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ANALYSIS OF E-COMMERCE ACTIVITIES THROUGH THE PROVISION OF REMOTE BANKING SERVICES

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ABSTRACT

In the context of the global digital economy, the rapid growth of e-commerce is creating demand for new formats and instruments in the financial services market. From this perspective, remote banking services (internet banking, mobile banking, electronic payment systems, and digital wallets) have emerged as an integral part of e-commerce activity. These services facilitate the exchange of goods and services in a digital environment, ensure quick settlements and payments, and help reduce transaction costs in the economy.

KEYWORDS

Digital economy; E-commerce; Remote banking services; Information technologies; Mobile banking; Online payments; FinTech integration; Cybersecurity; Data protection; Financial inclusion; Digital infrastructure; API integration; Digital wallets; Fraud monitoring; Cu stomer experience.

Introduction

In today's global economic environment, digital technologies are becoming the primary means of conducting commercial activities. E-commerce — the process of buying and selling goods and services via the internet — is considered one of the fastest-growing sectors in the digital segment of the economy. The stable development of this process is closely linked to the advancement of remote banking services.

Remote banking services provide e-commerce participants with the ability to carry out transactions in real time, connect to international payment systems, perform fast financial operations via mobile devices, and create convenient conditions for customers. For instance, the share of transactions in e-commerce through global payment platforms such as PayPal, Alipay, Apple Pay, Samsung Pay, Stripe, and Payoneer has increased by nearly 70% over the past five years. Similarly, in our country, payment systems such as UzCard, Humo, Click, Payme, Apelsin, and MyUzcard have become key elements of the e-commerce infrastructure.

The experience of developed countries shows that the efficiency of e-commerce is ensured not only by the expansion of online trading platforms but also by the digitalization of financial services. In this process, the role of the banking system is particularly important — because every transaction between e-commerce participants is carried out through a bank. Therefore, in a digital economy, it is of critical importance to deeply integrate banking services with the e-commerce ecosystem, ensure cybersecurity, establish interoperability, and enable data exchange through APIs.

In the Republic of Uzbekistan, large-scale efforts are also being made to strengthen the integration of banking and e-commerce systems within the framework of the "Digital Uzbekistan – 2030" strategy, the Law "On Electronic Commerce," and the Central Bank's program for the development of digital payment infrastructure. Fast execution of online trade operations through remote banking services, digitalization of export-import settlements, and the formation of a digital payment culture among the population are becoming key factors in enhancing the potential of e-commerce in the national economy.

To deliver the cash-out service, the Bank opens a separate E-POS terminal for each External System. During the cash-out process, a special 6-digit one-time password (OTP) is sent to the telephone number (to which SMS service is enabled) of the card from which money is withdrawn. The cash-out transaction is carried out by entering this code into the External System (with the cardholder's consent) and verifying the correctness of the code on the Bank's server. If SMS service is disabled for the card, the cash-out service is prohibited.

We believe that, considering the economic situation, a single cash-out transaction from one card should not exceed 5,000,000 (five million) soms, and the total amount withdrawn in a single day by one card should not exceed 300 times the base calculation amount.

Cash-out services are executed based on mutual accounts and the terms of contracts with partners. For each accounting period, the External Systems and Payment Aggregators must provide an invoice (with commission amounts) and supporting documents showing the performed services.

Lately, in order to improve service quality for individuals and create convenience, providing services via electronic wallets has become widespread.

When a wallet is created, a unique number matching the contract number with the client is automatically assigned and shown in the wallet interface. Use of all wallet features, or application of set limits and restrictions, depends on the status of the wallet.

The electronic wallet operator is a system in the payment industry that offers innovative solutions to customers, helping them pay for goods and services, send and receive money (e.g. Yandex.Money, QIWI, PayPal, WebMoney, etc.). Electronic money are virtual currencies expressed in electronic form, used for all types of payments via the Internet.

The relationships governing the identification and top-up of electronic wallets (service fees, bank service charges, and other terms) are regulated by a contract between the bank and the wallet operator. The bank and the payment aggregator may involve agents under contract for these services.

Identification of the electronic wallet is carried out using the customer's passport data. If additional information is required by the operator's rules or contract, identification is done accordingly. Based on the entered data, the wallet operator verifies the customer. Identification service is provided for a fee. This service fee is determined per the bank's tariff schedule.

Limits on the top-up amount are established in the contract between the bank and the wallet operator, and must comply with the legislation of the Republic of Uzbekistan. During the transfer process, the bank monitors that the transfer amount is within permissible limits; if not, the transaction is not

allowed. To top up the wallet, the operator keeps a deposit in the bank's account in advance. Top-ups may be done in foreign currency; the customer sees the sum in the foreign currency, and the converted amount in national currency is accepted on the day of transfer per the official exchange rate. After top-up, the bank's deposit is reduced accordingly. A commission is charged from the customer per bank tariffs for the top-up service.

To create convenience for students, commercial banks and higher education institutions (HEIs) are implementing several projects, one of which is the universal student card. Some HEIs and commercial banks in our country have already launched this project successfully. The universal student bank card is issued to students of Uzbekistan's HEIs with the following functionalities: International payment bank card; Identification card for the student; Preferential transport card;

Identification card granting access to campus buildings, state libraries, dormitories, and other relevant areas.

The card is issued by the bank under the auspices of the VISA International payment system. The card has NFC functionality, enabling payments via magnetic field induction and validation via validators. Cards are issued based on HEI orders. The HEIs transmit student application data to the bank via information systems. The application contains: full name, gender, passport data (including national identification number), temporary and permanent residence addresses, phone number. After the HEI submits the card order, the bank fetches additional student data from "HEMIS" and "E-Gov" electronic systems: photo, educational level, faculty, etc.

Once all required data are received, the bank's Automated Banking System (ABT) creates a student account and card contract. The bank's processing center then issues the card. If the student loses the card or it becomes invalid, they may request reissuance by visiting a bank branch or via the mobile application. Cards ordered by HEIs are distributed to students in the HEI premises by bank staff; unclaimed cards are returned to the bank. When cards are delivered or presented to students, bank staff verify the student's identity.

In banks, biometric indicators (fingerprint, iris pattern, voice protection, etc.) are considered among the most reliable means of ensuring material responsibility. In banking systems, for opening and closing cash vaults, fingerprint identification has proven itself and is widely used in commercial bank services in our country.

The executing contact blocks of the encryption device are connected via a magnetic-contact sensor between the vault door and the iron-grilled door. The sensor is also connected in parallel to an alarm loop. The bank's cash vault and night safe are separate, each equipped with three distinct layers of security. The three security barriers are separately connected via loops to a three-channel security control device (aggregator), whose output line connects to the technical security point (TSP) and the bank's security room alarm system.

To input biometric data into the system, biometric reading devices are used. Three persons responsible for the vault (branch director, chief accountant, and vault manager) must each have fingerprint samples from all fingers of both hands. These fingerprint samples are entered, with name, position, etc., into a special program. The system allows monitoring the dates and times of vault opening and closing, as well as the identities and positions of the three accountable persons.

Considering changes in personnel (e.g., during leave, illness, travel, etc.), the fingerprint samples of their replacements are also stored in the system, and updated as needed.

The accountable persons must always keep the vault keys so that no one else can use them. When the vault is locked in sequence, the biometric fingerprint of the authorized persons is read in the following order: a) First (the fingerprint) — vault manager; b) Second — chief accountant; c) Third — branch director.

Additionally, each of these persons must input their code (number) into the decryption device. After security guards verify that the vault is locked, they accept it into custody, record its opening/closing, handover, and sign the register. The vault manager contacts the TSP guard via telephone with a special password to hand over the vault, and records this in the custody register as well.

Before opening the vault, the following must occur: a) The guard must verify the integrity of doors and locks (ensure no intrusion attempts); b) The vault manager contacts the TSP guard by phone using a special password to receive acceptance of the vault at the technical security control point, and documents it; c) Each accountable person must enter their decryption code and provide biometric fingerprint data in sequence.

In all cases, the accountable persons must keep the vault keys such that others cannot use them. The vault manager, cash desk cashier, and accountant-controller must all follow similar biometric procedures for opening the vault, including code entry and fingerprint scanning.

Access control and management systems use combinations of token codes, memory codes, and biometric features to identify persons, enable authorized entry to restricted areas, and prevent unauthorized access to bank premises. When vaults are opened or closed, if the fingerprint matches the stored template, a signal (blue or green light) is shown; if not, a red light indicates failure.

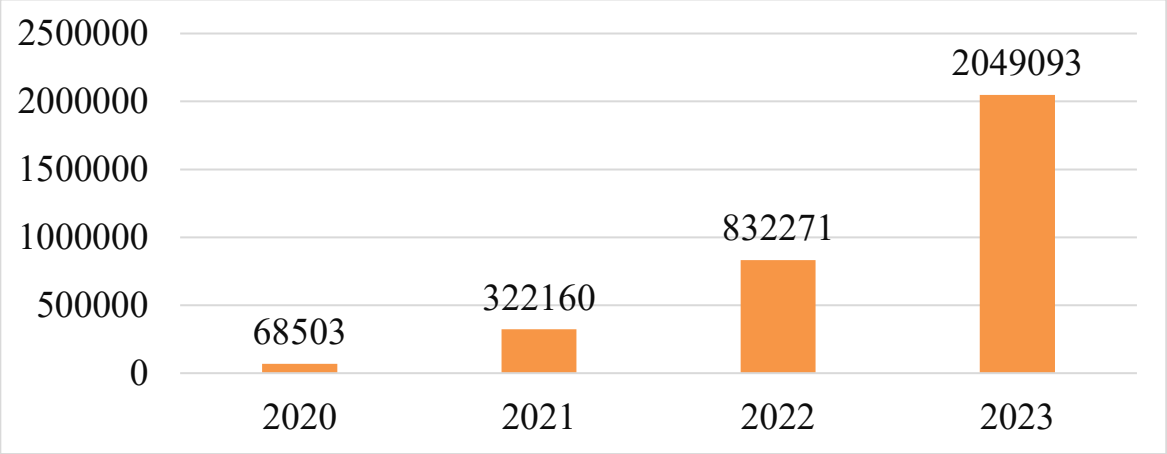

Figure 1. Number of Zoomrad Users

In 2022, the number of users of the “Aloqa Business” mobile application and the “Bank-Client” internet banking software, designed for legal entities and individual entrepreneurs, amounted to 28,192, achieving a 34% increase compared to the previous year.

We analyze the development of digital banking at AT Aloqabank as our research object. The bank has determined its primary strategic goal to digitize all banking services through remote provision. Today, the “ZOOMRAD” mobile application serves individuals, while “Aloqa Business” mobile app and the “Bank-Client” Internet banking system serve corporate customers. As of January 1, 2023, the number of “ZOOMRAD” mobile app users was 831,756, representing a 2.6-fold increase compared to the same period the previous year. As of January 1, 2024, the number of users reached 2,049,093, a 2.5-fold growth year-on-year.

In 2023, the number of users of the "Aloqa Business" mobile application and the "Bank-Client" internet banking software, designed for legal entities and individual entrepreneurs, reached 35,708, reflecting a 28% growth compared to the previous year.

The ZOOMRAD mobile application was integrated with the Ministry of Construction and Housing and Communal Services, making it possible to make online payments to more than 2,000 Homeowners' Associations and management companies. A service to arrange mandatory third-party vehicle insurance was introduced in the ZOOMRAD mobile application. A feature for booking online appointments at Aloqabank service branches was launched via the ZOOMRAD app. A new "Investment" digital service was introduced through integration solutions with the JETT platform in the ZOOMRAD mobile application.

As of January 1, 2023, the number of active users of the "ZOOMRAD" mobile application amounted to 732 thousand, and through the app: Card-to-card money transfers (P2P) totaled 16,923.2 billion UZS, Transactions for other services amounted to 3,410.1 billion UZS. As of January 1, 2024, the number of active users of the "ZOOMRAD" mobile application reached 1,884,457, and through the app: Card-to-card money transfers (P2P) totaled 16,519.34 billion UZS, Transactions for other services amounted to 13,136.83 billion UZS.

Table 1 Information on transactions made via the Zoomrad mobile application (online currency conversion, loan repayments, online deposit placements, deposit withdrawals, one-time payments), in billion UZS

No.	Service name	2022	2023	change	
				billion soums	interest
1	Online conversion operations	418.42	1528.2	1109.78	265.23
2	Credits extinguishing payments	447.13	714.28	267.15	59.75
3	Online deposits formalization	2164.66	9895.17	7730.51	357.12
4	Getting microloans online	157.35	157.35	0	0.00
5	One time payments	222.54	841.83	619.29	278.28
Total		3410.1	13136.8	9726.73	285.23

In order to further develop electronic commerce, and improve and expand the system for remote payments and receipts for individuals and business entities, effective cooperation has been established with all major payment systems (Click, PayMe, Paynet, Paymo, Paysys, Beepul, Upay, Oson Pochta). Additionally, new cooperation agreements have been signed with newly licensed payment service providers authorized by the Central Bank, including Beelab Payment System Platform, Multicard Payment, and DevHub. The number of users of remote banking services has increased 4.4 times over the past five years. In particular, while the number stood at 10.153 million in 2020, it reached 44.0996 million by 2024. In 2020, the number of legal entities using these services was 691 thousand, and by 2024, this number increased to 1.34 million. Likewise, the number of individual users grew 5 times during this period — from 9.463 million in 2020 to 42.76 million in 2024.

Despite the complexity of artificial intelligence (AI) at the early stages, the fact that banks, financial service providers, and the insurance sector have become its most active users clearly demonstrates the numerous benefits of AI. By the end of 2022, AI in the banking, financial services, and insurance (BFSI) sector accounted for 18% of the total market.

According to a report by the International Data Corporation (a corporation that provides knowledge and consulting services on the technology market), global spending on artificial intelligence in 2023 reached USD 166 billion. The banking sector alone accounted for 13% of this amount, making it one of the leading industries. This spending is expected to increase to USD 450 billion by 2027.

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