% of the work records at the district level and 60% of the work records at the commune level are processed in the network environment (excluding job processing records with confidential content.); 80% of periodical reports (excluding confidential content) of state administrative agencies are updated and shared on the City Reporting Information System and connected to the national reporting system, serving effectively. performance management, direction and administration [7]. Deploying and replicating the Information System for meeting and handling government affairs to the People's Committees of provinces and districts; by the end of 2025, strive for 100% of the provincial level and 80% of the district level to conduct meetings through the system at meetings of the People's Committee. The shared data warehouse and open data ecosystem are connected to national databases to serve the development of digital government, the people, and socio-economic development. Ho Chi Minh City's digital transformation program also aims to achieve the goal that by 2025, the city will be in the top 5 localities in terms of e-Government; Digital economy accounts for 25% of GRDP, annual labor productivity increases by at least 7%. Also by 2025, Ho Chi Minh City will be in the group of 3 leading localities in IT (DI), group 3 in competitiveness index (GCI), group 2 in innovation (GII), group 3 in safety and security. network security (GCI); Broadband infrastructure covers over 95% of households and 100% of communes; Universalization of 4G/5G mobile network services and smart mobile phones; The percentage of people and businesses with electronic payment accounts is over 60%[7]. In the newly approved program, the People's Committee of Ho Chi Minh City clearly defined the goals and tasks to carry out the transformation of 10 sectors and fields, including: healthcare, education, transportation, finance - banking, tourism, agriculture, logistics, environment, energy, human resource training.

In addition, the city has issued a program to support small and medium-sized enterprises in innovation, competitiveness improvement and international integration in the period. Accordingly, as of June 2020, the City had 3,142 businesses supported with training on tools for quality productivity management and innovation; 759 enterprises in consulting to improve productivity, quality, and intellectual property management; supported 81 research and development projects, innovated technology, products and supported technology innovation for 15 projects through the investment stimulus program [12]. The city's innovation and start-up support program (Speedup) has selected and supported 40 projects with a total support budget of 25.3 billion VND from the state budget, reciprocal funding from various funds. investment is 10.3 billion [10]. In the first half of 2020, supporting 07 projects, with a total budget of 5.02 billion VND, of which 05 projects have counterpart funds of 2.9 billion VND. In the first half of 2020, the City has directly and indirectly

supported more than 240 projects out of a total of 2,533 supported projects [10]. In addition, the city's digital transformation and digital economy development also has the participation of organizations and individuals. The City Business Association has established a Steering Committee, invited experts to join and established the Executive Board of the Digital Transformation Program. The City Informatics Association is a unit tasked with providing professional advice and advice to businesses in digital transformation and developing annual plans to promote digital transformation in the business community. It can be said that digital transformation in general and the development of the digital economy in particular of Ho Chi Minh City have been implemented with high political determination and achieved many impressive results in recent times. To achieve the above results, first of all, there is the political determination of the whole City; At the same time, it received special support from the Government through the issuance of a series of policies on building e-Government, e-commerce, promoting the sharing economy model, and the National Digital Transformation Program. At the same time, the city has the largest information technology human resource in the country with 80% of people using smartphones; is the leading locality in the country in the development of digital infrastructure, digital platforms and platforms for digital transformation such as integration platforms, data sharing, internet of things, artificial intelligence platforms, and digital platforms. electronic identification...; is one of the leading localities nationwide in building smart cities and implementing digital transformation. Besides, Ho Chi Minh City has the largest number of businesses in the country, businesses have been proactive and ready to participate in the digital transformation program. However, the process of developing the digital economy in the coming time of Ho Chi Minh City also poses many problems to be solved such as:

Firstly, it is required to build and perfect the system of institutions, mechanisms and policies to develop the digital economy;

Second, the governance capacity of the government is difficult to respond when new and non-traditional problems arise in many fields;

Third, identify and promptly issue and adjust mechanisms and policies to support disadvantaged groups in the digital economy development process;

Fourth, challenges in the application of digital technology, artificial intelligence and smart solutions in the digital economy;

Fifth, ensure information security and personal privacy.

Sixth, digital human resource development

Solutions to develop the digital economy in Ho Chi Minh City in the current period

Firstly, exploit and maximize the potentials, strengths and resources to develop the digital economy quickly, effectively and sustainably.

Ho Chi Minh City is the major economic center of the country. The city is a convergence, attracting a large number of human resources - this is the potential and strength of the city. However, the city must have policies to attract, use and adjust these resources to meet the needs of socio-economic development. It is important for the city to come up with concrete measures to increase the productivity of the workforce. To plan and rearrange the city's industry in the direction of prioritizing the development of industries and products with high scientific content, using modern technology to become the spearhead of the city's economy, such as: mechanics manufacturing, electronics - information technology, pharmaceutical chemistry - rubber, refined food - food processing, biotechnology, production of new materials, production of raw materials for industry and beneficial products competitive advantage for domestic consumption and export. The city needs to pay attention to and orient the development of key industrial products, in which special attention is paid to products belonging to clean industries, using high technology, creating great added value, able to compete in the international market. Continue to promote the program to support enterprises to invest in economic restructuring, with priority given to industries, service sectors, industry - construction, and agriculture with comparative advantages, development potential, and development potential products applying advanced science - technology, with high technological content and added value; supporting enterprises to renew equipment and technology, expand production and business scale, improve quality and competitiveness of domestic goods and services to expand domestic and export markets.

Ho Chi Minh City is located in the Southern Key Economic Zone, an area with a particularly important position and role in the socio-economic development of the whole country; is the only region that currently meets all conditions and advantages to develop industry and services, take the lead in the cause of industrialization and modernization of the country; especially developing high-tech industry, electronics industry, informatics, oil and gas industry and petrochemical products; develop high-class services, tourism services, telecommunications services, finance and banking; researching, applying and deploying science and technology, training highly qualified human resources. The level of development of the Southern Key Economic Zone will strongly affect the overall development speed of the whole country in the present as well as in the future. The Southern Key Economic Zone is a territory with many favorable conditions, with the largest economic potential and the most dynamic development in the country, which is actively contributing to the development of the whole southern region. At the same time, there is a system of urban centers and industrial zones in the process of rapid development. The Southern Key Economic Region (SFEZ) needs to be heavily invested in order to become one of the most dynamic economic regions, with faster economic growth than before, and rapid structural transformation.

Compared with other regions in the country, well promote the role of a driving economic zone, creating a spillover effect, helping other provinces develop.

Second, building and developing high-quality human resources and developing a digital ecosystem.

One of the leading factors bringing about the rapid development of countries around the world is the focus on developing high-quality human resources. Currently, Ho Chi Minh City has about 4.5 million employees (the largest in the country), of which 84.8% of the working workers have received vocational training. In particular, the rate of trained workers working in the fields of technology, high-level services and in key industries and services of the City reaches from 85 to 90% [10]. However, compared with the requirements set is still low, therefore, it is necessary to have a breakthrough and long-term strategy in training high-quality human resources in digital knowledge and skills to meet the requirements mission. In addition, it is necessary to have specific policies to attract high-quality human resources in digital technology, especially domestic and foreign digital technology experts in startups, to work in Ho Chi Minh City.

In addition, Ho Chi Minh City needs to pay attention to developing the digital ecosystem as an important pillar in the development of the digital economy. Develop and soon complete mechanisms and policies on the digital ecosystem with all elements such as: digital platform, 5G network, artificial intelligence, internet of things... development of digital infrastructure, digital platform and platforms for digital transformation as well as promoting the application of artificial intelligence and digital technology applications, smart solutions for the management and development of the digital economy. In addition, it is necessary to promote the application of technology and synchronously deploy solutions in the management and exploitation of the City's database system. In addition, the City needs to establish a mechanism to mobilize and promote the role of the business community; urban people; research institutions, universities... in the development of the digital economy. Formulate and implement mechanisms and policies on digital economy development on the basis of consensus between the government and related parties.

Third, carry out administrative reform in association with the goal of building a clean, strong and professional urban government model.

Renovating mechanisms and policies, creating a legal framework, and administrative reform in Ho Chi Minh City is a breakthrough step into the digital economy. The digital economy brings great changes and new perspectives for everyone, and also presents opportunities and challenges for the management system. Economic development and wealth creation increasingly depend mainly on the acquisition, creation, dissemination and use of knowledge and the transformation of knowledge into value. That requires drastic innovation of the management system accordingly. The

government apparatus must become more flexible and adaptable, must be digitalized to innovate, be more productive and efficient, be more responsible to the people, and unleash all the creativity of the people. A government without these characteristics will lose well-educated skilled citizens, entrepreneurs, private capital - the stimulant of innovation and entrepreneurship, as well as the sources of capital. Social reform can promote development. The government apparatus needs to create a supportive environment for businesses and citizens to develop.

The city needs to step up administrative reform on the basis of creatively applying current legal regulations, with a focus on synchronously implementing four areas: administrative procedures; organizing committee; the contingent of cadres - civil servants - public employees and public finance in the direction of modernizing the administrative system, which is streamlined and efficient. Taking publicity and transparency of state regulations and arranging qualified and capable cadres, civil servants and public employees according to job requirements as a breakthrough in administrative reform; concurrently associated with the project on simplifying administrative procedures and applying information technology in state management, gradually improving the quality of online public services and services, applying a quality management system input into administrative activities. The city has deeply reformed the "one-stop shop" mechanism, promoted the decentralization of management for district administrations to improve the initiative, creativity and self-responsibility for management in the area with the requirements and Content varies between central districts, urbanizing districts and districts. Promote personal responsibility, especially the responsibility of the head; improve the quality of cadres at commune and ward levels, in order to gradually form an urban government model.

In order to build an effective urban government apparatus, the city needs to clearly identify three basic issues:

First, how many layers, levels, levels of management, functional departments, and specialized departments does that organization need to operate.

Second, between management levels and between functional parts of the same management level, it is necessary to establish and operate specific relationships to ensure that the apparatus operates smoothly as a whole. There must be clear regulations, complying with certain principles for vertical relationships (which is the relationship between management levels: superiors and subordinates) and horizontal relationships (which are relationships between managers). functional divisions of the same management level.

Third, it is necessary to search and select people with qualities and capabilities suitable for the job requirements to put into the apparatus. Only in this way can the machine operate smoothly, conveniently and efficiently. Therefore, the selection of cadres for the government apparatus is very

important. The state management apparatus is operated by state officials, special attention should be paid to personnel work (evaluating, arranging, using and planning, training, fostering and rotating cadres). In which, focusing on planning, training and fostering 3 types of cadres: political leaders and state managers; science and technology staff; business managers.

Conclusion

After the Covid-19 pandemic, the argument transformation problems that the Vietnamese Government focuses on implementing in 2022 to serve as the foundation and driving force for the development of the digital economy - society for the whole of Vietnam in general, including Ho Chi Minh City in particular, to help businesses, industries and fields recover and develop is a necessary issue. Developing the digital economy, applying science, technology and innovation will be one of the key tasks of Ho Chi Minh City in the next 5 years. The city has a policy of developing high-tech industries instead of traditional, labor-intensive industries as before. The article analyzes and clarifies theoretical and practical issues related to the current development of the digital economy in Ho Chi Minh City, expressed through related contents: basic content; developing the digital economy in Ho Chi Minh City in the current period; Solutions to develop the digital economy in Ho Chi Minh City in the current period. The study also affirms that the Fourth Industrial Revolution has a strong impact on Ho Chi Minh City, creating new opportunities for Ho Chi Minh City to integrate more deeply and effectively into the world economy. Directly into new industrial fields, taking advantage of advanced scientific and technological achievements to speed up the process of industrialization and modernization and narrow the development gap. The exciting development of the digital economy in Ho Chi Minh City promises to bring opportunities for many small, medium and micro enterprises. E-commerce platforms can bring small, medium and micro enterprises to large markets both at home and abroad. When participating in the labor market in the digital economy, workers must innovate to adapt as the skills, knowledge and traditional business methods previously transferred to the digital environment. This will bring more opportunities for businesses and workers in Ho Chi Minh City in the context of integration and development of the City.

With a tradition of dynamism and creativity, the advantages of geographical and economic location, in the coming time, with its specific goals and orientations, Ho Chi Minh City will rise to become an urban center. Smart, continue to maintain the role of the economic locomotive of the whole of Vietnam and realize the aspiration to become the economic and financial center of Asia, an attractive global destination. To turn the above goal into reality, we agree with the view of Associate Professor, Dr. Tran Mai Uoc, Banking University of Ho Chi Minh City when he said: "The city needs to stick to the strategy. Socio-economic development includes four main aspects:

strategic planning, institutional structure building, policy promulgation and implementation, and technology platform development. It is necessary to perform methodically according to the plan, identify the main pillars that need to be prioritized, focus on developing the 3-party cooperation relationship (state - enterprise - scientist) as well as promote the role of the people". The limitation of this study is that it has not analyzed the factors affecting the development of the digital economy in Ho Chi Minh City today.

References

- Bissola, R, Imperatori, B (2018) HRM 4.0: the digital transformation of the HR department. In: Cantoni, F, Mangia, G (eds) Human Resource Management and Digitalization. Abingdon: Routledge, pp. 51-69.
- Communist Party of Vietnam (2021), Document of the 13th National Congress of Deputies, National Program Publishing House, Hanoi, volume 1.
- Digital economy - a "breakthrough" opportunity for Vietnam, <http://hdll.vn/vi/nghien-cuu---trao-doi/Kinh-te-so---co-hoi-but-phacho-viet-nam.html>.
- Digital economy development in Ho Chi Minh City, <https://tcnn.vn/news/detail/51570/Phat-trien-Kinh-te-so-o-Thanh-pho-Ho-Chi-Minh.html> City economic development. Ho Chi Minh City on digital technology platform, <https://bnews.vn/phat-trien-Kinh-te-tp-hcm-tren-nen-tang-cong-nghe-so/194576.html>
- Don Tapscott. The Digital Economy (1995), Promise and Peril in the Age of Networked Intelligence. McGraw-Hill.
- Enterprises "thirsty" human resources 4.0, <https://nld.com.vn/thoi-su/doanh-nghiep-khat-nhan-luc-40-20211002204003503.htm>.
- Hanelt, A, Bohnsack, R, Marz, D, et al. (2018) Same, same, but different!? A systematic review of the literature on digital transformation. In: 78th annual meeting of the academy of management, Chicago, IL, 10-14 August 2018.
- Ho Chi Minh City Party Committee, Political Report of the 11th Ho Chi Minh City Party Congress, term 2020-2025.
- Kirkpatrick, D. L., & Kirkpatrick, J. D. (2010). "Evaluating training programs: The four levels" (3 ed.). USA: Berrett-Koehler Publishers.
- Nguyen Xuan T., Tran Mai U., Nguyen Thi Thanh B. (2025). On the study of high-quality human resources of voice education in the context of industrial revolution 4.0 in Vietnam today: a modern analysis. *Science, Education and Innovations in the Context of Modern Problems*, 8(3), 338-349. doi: 10.56352/sei/8.3.19. <https://imcra-az.org/archive/358-scienceeducation-and->

[innovations-in-the-context-of-modern-problems-issue-3-volviii-2025.html](#)

Stadnicka, D, Deif, A (2019) A gamification approach application to facilitate lean manufacturing knowledge acquisition. *Management and Production Engineering Review* 10(4): 108–122.

The digital economy will account for 25% of HCMC's GRDP by 2025, <https://cafef.vn/Kinh-te-so-se-chiem-25-grdp-cua-tphcm-vao-nam-2025-20200709095709362.chn>

The resilience of entrepreneurship and innovation, <https://www.sggp.org.vn/suc-bat-khoi-nghiep-doi-moi-sang-tao-667548.html>

Tran Mai Uoc (2010), Promoting the development of high-quality human resources for industrialization and modernization in the transition to socialism, Scientific conference "Socio-economic development Association in the Doi Moi Platform", Ho Chi Minh City University of Economics and Communist Magazine.

Tran Mai Uoc (2021), Developing high-quality human resources in the Finance - Banking sector in the industrial revolution 4.0. *Journal of Labor and Trade Union*, ISSN 0866-7578, No. 675.

Tran Mai Uoc (2021), Vietnam's digital economy – The bottlenecks and basic solutions to develop the digital economy in a sustainable way, *Journal of Political Science*, ISSN: 1859-0187, No. 02.

Tsourma, M, Zikos, S, Albanis, G, et al. (2019) Gamification concepts for leveraging knowledge sharing in Industry 4.0. *International Journal of Serious Games* 6(2): 75–87.

Wu, T (2016) *The Attention Merchants: The Epic Scramble to Get Inside Our Heads*. New York: Knopf.

IMCRA - International Meetings and Conferences Research Association
www.imcra-az.org; E-mail (Submission & Contact): editor@imcra-az.org
“Science, Education and Innovations in the context of modern problems” Journal
ISSN (p-e): 2790-0169 / 2790-0177

DOI-10.56334/sei/8.3.24



© 2025 The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license

Share— copy and redistribute the material in any medium or format. Adapt — remix, transform, and build upon the material for any purpose, even commercially. The licensor cannot revoke these freedoms as long as you follow the license terms.

Under the following terms:

Attribution — you must give appropriate credit, provide a link to the license, and indicate if changes were made. You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use. No additional restrictions

You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits.