WEB OF SCIENTIST: INTERNATIONAL SCIENTIFIC RESEARCH JOURNAL
ISSN: 2776-0979, Volume 6, Issue 9, September- 2025

ECONOMIC FOUNDATIONS OF ENTREPRENEURIAL TRANSFORMATION IN THE CONTEXT OF UZBEKISTAN'S DIGITAL MARKET RELATIONS

Rajabov Sirojiddin Mansurovich
Joint-Stock Commercial Bank "Business Development Bank",
Head of the Small Business Support Center Master's Degree
sirojiddin.rajabov1985@gmail.com.

Abstract

In the conditions when new methods and techniques for developing entrepreneurial activity are being developed, and digital technologies have become an integral part of human life, the implementation of profitable economic activity requires a creative economic approach. Technological progress requires new perspectives and ideas in economic knowledge, modern methods of work and knowledge, as well as adaptation to new procedures and systems and development on these foundations. Below, the information will be studied and analyzed in detail, including theoretical and practical aspects developed on the basis of the integration of the modern economy, digital technologies and entrepreneurship. The obtained data and results of the analysis are summarized and conclusions are made regarding the economic foundations for achieving sustainability and efficiency of business entities in the digital economy of Uzbekistan. Specific knowledge is organized in such a way as to explain the essence of economic knowledge that serves to support entrepreneurs.

Keywords: Digital economy, e-government, banking, information, competencies, platform, portal, IT park.

Introduction

International organizations such as the Organisation for Economic Co-operation and Development (OECD), the United Nations Conference on Trade and Development (UNCTAD), the International Telecommunication Union (ITU), the World Bank (WB), the World Economic Forum (WEF), the International Monetary Fund (IMF), the Global System for Mobile Communications Association (GSMA), and the World Trade Organization (WTO) are actively implementing necessary programs within the scope of researching issues related to the digital economy, artificial intelligence, digital taxation, internet governance, digital innovations, digital markets, e-commerce, digital competition, broadband internet, digital transformation, digital literacy, technological inclusion, the Fourth Industrial Revolution, digital technologies and

security, and global technological competition. Moreover, the publication of reports by various structures of these organizations on the implementation and current state of the digital economy across different countries of the world highlights the relevance of these processes and the necessity of further research.

Research institutions such as the Digital Economy Initiative department at the Massachusetts Institute of Technology (MIT, USA), the Center for Technology Innovation at the Brookings Institution, the Stanford Digital Economy Lab, the Oxford Internet Institute (University of Oxford, UK), the Media and Communications Department of the London School of Economics (LSE), the Leibniz Centre for European Economic Research (ZEW, Germany), the Fraunhofer Institute for Systems and Innovation Research, the Center for Science and Technology Development at Tsinghua University (China), the Institute of Industrial Economics under the Chinese Academy of Social Sciences (CASS), the Research Institutes of Sweden (RISE), the Centre for Advanced Research in the Sciences at the National University of Singapore, the Research Institute of Economy, Trade and Industry (RIETI, Japan), and the Russian Presidential Academy of National Economy and Public Administration (RANEPA) are conducting extensive research on the key strategic factors and challenges involved in transitioning to a digital economy.

In recent years, Uzbekistan has placed significant emphasis on aligning its economic development with international market principles. This includes efforts to digitize entrepreneurial activity, elevate it to a modern level, adapt the economy to digitized market relations, and meet the growing need to increase economic growth, efficiency, and transparency within the country. "In the new era, the formation of a digital economy based on digital technologies, including electronic business and e-commerce, has become a prevailing trend. In the world's leading countries, the digital economy accounts for 4–5% of gross domestic product and contributes to over 15% of global trade turnover. Today, the digital economy extends beyond electronic trade and services to encompass sectors such as education and healthcare. Furthermore, the delivery of various public services is increasingly being shifted to e-government platforms"[11]. The aforementioned factors highlight the relevance of the topic and underscore the necessity of conducting a scientific study on the economic foundations for the development of small and medium-sized businesses in our country under the conditions of the digital economy.

Literature Review

As a result of the economic growth following the Second World War, the global economy experienced an increased demand for computing technologies and software. In particular, in the United States, efforts were initiated to consolidate data across all sectors of the country. Large-scale government programs and projects were launched and significantly funded to develop computational mechanisms and systems required for population censuses, preparation of statistical reports, banking transactions and records, insurance accounting, bookkeeping, and office operations. As a result, gradual innovations and transformations were observed in this field, leading to the creation of platforms and software systems that laid the foundation for the digital economy (see Table 1).

1-table. This table was developed based on the analysis of data presented in the following references; [29, 32, 33, 34]

Development period	Software and platform names	Service sector	Comment
The 1951s	**UNIVAC I**	Data preparation and processing	Used by the U.S. Census Bureau for processing economic statistics, this is one of the earliest automation tools for the digital economy.
The 1957s	**SAP (ERP ildizlari)**	Resource allocation and management	The founders of SAP later developed ERP (Enterprise Resource Planning) systems, which are the foundation of today's digital economy.
The 1960s	**COBOL dasturlash tilida yozilgan dasturlar**	Hisob-kitob, bank, buxgalteriya	Banks and insurance companies automated data processing through COBOL-based programs
The 1970s	**Oracle DBMS (1977)**	Database	Served for storing and processing financial, commercial, and government data.
1981	Lotus 1-2-3 (IBM PC uchun)	Spreadsheets and financial accounting	Ofis ishlarida va buxgalteriyada inqilob qildi. Microsoft Excel undan keyin paydo bo‘lgan.

Scientific research focused on the study of the digital economy began in the 1990s, primarily carried out by groups of scholars in Western countries. In particular, American scholar Nicholas Negroponte and Canadian scholar Don Tapscott presented

their views and insights on the concept and essence of the digital economy to the broader public through their scientific publications. Tapscott's theories and perspectives are considered foundational in the formation of the digital economy. In his works, he elaborates on the term "digital economy," discusses its advantages and disadvantages, explores its role in the development of economic relations, and examines its impact on social processes[3].

Numerous foundational contributions to the study and development of the digital economy have also been made in the research of leading global economists such as Manuel Castells, Carl Shapiro, Yochai Benkler, Erik Brynjolfsson, Nick Srnicek, Klaus Schwab and Shoshana Zuboff [9, 2, 14, 4, 12, 7, 13] in their works, digital technologies are not viewed merely as tools, but as transformative forces that fundamentally reshape economic structures, labor relations, and political power. These scholars argue that platforms and networks represent a new economic model; that data and information have become the new form of capital; and that issues of inequality, power, and freedom can be addressed through modern digital means. They further emphasize that digital technologies create new opportunities for managing human capital and give rise to new forms of labor relations and employment. For example, Manuel Castells' theories on the information age society are central to his analysis, in which he argues that the digital economy is formed on the basis of a "network society," leading to the emergence of a new stage of capitalism. According to Castells, this new phase is termed "informational capitalism," where generalized knowledge, communication networks, and information technologies become the primary driving forces of the market. In his conclusions, the main form of wealth in the digital economy is defined as the "flow of information and communication".

In the views of information economy specialist Carl Shapiro, information goods are considered a distinctive product of the digital economy. He emphasizes several advantages of the digital market, such as network effects, low marginal costs, and standardization. Yochai Benkler, author of The Wealth of Networks, advocates for a cooperative digital economy. In his perspective, non-governmental and informal collaborations play a central role in the digital economy. He provides a theoretical foundation for concepts like "voluntary cooperation" and "peer production," arguing that in a digital economy, not only the state and the market, but also broad-based, community-driven information exchange can contribute to sustainable development. Erik Brynjolfsson, a leading expert on digital technologies and changes in the labor market, argues that artificial intelligence, automation, and platform economies will fundamentally transform the labor market. In his view, the digital economy gives rise to new skills and demands in human capital. He explains that while innovation

accelerates economic growth, it also increases the risk of economic inequality. According to his theories, intellectual capacity and digital literacy will become the foundation of future labor. Based on the views and economic conclusions of these scholars, the impact of technologies on the digital economy can be summarized as follows (see Table 2).

2-table. This table was developed based on the analysis of data provided in the following sources; [16, 17, 18, 19, 21, 22, 23, 24, 25, 26]

Type of technology	Brief description	Impact on the digital economy
Cloud computing	Remote access to data and applications via the internet	Reduces costs and increases flexibility
Big Data	Technology for storing, processing, and analyzing very large and complex data sets	**Identifying market trends and analyzing customer behavior**
Artificial Intelligence (AI) and Machine Learning (ML)	Enables independent inference from data and automatic decision-making	Chatbots, automated financial analysis, credit rating
Blockchain	A decentralized, secure, and immutable database	**Financial operations, contracts, cryptocurrencies**
Internet of Things (IoT)	Operation of devices and objects connected to the internet	**Smart manufacturing, logistics, and energy management**
Enterprise Resource Planning	Enterprise Resource Management Systems	Accounting, manufacturing, supply, and human resource management
CRM systems (Customer Relationship Management)	**Customer Relationship Management system**	Analyzing customer needs and increasing sales
Digital payment systems (PayTech)	Electronic payments, mobile banking, online transactions	Accelerates trade and financial transactions
Cybersecurity	Data and system protection	Essential for the stability of digital infrastructure

In the Russian Federation, a group of scholars specializing in the digital economy has emerged. Their ideas and scientific approaches emphasize that digital technologies have become a new driver of economic growth, reduce production costs and increase efficiency through digital systems, alter the demand for digital skills, and lead to the disappearance of traditional professions. They also highlight the necessity of coordinating fiscal policy in the digital economy and propose ways to enhance economic efficiency through e-government and digital services. For example, T.V. Gudkova discusses the transformation of the economy resulting from new technological revolutions [5]. Furthermore, Russian researchers such as N.A. Gvilya, M.B. Leonov, and A.O. Babichov have scientifically substantiated the modern trends

in entrepreneurial activity under digital economy conditions, as well as the theoretical and methodological foundations for adapting to the digital environment [6, 8, 1].

METHODOLOGY

The theoretical foundation of the study is based on the theories of institutional economics, innovation economics, and digital economics. This includes a comprehensive examination of the impact of digital infrastructures and regulations on entrepreneurial activity, the implementation of digital technologies, forms of innovative transformation, and the theoretical basis for the formation of new economic management mechanisms based on digital technologies. The object of the research is the entrepreneurial activity system in Uzbekistan, while the subject is the processes of entrepreneurial transformation and economic efficiency through the implementation of digital technologies. We considered it appropriate to use methodological approaches such as systemic, comprehensive, intersectoral, and historical-comparative analysis. To enrich the content of the article, we employed economic and analytical methods including statistical analysis, SWOT analysis, comparative analysis, and forecasting. The practical basis of the research involved the use of reports from the State Statistics Committee, the Ministry of Economy and Finance, Digital Uzbekistan, and various international organizations

DISCUSSION AND RESULTS

Every country charts its own path of development, inevitably relying on foreign experience and contemporary knowledge. Studying international experience not only helps to understand the essence and content of ongoing reforms but also enables the proper organization of processes. To explore the international experience of transforming entrepreneurial entities into digital market relations, visits and exchanges have been made to countries such as the USA, Germany, Estonia, China, South Korea, UAE, and Singapore. For instance, Uzbek specialists visited Singapore, one of the leading countries in digital government, electronic services, and digital business development, to study the application of projects like “GovTech” and “Smart Nation” across various socio-economic sectors. Germany’s experience in creating digital programs, industrial transformation (Industrie 4.0), and SME digitization was also examined. In the creation and implementation of electronic systems, South Korean experts have played a significant role by providing practical support in technological innovations and the smart economy, as well as in forming skills related to IT Parks, e-government, startup ecosystems, and digital transformation. With the participation of Korean specialists, Uzbekistan-Korea cooperation forums were held

from 2021 to 2023, marking significant practical steps towards the introduction of electronic information systems in Uzbekistan

The formation of the digital economy in our country has taken place in three historical stages, with the initial stage occurring against the backdrop of the improvement of the banking system. Initially, banks established mutual connections based on early forms of electronic systems such as email and specialized communication tools. By 1997, all banks were performing interbank settlements fully in an automated mode, with the periodicity of interbank electronic payments ranging from 3 to 15 minutes. At the beginning of 2000, banks gradually introduced modern electronic services such as plastic cards, mobile banking, and internet banking, enabling the execution of all economic operations and money transfers electronically. This process allowed entrepreneurial entities to conduct their financial activities based on digital systems. The ability to store money, carry out transfers, make payments, and use other banking services turned entrepreneurial entities into participants in the digital economy. The expansion of citizens' and entrepreneurs' participation in digital economic processes began in 2004 with the implementation of the UzCard system, followed later by the Humo cards, which enabled large-scale electronic payments. As a result, market participants came to see the use of digital economic regulations as beneficial and recognized that their application could foster development. Consequently, banks played not the role of intermediaries but that of platforms in the digital economy. Through practical actions, they demonstrated that they are initiators and creators of innovations in the economy, ensuring financial inclusiveness, speed, and security (see Figure 1).

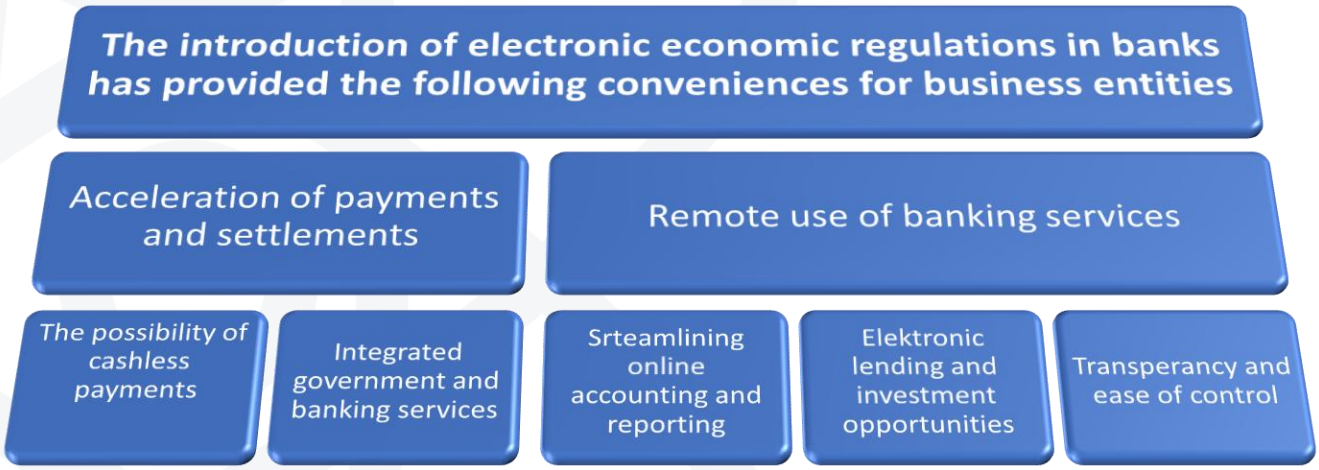

Figure 1. Opportunities of Innovations in the Economic Sphere

As in all countries, in Uzbekistan, economic growth driven by banks, which pioneered digital economic relations, encouraged the government and state bodies to digitalize their activities. This gave impetus to the formation of the second stage — the electronic government system. In digitalized relations, interpersonal communication occurs in electronic form, resulting in the gradual disappearance of subjective aspects of interactions. Bureaucratic barriers, corruption, and the possibility of legal misalignments decrease. The transparency of relations between the state and citizens improves, allowing citizens to increasingly engage in property relations. In 2013, to effectively utilize digitalization and modern management methods, improve interactions between the state and citizens, support entrepreneurship, and bring economic development to a new level, the "Electronic Government" Development Center was established [20]. The Center's activities include the following tasks directly related to the field of digital economy, which we are researching. Specifically, the Center is responsible for developing methodological frameworks for regulating the digital economy, creating favorable conditions to further develop entrepreneurship in e-commerce, developing and implementing digital platforms and electronic management technologies in public administration, forming, maintaining, and improving the national register of e-commerce entities. The execution of these key tasks has laid the groundwork for scientific conclusions and helped systematize practical work aimed at improving digital economic relations in our country.

To implement, improve, and increase the efficiency of the "Electronic Government" system, 23 normative legal documents have been developed. As a result, significant changes have occurred in the field of public services, with more than 400 government services now being provided to citizens. Over 150 of these services are directly related to entrepreneurial activities, helping to resolve problems and remove barriers faced by business entities. Analyzing by sectors and directions, the scope of services provided to entrepreneurs is wider in areas such as business registration, tax and financial services, licensing, and issuing permits

3-Table.

№	Direction	Number of electronic services
1.	Business registration and management	20+
2.	Tax and financial services	30+
3.	Licenses and permits	25+
4.	Foreign economic activity (eksport/import)	15+
5.	Cadastre, property rights	10+
6.	Public procurement and tenders	10+
7.	Labor and migration services	10+
8.	Statistics and reporting submission	10+
9.	**Permits for trade and advertising activities**	5+
10.	Energy, gas, and water supply services	10+

Services for entrepreneurs are mainly provided through the Unified Interactive State Services Portal (my.gov.uz), the Licensing and Permits Portal (license.gov.uz), services for legal entities (fo.buxgalter.uz), tax reporting and payments (soliq.uz / my.soliq.uz), foreign trade activities (customs.uz), and public procurement (tender.mc.uz), and are being carried out through these platforms, portals, and websites. The third stage in the development of the digital economy in Uzbekistan is associated with the widespread adoption of digital marketplaces and trading platforms. During this phase, the majority of the population has gained technical access to participate in the electronic market. According to data from **GSMA Intelligence**, a leading platform providing in-depth statistical information, analysis, forecasts, and strategic reports on the global mobile ecosystem, in 2020 Uzbekistan had **17 million smartphones**, nearly **2 million personal computers**, and around **22 million internet users**. These figures clearly demonstrate that the digital space offers vast opportunities for entrepreneurs, enabling them to **expand their market reach**. A digital economy based on modern technologies provides entrepreneurs with a wide range of benefits, including:

- Reduced marketing and advertising costs,
- The ability to operate continuously (24/7) on trading platforms,
- Lower transaction and sales costs,
- Increased competitiveness of goods and services,
- Enhanced financial transparency and simplified reporting,
- Access to innovative and beneficial solutions,
- Opportunities to attract new customers and business partners.

Another important aspect of the issue is ensuring the stable functioning of the digital economy in the country and adapting entrepreneurs to the digital environment, in which the role of qualified personnel is crucial. As a result of efforts undertaken in the field of the digital economy, Uzbekistan has experienced significant growth in this area. In 2023, the Information and Communication Technologies (ICT) sector contributed 2.1% to the country's GDP. By 2024, the number of companies operating in the ICT sector had reached 10,551. IT Park, which plays a key role in the development of the industry, now hosts more than 2,500 companies. The export of ICT services increased from $140 million in 2022 to $344 million in 2023. However, Uzbekistan still ranks low globally in terms of ICT services export and import, which reflects its limited international competitiveness in this sector [18].

Specifically, evidence indicates that an entrepreneur's use of digital tools in business operations is closely associated with the "information competence" of their employees. However, small and medium-sized enterprises (SMEs) frequently

encounter gaps in digital knowledge, primarily due to the low level of digital literacy among their workforce. The acquisition and use of digital technologies represent the initial steps toward engaging in digital interactions. However, the effective integration of such technologies into business models and operational processes necessitates strategic decision-making [16]. Digitization, digital transformation, adaptation to the digital economy, and the transition to a fully digital economy, culminating in the development of an innovative and knowledge-based economy, constitute the logical progression of digital economic development. In this context, the national economy of Uzbekistan is currently undergoing a transformation toward digital processes.

Conclusion

In conclusion, it is essential to emphasize that the transformation process of entrepreneurial entities in Uzbekistan towards a digital economy is fundamentally dependent on the fulfillment of several key requirements. First and foremost, it is necessary to establish a robust normative and legal framework to ensure the operation of entrepreneurial entities within the digital environment, alongside improving entrepreneurs' legal awareness and culture in this regard. Enhancing transparency in tax and financial reporting, simplifying interactions between the government and entrepreneurs, strengthening competitiveness, and promoting innovation are also crucial.

Thus, Uzbekistan's transition to a fully digital economy necessitates the accelerated implementation of the following processes:

- Improvement of the country's technological infrastructure;
- Increasing digital literacy among the population;
- Achieving higher levels of data protection and digital trust;
- Applying international best practices to address legal and institutional challenges;
- Ensuring equal opportunities for participants in the digital market and digital ecosystem across all regions.

Addressing these priorities will be a critical step towards sustainable and inclusive digital economic development.

References

1. Babichev, A.O. Theoretical and Methodological Justification for the Development of a Digital Innovative Ecosystem of the Regional Economy. Abstract of Dissertation for the Degree of Candidate of Economic Sciences. Kursk, 2024. 27 pages.

2. Carl Shapiro, Hal Varian. Information Rules: A Strategic Guide to the Network Economy. Boston, Massachusetts. Harvard Business School Press. 1998. – X. - 352 pages;
3. Don Tapscott. The Digital Economy: Promise and Peril in the Age of Networked Intelligence. New York. McGraw-Hill. 1995. - 342 page.
4. Erik Brynjolfsson. The second machine age: Work, Progress, and Prosperity in a Time of Brilliant Technologies. New-York. W. W. Norton & Company. 2014. – 336 pages;
5. Gudkova, T.V. Transformation of the Firm in the Conditions of the Digital Economy. Abstract of Doctoral Dissertation for the Degree of Doctor of Economic Sciences. Moscow, 2023. 41 pages.
6. Gviliya, N.A. Digital Transformation of Corporate Logistics in the Context of Sustainable Development. Abstract of Doctoral Dissertation for the Degree of Doctor of Economic Sciences. Saint Petersburg, 2022. 41 pages.
7. Klaus Schwab. The Fourth Industrial Revolution. New York. Crown Business. 2017. – 192 pages;
8. Leonov, M.V. Theory and Methodology of the Formation of Banking Ecosystems under Digitalization. Abstract of Doctoral Dissertation for the Degree of Doctor of Economic Sciences. Kazan, 2023. 51 pages.
9. Manuel Castells. The Rise of the Network Society. Cambridge. Blackwell Publishers. 1996. XVII, - 556 page.
10. Manyika, J. et al. (2011). Big Data: The next frontier for innovation, competition, and productivity. McKinsey Global Institute.
11. Mirziyoyev, Shavkat. The Development Strategy of the New Uzbekistan. Revised Second Edition. – Tashkent: "Uzbekistan" Publishing House, 2022. – p. 174.
12. Nick Srnicek. Platform Capitalism. Cambridge. Polity Press. 2016. – 171-pages.
13. Shoshana Zuboff. The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power "New York. PublicAffairs. 2019. – X. 691-page.
14. Yochai Benkler. The Wealth of Networks: How Social Production Transforms Markets and Freedom. New Haven, Connecticut. Yale University Press. 2006. XII. – 527 pages;
15. Cisco Systems. (2023). Internet of Things Overview. https://www.cisco.com/c/en/us/solutions/inte-rnet-of-things/overview.html;
16. Digital Skills for Private Sector Competitiveness in Uzbekistan, OECD. OECD Publishing, Paris, 2023, p. 15.

17. Information competence is the ability of an information user to search for, analyze, evaluate, process, and effectively utilize information.
18. Ministry of Economy and Finance of the Republic of Uzbekistan, & UNDP. (2025). Uzbekistan's digital economy: The state of digital entrepreneurship and artificial intelligence. Tashkent: Ministry of Economy and Finance of the Republic of Uzbekistan and UNDP, p. 10.
19. NIST. (2018). Framework for Improving Critical Infrastructure Cybersecurity. https://www.nist.gov/cyberframework.
20. Resolution No. 250 of the Cabinet of Ministers of the Republic of Uzbekistan dated September 16, 2013 “On Measures to Organize the Activities of the ‘Electronic Government’ System Development Center and the Information Security Center under the Ministry for the Development of Information Technologies and Communications of the Republic of Uzbekistan.” (https://www.lex.uz/uz/docs/-2237916)
21. Salesforce. (n.d.). What is CRM? https://www.salesforce.com/crm/what-is-crm/;
22. SAP. (n.d.). What is ERP? https://www.sap.com/products/erp/what-is-erp.html;
23. Stanford Institute for Human-Centered AI. (2024). AI Index Report 2024. https://aiindex.stanford.edu/;
24. Uzbekistan’s Digital Economy: The State of Digital Entrepreneurship and Artificial Intelligence. Ministry of Economy and Finance of the Republic of Uzbekistan, UNDP. Tashkent, 2025, p. 10.
25. World Bank. (2022). Digital Financial Services. https://www.worldbank.org/en/topic/financial-inclusion/brief/digital-payments;
26. World Economic Forum. (2016). The future of financial infrastructure: An ambitious look at how blockchain can reshape financial services.
27. https://computerhistory.org/blog/lotus-1-2-3-released/.
28. https://nvlpubs.nist.gov/nistpubs/Legacy/SP/nistspecialpublication800-145.pdf;
29. https://www.ibm.com/docs/en/cobol-zos/6.3?topic=applications-history-cobol.
30. https://www.lex.uz/uz/docs/-2237916.
31. https://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/big-data-the-next-frontier-for-innovation;
32. https://www.oracle.com/corporate/history/.
33. https://www.sap.com/about/company/history.html’;
34. https://www.si.edu/object/univac-i-computer:nmah_334663;
35. https://www3.weforum.org/docs/WEF_Building_Blockchain.pdf.