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## TRANSFORMATION OF THE STRUCTURE OF THE CURRENCY CONTROL SYSTEM IN THE DIGITAL ECONOMY OF AZERBAIJAN

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*Formulation of the problem.* Digital transformation in the banking and financial services sector largely involves a shift towards online and digital services from top-down branch banking, integrating digital systems, customer service platforms, applications and infrastructure. *The purpose of the article* is characterise the transformation of the structure of the currency control system in the digital economy of Azerbaijan. *The subject* of the study is processes of transformation of the currency control system structure in the digital economy of Azerbaijan. *The methodological basis* and information base of the research are current scientific and applied research, statistical information. The article uses a number of methods, including analysis, synthesis, comparison and generalization. *The main hypothesis* of the study was the assumption that the efficiency of economic management and the financial condition of the public sector depend on the quality of budget forecasting and planning, because they are the key to the sustainable development of socio-economic processes. *Presenting main material.* Technologies being implemented include blockchain, artificial intelligence (AI), cloud computing, machine learning, and customer data collection, management and analysis. With increasing adoption of FinTech (innovative technology supporting banking and financial services) disrupting the sector, it is attracting regulatory interest and prompting stricter regulatory standards. *The originality and practical significance of the research.* Systemic reforms of the payment ecosystem not only affect the development of financial markets and the country's economy as a whole, but also ensure safe and efficient payments between business entities. *Conclusions.* Deepening digital transformation in the banking system and expanding the use of innovative payment solutions makes electronic payments an integral part of our daily lives and at the same time increases the competitiveness of the banking system as a whole.

### Key words:

digital transformation, electronic payments, banking system, procedures.

## ТРАНСФОРМАЦІЯ СТРУКТУРИ СИСТЕМИ ВАЛЮТНОГО КОНТРОЛЮ В ЦИФРОВІЙ ЕКОНОМІЦІ АЗЕРБАЙДЖАНУ

*Постановка проблеми.* Цифрова трансформація в секторі банківських і фінансових послуг значною мірою передбачає перехід до онлайн-ових і цифрових послуг від банківських відділень зверху вниз, інтегруючи цифрові системи, платформи обслуговування клієнтів, програми та інфраструктуру. *Метою* статті є характеристика трансформації структури системи валютного контролю в цифровій економіці Азербайджану. *Предметом дослідження* є процеси трансформації структури системи валютного контролю в цифровій економіці Азербайджану. *Методологічною основою та інформаційною базою дослідження* є актуальні наукові та прикладні дослідження, статистична інформація. У статті використано низку методів, зокрема аналізу, синтезу, порівняння та узагальнення. *Основною гіпотезою дослідження* було припущення про те, що ефективність управління економікою та фінансовий стан державного сектора залежать від якості бюджетного прогнозування та планування, оскільки вони є запорукою сталого розвитку соціально-економічних процесів. *Виклад основного матеріалу.* Технології, які впроваджуються, включають блокчейн, штучний інтелект (ШІ), хмарні обчислення, машинне навчання, а також збір, керування та аналіз даних клієнтів. Оскільки FinTech (інноваційна технологія, що підтримує банківські та фінансові послуги) все більше поширюється на розвиток сектору, він привертає увагу регуляторів і спонукає до жорсткіших регуляторних стандартів. *Оригінальність та практична значущість дослідження.* Системні реформи платіжної екосистеми впливають не лише на розвиток фінансових ринків та економіки країни в цілому, а й забезпечують безпечні

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та ефективні розрахунки між суб'єктами господарювання. *Висновки.* Поглиблення цифрової трансформації банківської системи та розширення використання інноваційних платіжних рішень робить електронні платежі невід'ємною частиною нашого повсякденного життя та водночас підвищує конкурентоспроможність банківської системи в цілому.

**Ключові слова:**

цифрова трансформація, електронні платежі, банківська система, процедури.

**Formulation of the problem.** In recent years, positive results have been achieved in Azerbaijan in the area of increasing the volume of electronic payments, stable development of the payment card market, and the use of electronic banking services.

The "Strategic Roadmap for the Development of Financial Services in the Republic of Azerbaijan", approved by Presidential Decree No. 1138 dated December 6, 2016, identifies priority activities that will help strengthen financial inclusion in the country and improve regulatory mechanisms to accelerate digital transformation in the banking system.

In the reporting period of 2020, the total volume of e-commerce transactions in the domestic market amounted to 1.3 billion US dollars.

As of the end of the third quarter of 2020, 27 banks and national postal operators offer internet banking, and 23 banks offer mobile banking services. Compared to the same period last year, the total volume of electronic banking transactions increased by 58% (USD 8.4 billion), and compared to 2018 - by 5.3 times (USD 18.6 billion).

In 2023, 20.8% of retail purchases are expected to be made online. By 2026, this figure is projected to reach 24%. In 2023, the US e-commerce market exceeded \$1.1 trillion in sales.

In June 2020, the Chamber of Financial Markets Control approved new "Rules for opening, maintaining and closing bank accounts" and determined the procedure for remote opening of bank accounts. Legal entities and individuals who are already residents or non-residents of the country can make various payment transactions by opening bank accounts without physically coming to the bank.

In connection with the tightening of conditions for remote identification, new procedures based on international best practices make it possible to increase the volume of permitted transactions on a bank account. To open bank accounts remotely, methods such as authentication in relevant information resources, the use of video and an enhanced electronic signature are used

**Analysis of recent research and publications.** One of the reforms to be carried out in the field of electronic payments is the creation of a unified digital identification system. Depending on the functionality, such a system is formed on the

basis of data from clients served in various areas of the financial sector. The Central Bank is taking steps to create a "Digital Identity System" based on blockchain technology. Currently, a tender has been held and a corresponding working group has been formed. The creation of a "Digital Identification System" will accelerate digital integration into the banking system and introduce new technologies for remote opening of bank accounts.

**The purpose of the article** is characterise the transformation of the structure of the currency control system in the digital economy of Azerbaijan.

**Presentation of the main research material.** The changes also affected the activities of banks in acquiring with business entities as part of combating fraudulent transactions in the field of payment cards. According to the new changes, acquiring banks must identify suspicious transactions made with payment cards and directly from a card account without presenting cards in the service network, and promptly respond if outside interference is detected in the operation of ATMs, POS terminals, etc.

Analysis of various indicators in the payment ecosystem allows us to note the fact that since the beginning of 2019, positive results have been achieved in the area of increasing the volume of electronic payments, the stable development of the payment card market and the use of electronic banking services in the country.

During the first three quarters of 2019, the Real-Time Interbank Settlement System processed 628,000 payment orders totaling \$101.5 billion. The Small Settlement and Clearing System (SMCS) carried out 39.8 million payment transactions worth \$10.9 billion. During the same period in 2017, the volume of payment transactions in AZIPS increased by 39% (\$28.4 billion), and in BCSS by 36.5% (\$2.9 billion).

The economic impact of globalization is growing as the network of connections between countries and companies becomes wider and deeper. As huge swaths of the population in emerging economies become entrenched in the middle class, an increasing share of global business involves cross-border flows. Digital flows of data, information and communication allow ideas and innovations to spread around the world, and they enable companies to pool the best resources and talent to create better products and services.

The currency in circulation is the amount of money issued by monetary authorities minus the currency withdrawn from the economy. The currency in circulation is an important component of a country's money supply.

Along with the issue of cash in Azerbaijan and most countries, control over the circulation of money is one of the functions of the Central Bank. In general, if the control function in our country was carried out by the Central Bank, then the Chamber for Control of Financial Markets, created in 2016, also controls financial institutions from the other side. The Financial Markets Supervisory Authority is responsible for overseeing which institutions? And how does it differ from Central Bank control? The Central Bank determines monetary and exchange rate policy, organizes and controls the circulation of cash, maintains a stable exchange rate of the manat, maintains and manages the gold and foreign exchange reserves at its disposal, and if it is engaged in other monetary activities, insurance, investment funds, credit organizations, The securities market (banking and non-banking credit institutions) and non-cash payment systems are responsible for the activities, regulation, licensing and supervision of the Chamber of Financial Markets Supervision.

Increasing adoption and use of digital payments will lead to a reduction in cash-related costs and operational costs for banks and businesses through transparency in economic cycles, which in turn will expand the tax base as well as access to financial services for households and businesses, and will also strengthen the lending and investment capabilities of the banking sector and will ultimately contribute to economic growth.

The state program has been prepared in order to implement the measures envisaged in the expansion of digital payments and achieve the performance indicators specified in the "Strategic Roadmap for the Development of Telecommunications and Information Technologies in the Republic of Azerbaijan", approved by the Resolution of the President of the Republic of Azerbaijan dated December 6, 2016. No. 1138.

In general, controlling large volumes of cash in circulation is a rather complex process. In addition, a large amount of cash deprives individual business entities of investment and credit opportunities and, ultimately, significantly limits financial intermediation, which is considered one of the main functions of banks. The significant predominance of cash circulation leads to a number of structural problems, including a violation of transparency and financial stability, disorganization of trade operations, etc.

The legal aspect of the activities of processing organizations is regulated by the set of rules of the Central Bank of the Republic of Azerbaijan "Issuing permits to processing organizations and monitoring processing activities." Basically, it includes important rules for carrying out activities, including the reliability of the created system and the rules for its control.

At the macro level, a number of important reforms have been implemented aimed at expanding the scale of non-cash payments in our country, satisfying the needs of the population and facilitating payments through payment systems. The most important of them is the National Payment System (NPS), created by the Central Bank of the Republic of Azerbaijan and combining a complex of developed software.

The mentioned infrastructure consists of two main components: One of them is called AZIPS. Which was created on February 16, 2001. Later, at the end of 2002, the Petty Payments Settlement (PTS) Clearing System was created. As a result of the commissioning of this infrastructure, significant changes occurred in the financial and banking system. Thus, interbank transactions are easily carried out in real time, and the speed of money circulation has increased significantly. In addition, small-volume and regularly recurring payments were made on the basis of electronic media, which was one of the main reasons for the transition of organizations and government bodies that make numerous small payments to the MOS infrastructure.

After talking about the macro level, it should be mentioned that there are payment portals at the micro level and their features. Recently, mobility has been noticeable in online payment systems, which are mainly considered a new technology. Hesab.az (<https://hesab.az/>) is considered the leader in the electronic payment market. If we consider that you can make payments here without registering, we can see that it serves more people than indicated. In addition to Hesab.az, there are other companies offering payment services, such as e-pul.az, epay.az, AzeriCard.com.

One of the main advantages of Hesab.az is that it has been on the market for a long time and has more experience than others. Here, as stated on the site itself, security is at a high level. And regular checks are carried out. The payment system combines more than 100 services.

Analysis of the main publications and studies. Although e-pul.az (<https://www.e-pul.az/epay/az/home>), which is one of the newest payment systems, has recently joined its competitors, it does not lag behind them thanks to the services that it offers. One of the main





advantages of a system that is at a good level mainly in terms of website design and functionality is that it can make frequently recurring payments in a simplified form. This is the main additional convenience offered to users. Security protection is at a normal level.

According to calculations based on data from the Central Bank of Azerbaijan (CBA), the volume of electronic transactions in December 2022 increased by 17.7% compared to November 2021.

In December 2021, the population of Azerbaijan paid 1.076 billion manats in the e-commerce network with bank cards. The previous record was recorded in November 2020 - 914 million manat.

In 2022, the population will spend \$7.208 billion on e-commerce. payments were made in the amount of manats, which is 86% more than in 2021.

Digital currencies should not be confused with electronic copies of cash (such as an online banking account at a retail bank). An online banking account at a retail bank shows the amount, such as US dollars, held in the specified account. In other words, electronic copies of cash are linked to physical currency. On the other hand, digital currency refers to a form of exchange that exists only in digital form and is not associated with any physical currency. The most famous example of a digital currency is Bitcoin. However, today there are many examples of digital currencies at various stages of maturity.

Digital currencies, depending on the underlying technology and how they are managed, can be divided into two types:

- Centralized: Issued and managed centrally by the company within a closed system, and its use is usually strictly controlled and controlled by the company.

- Decentralized (or distributed): not issued by a specific company or organization and uses underlying decentralized technology (DLT) to facilitate transactions.

Therefore, the advantages:

- Anonymity of transactions provided by decentralization.

- The decision to issue privately is not made by a political institution, but by an algorithm to avoid discretionary decisions that could lead to excessive inflation. This will increase transparency (for anyone who can read the algorithm) and predictability of their "monetary policy." But this can also be a disadvantage, since

discretionary decision making allows for flexibility in dealing with shocks.

- A truly global and easily accessible currency that could facilitate global trade by not being tied to a specific jurisdiction.

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Cryptocurrencies This Same digital money, But their do People, using special codes, A Not government. Ethereum (ETH) - It's only natural that the second largest cryptocurrency after Bitcoin would be at the top of this list. The Ethereum software platform was launched in 2015 and trades digital tokens called ether. It uses a proof-of-work mechanism, although it has announced plans to switch to proof-of-stake this year. As of October 2022, Ethereum has a market capitalization of \$287 billion (about 37% of Bitcoin) and is valued at \$3,396.32 per coin.

Ethereum was designed to provide free access to anyone in the world. This is why he supports the development of decentralized applications that operate without third-party interference or fraud. This makes it particularly attractive to people in regions with less developed financial infrastructure, allowing them to access important financial products such as insurance and bank loans.

In this case, the value of Tether is pegged to exactly 1 US dollar (USD). This has the added benefit of allowing holders of other virtual currencies to effectively convert their assets into US dollars without actually leaving the cryptocurrency system. Its user-friendly features are no doubt the reason why it ranks third in terms of market capitalization, which stands at \$68 billion as of October 2022.

Likewise, digital currency is not backed by a physical commodity and does not exist in physical form. It is also not linked to any physical currencies, although digital currencies are often listed on an exchange against other currencies such as the US dollar. Like paper money, its value is determined by the relationship between supply and demand. If we take Bitcoin as an example, the scarcity was caused by limiting the number of Bitcoins that could ever exist to 21 million. However, unlike fiat money, digital currencies are not backed by a government, central authority or legal entity.



Table 1 – Top 10 cryptocurrencies

Top 10 Cryptocurrencies (Besides Bitcoin)	ALTCOIN	MARKET CAP <small>(OCT 20)</small>	TECHNOLOGY	UPSIDE
	 Ethereum (ETH)	\$400,072,363,432	Proof-of-stake	HIGH
	 Litecoin (LTC)	\$11,235,248,276	Open-source network	MID
	 Cardano (ADA)	\$72,977,130,444	Proof-of-stake	HIGH
	 Polkadot (DOT)	\$31,565,385,512	Parallel blockchains	HIGH
	 Bitcoin Cash (BCH)	\$10,415,107,234	Fast Transactions	MID
	 Stellar (XLM)	\$7,506,327,202	Large Transactions	MID
	 Chainlink (LINK)	\$12,366,151,402	Smart Contracts	HIGH
	 Binance Coin (BNB)	\$72,161,477,817	Lower Fees	LOW
	 Tether (USDT)	\$68,031,393,020	Hedge	LOW
	 Monero (XMR)	\$4,604,470,489	Untraceable	HIGH

Source: formed by the author on the basis of [10]

The implementation of the measures provided for by the “Digital Payment Strategy of the Central Bank of the Republic of Azerbaijan for 2021-2023” makes it possible

to create a competitive, innovative and accessible payment environment in the country, ensuring support from the state, business and the interests of citizens.

Table 2 – Expected results for key performance indicators in the Republic of Azerbaijan

Key Performance Indicators	2021	2022	2023
share of cards supporting contactless payments (%)	50	60	70
share of POS terminals supporting contactless payments (%)	67	74	80
share of non-cash turnover on card transactions - (%)	62	66	70
share of non-cash transactions in various trade turnover (by volume, %)	19	21	25
Share of electronic banking in transfers of clients from current accounts (%)	80	85	90

Source: formed by the author on the basis of [10]

According to the recommendations of the SWIFT society, payment system operators should complete the transition to new data formats by the end of 2022, and international financial payments should be carried out in data formats developed according to the ISO20022 standard by 2025.

**Conclusions and prospects for further research.** Taking into account the innovations taking place in the international world, the transition to the ISO20022 standard in the financial sector of Azerbaijan will be ensured in accordance with the prepared action plan. Data formats according to ISO20022 standards will be prepared for use in the infrastructure of the National Payment System, and functionality will be created for the use of these formats in infrastructure components and internal information systems of participants.

While digital money is currently considered to not pose a major risk to financial stability and monetary policy globally, it may cause some problems in the future. For example, digital money could reduce the revenues of central banks from issuing fiat money. At the same time, discussions continue about regulatory research into the use of digital money.

However, digital currency has become a global digital asset and investment product, and also has good development prospects. The main contents are as follows:

1. Become a financial instrument in a specific scenario. Currently, transferring value between different clearing systems on a global scale has the disadvantages of long time and high cost, as well as digital currency. Digital currency can solve this problem as a means of global flow.



2. Become a new type of payment network.
3. Become a broader and more creative innovation development trend. It is mainly used in distributed transactions, smart contracts, Internet of Things and other areas to help these areas develop faster.

In the context of digital currency, banks want to accelerate the implementation of management transformation, in addition to the method of reforming the bank's philosophy, it is also an acceptable way to choose bank restructuring.

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