The key trends in the payment industry

Arlen Moldabekov[1]
Aisulu Idrissova[2]
Nurbolat Karagayev[3]

Abstract

Significant changes are taking place in the payments industry around the world. Active digitalization of all spheres and processes, including the financial and payment markets, the highly dynamic and comprehensive nature of the development of the digitalization sphere leads to the emergence, distribution and development of various innovative methods of making payments. The COVID-19 pandemic also influenced the development of many trends in the payment market and emphasized the importance of the development of remote financial services and services for making fast and convenient payments with the use of modern and innovative solutions and financial instruments.

Digital transformation and development of the financial market, including the payment market, is an integral component of ensuring the global competitiveness of the country's economy as a whole. A financial sector is one of the key industries where digital technologies and innovations are actively used. The very nature of financial services is inextricably linked with the possibility of using IT infrastructure and digital solutions.

Development of a competitive and strong financial sector and improvement of its efficiency require the use of new (advanced) tools and technologies introduced at the international level (implementation of the world's best solutions).

Among the main trends, the following ones can be distinguished at the present moment: large-scale penetration of services for the provision of remote payment services in online mode, the emergence and development of services for making payments and money transfers using mobile devices, payments with the use of QR codes, contactless payments, a new innovative environment, the use of biometric technologies and remote identification, fast (instant) payments, central bank digital currencies, etc.

The analysis presented in this study shows that global trends, the direction of the development of the payment industry, emerging business models for the provision of payment services, new types of payment instruments are relevant for the Kazakhstani market, where the development of a new innovative payment environment is in active process.

[1] Head of Payment Systems Policy Division, Department of Payment Systems
[2] Chief Specialist-Economist, Department of Payment Systems
[3] Chief Specialist-Analyst, Department of Payment Systems

Keywords: payments, payment market, digitalization, trends, fintech, Instant payments, QR code, ecosystem, biometrics, central bank digital currency.

JEL-classification: E42, G2, O3.

Contents

1. **Introduction…… 4**
2. **The key trends in the payment industry 5**
   - **2.1. Fast (Instant) Payments.…… 5**
   - **2.2. Digital ecosystems……..... 6**
   - **2.3. QR code payments……... 8**
   - **2.4. Biometric technologies and digital identification……..... 8**
   - **2.5. Central bank digital currency.……..…… 9**
3. **Analysis of the current state of the payment market in Kazakhstan and the main trends …….…… 11**
   - **3.1. Development of remote/online services ….……... 11**
   - **3.2. QR code, biometrics and contactless payments....…….. 18**
   - **3.3. "Bank- centric" digital ecosystems ……..……... 20**
4. **Conclusion……...……... 21**

Bibliography..... 23

The key trends in the payment industry

1. Introduction

Significant changes are taking place in the payment industry all over the world. New solutions allowing more efficient provision of services with maximum convenience for the consumer emerge. The financial industry is undergoing transformation under the influence of the development of financial technologies: relationships with customers are being revised, new business processes and interaction models appear, and geographical barriers are being erased. Financial institutions strive to provide a differentiated digital service and meet individual customer needs. Digital opportunities open up new ways of working internally and externally with clients ("front" and "back" office).

Historically, the use of innovative technologies in the banking sector has always been quite substantial. In the last 10-15 years, the world has seen even more progress in the development and expansion of new digital solutions in the financial industry. The trend of "smartphones" use leads to a wide distribution of various mobile payment services, not only for making payments, but also for finance management. Digitalization contributes to modernization of financial and payment services, i.e. traditional solutions are combined with new fintech ones.

Banks, non-bank players, regulators create solutions to improve the efficiency of payment infrastructures, processes and services, to meet the needs of customers for automation, integration and fast provision of services. Banks invest their resources to the development of platforms and mobile banking, which expands the range of services provided.

The COVID-19 pandemic has created challenges for the global economy, including the economy of Kazakhstan, and for the financial sector. All sectors of the economy have undergone changes, including the payment market. Forced changes and restructuring of familiar processes have led to the development of payment services in accordance with the needs of customers and the emerging threats of the COVID-19 virus. The pandemic has accelerated many trends in the payments market, having re-emphasized the need for fast, efficient and ubiquitous payments. Due to social distancing the use of contactless payments has increased. Under the conditions of quarantine restrictions, due to timely made decisions and measures taken to develop new methods of providing financial services that would correspond to this period, the share of online payments has increased. According to a study by Visa, 78 percent of global consumers have adjusted the way they pay for goods due to the pandemic [1]. Overall, the pandemic has accelerated the transition to digital payments and a cashless society.

2. The key trends in the payment industry

The digital transformation of financial services is a normal process and is a natural consequence of technological development and a change in behavioral habits of the consumer. Given the intensive development of digitalization around the world, including in the payment industry, experts predict a further increase in cashless payments.

According to the PwC report, it is predicted that the number of cashless payments in the world would increase by more than 80% by 2025 and would amount 1.9 trillion [2]. According to ReportLinker, the digital payments market is projected to grow at a CAGR of 13.7% between 2021 and 2026, driven by increased convenience of making payments, regulatory reforms and changing consumer behavior. Moreover, according to experts, by 2023 the volume of payments in the world made via mobile devices would exceed USD $2 trillion [1].

The development of cashless payments in the new era of payments industry is influenced by new payment methods, services and market participants. The key recent trends include Fast (Instant) Payments, Open Banking, the transition of payment systems to ISO20022, the use of biometric technologies, remote identification and QR codes in payments, and research on the implementation of central bank digital currencies.

The use of electronic money and digital/mobile wallets is also actively growing. According to a study by Capgemini, by 2024 the number of digital wallet users would reach 4 billion people [3]. The total number of transactions with mobile wallets amounted to 102.7 billion in 2020 and, according to forecasts, would reach 2,582.8 billion by 2025 [4].

We also observe the emergence of ecosystems and platform business models that provide services to users within a single environment. Among the market participants that form such ecosystems, one can note the world's IT giants (BigTech), such as Meta, Amazon, Google, Tencent, Alibaba, that offer innovative high-tech products and services to consumers of payment services. Tech companies are putting pressure on the role of traditional banks in the financial sector with a sizable customer base and broad technological capabilities. According to Capgemini World Payments Report 2020, 30% of consumers worldwide use BigTech for payment services [5].

2.1 Fast (Instant) Payments.

Fast (or Instant) Payments have become one of the main trends in recent years in the payment industry. Instant payment systems provide real/near real-time payments and 24/7 operational availability. The advantages of instant payments are

also an increase in money turnover, the development of new, additional services and improvement of financial inclusion. Instant payments are aimed at accelerating retail payments, thereby they represent an alternative to existing card and clearing systems and provide an additional channel to increase the share of cashless payments.

Instant payment systems have already been implemented in 60 countries (e.g. Faster Payments Service in Great Britain, FAST in Singapore, Swish in Sweden , New Payments Platform (NPP) in Australia, Fast Payment System in Russia, Instant Payment System in Belarus, TARGET Instant payment Settlement (TIPS)[4] in the European Union).

The COVID-19 pandemic has also highlighted the growing relevance of instant payment systems. In countries that have implemented such a system, there has been a conspicuous increase in its use. According to ACI Worldwide research, more than 70.3 billion real-time payments were processed worldwide in 2020, which is 41% more than in 2019 [6].

Analysts predict further growth in the use of instant payments. According to Capgemini World Payments Report 2021, the share of instant payments and payments with the use of e-money by 2025 would constitute more than 25% of all cashless transactions in the world, compared to 14.5% in 2020 [7].

The National Bank of the Republic of Kazakhstan, under the Program for the Development of the National Payment System until 2025[5], is also working on the development of the Instant Payments System (IPS). IPS is an interbank system designed to make fast real-time payments with the use of QR code, mobile phone number, etc. with instant money transfer to the recipient. The system was launched in pilot mode in November 2021.

2.2 Digital ecosystems

Digitalization of the financial sector has led to an emergence of global financial ecosystems that cover various aspects of financial services' consumer's life.

Digital ecosystems allow users to receive a wide range of products and services in a single seamless integrated solution. Financial institutions' ecosystems cover a full range of services within a "all-in-one" platform, which in turn increases the interest in financial institutions' services.

The accumulation of a large amount of data allows ecosystems to form a "customer portrait" and ensure the seamlessness of services, as well as improve the

[4] TIPS is a TARGET service for making instant payments on accounts opened with the central bank. The system uses the SEPA Instant Credit Transfer (SCT Inst) scheme.

[5] Approved by the Resolution of the Board of the National Bank of the Republic of Kazakhstan No. 133 dated November 30, 2020

accuracy of targeted offers of various products and their customization to the needs of a particular person (personalized services).

Ecosystems are formed in the global market by:

1) the expansion of services by financial institutions – "bank-centric" ecosystems (e.g. Sberbank and Tinkoff in the Russian Federation, Spanish bank BBVA, the Singaporean bank DBS, Kaspi Bank in Kazakhstan);

2) the expansion of services provided by "Bigtech" companies - technological multifunctional platforms (USA – Google, Meta, Amazon, China - Alibaba, Tencent, Japan - Docomo).

Global technology giants are increasingly expanding their presence in the financial sector and offer payment services, lending, crowdfunding and insurance services (Figure 1). Geographically, the expansion of technology companies into the financial market is more pronounced in developing countries than in advanced economies.

Figure 1.

BigTech services

	Core business	E-wallets	Lending	Payments	Crowdfunding	Insurance
Google	Internet search/advertising	✓		✓		
Apple	Technologies/electronics			✓		
Facebook	Social networks/advertising			✓		
Amazon	E-commerce/ online retail		✓	✓	✓	✓
Alibaba	E-commerce/ online retail	✓	✓	✓	✓	✓
Tencent	Technologies, games, messengers	✓	✓	✓	✓	✓
Baidu	Internet search/advertising	✓	✓	✓	✓	✓

Source: based on BIS report[6].

The success factors for the penetration of "Bigtech" companies are:

- a large amount of data and the ability to manage this data;
- a wide client base and resources, ready-made digital infrastructure for interaction with clients;
- multifunctionality of services.

According to McKinsey forecasts, by 2025 about 30% of corporate income in the world would be generated by digital business ecosystems [8].

[6] *«Big techs in finance: regulatory approaches and policy options»,* FSI Briefs №12 (2021)

Regulatory policy in relation to ecosystems is in process of active formation in many countries. The EU, UK, USA are considering the introduction of special regulation and the establishment of an independent special authority for overseeing digital platforms and ecosystems.

In addition, the authorities in the EU countries, China and Russia are developing regulatory tools for such issues as managing the flow of personal data and development of a common technological infrastructure for ecosystems' organization. Some countries also impose restrictions on the acquisition of non-core assets by ecosystems.

2.3 QR code payments

QR code payments have become popular in recent years, especially in Asian countries. Gradually, this payment method is spreading in Europe and North America.

QR code payments have gained great popularity in China. 95% of all mobile payments in the country are made with the use of QR codes [9]. The number of transactions made with the use of QR codes in China increased 15-fold between 2017 and 2020 [10].

The use of QR codes is gaining momentum in other countries as well. QR code solutions have been launched in Africa, India, Thailand, Malaysia, Singapore, Hong Kong and the US. Visa and Mastercard solutions are widely used.

To create a single and common interaction format for all payment services that use QR codes countries introduce QR code standards. Standardization is being implemented to provide flexibility and convenience for merchants and consumers, interoperability of various QR code services, fraud prevention and secure payment solutions. QR code standards have already been introduced in countries such as Hong Kong, Singapore, Indonesia, Saudi Arabia, Australia, Brazil, Ghana.

2.4 Biometric technologies and digital identification

Payments with the use of biometric technologies are gaining popularity around the world. Juniper Research study shows that the global volume of payments made with the use of biometric data in 2020 reached USD $404 billion [11]. Biometric technologies are actively used due to increased level of security and convenience of payments.

In India, the Aadhaar number, which is a 12-digit identification number for residents and citizens of India, is used to identify a person in all payment systems in the country, as well as in the e-money system (Bharat Interface for Money, BHIM). The number links a resident to his/her demographic and biometric information (fingerprints and iris scan results) kept in a central database.

To expand digital services and increase financial inclusion many countries have introduced remote customer identification systems that use biometric parameters.

In the United Arab Emirates some banks use the Government's facial recognition solution to provide financial services. Verification and authentication of the client is carried out with the use of government databases.

Biometric systems have also been introduced in EAEU. In 2018 the Unified Biometric System was launched in the **Russian Federation** for the purpose of unified identification of users during the provision of remote banking services. An identity in the system is identified through photo image and voice.

As part of the implementation of tasks to create conditions for digital transformation in the banking sector, the National Bank of the Republic of **Belarus** created the Interbank Customer Identification System. The system provides interbank identification and authentication of clients without their physical visit to banks based on information about primary identification in one of the banks of the Republic of Belarus.

In November 2021, the Austrian Financial Market Regulatory Authority (FMA) approved amendments to the regulation of online identification, allowing the use of automatic remote identification of new customers via biometrics. Currently, remote identification is carried out using videoconferencing. For the automatic biometric remote identification process to verify identity the client would need to read the NFC chip from the identity card.

Identification of customers for payments with the use of biometric technologies is also introduced by private companies. For example, Visa in the United States in a pilot project issued payment cards with an embedded biometric sensor for contactless confirmation of payments. In Poland PayEye has introduced a payment solution that uses an iris scan. In 2020 Amazon introduced palm payment technology - Amazon One in Amazon Go stores. Amazon One scanners analyze users' palm and unique vein configuration. In the Russian Federation, glance (face) payment solutions have been launched (e.g., Sber, Visa and X5 Retail Group service at self-service checkouts, VTB Bank and the Moscow Metro travel payment service).

2.5 Central bank digital currency

With an active proliferation of cryptocurrencies and use of blockchain technology, many central banks around the world started to explore the possibility of issuing their own digital currencies (central bank digital currencies - CBDC). A CBDC is a digital representation of a sovereign currency issued by a central bank and is its liability. Mainly for the implementation of national digital currencies the

application of DLT (distributed ledger technology) is being studied. This technology is used to resolve issues related to operational capacity, resilience, settlement finality and confidentiality.

Over the past four years the share of central banks actively involved in CBDCs has grown by a third and as of January 2021 amounted to 86%. Countries are mostly testing digital currency for retail payments, as an additional form of money to cash and cashless forms. Several central banks are in advanced stages of research - experiments and pilot projects.

Regulation authorities cite different reasons for the issuance of CBDC in their research: to increase the efficiency of the payment system, to strengthen financial integrity, to reduce cash-related costs, improve financial inclusion, address potential problems associated with private payment systems such as monopoly, maintain the relevance of the central bank in monetary system and, as a result of the pandemic, ensure the issuance of stimulus payments and increase the resilience of payment systems to shocks.

Generally, digital currencies can provide high transparency of transactions, increase the share of cashless payments, stimulate innovation through the use of "smart contracts".

As a choice for a possible distribution infrastructure, the most preferred one is a two-tier architecture that involves commercial banks. Such model would not cause competition with payment service providers and would not disrupt the existing financial infrastructure.

Currently, **at the most advanced stage of introducing a digital currency is** the **People's Bank of China**. The reasons for issuing digital currency are improvement of financial inclusion and, in the future, development of cross-border payments. As of July 2021, as part of a pilot project, virtual wallets with digital currency were opened by more than 20.8 million individuals in 11 cities and regions of the People's Republic of China [12].

Sweden was one of the first countries to study the introduction of CBDC, due to the steady decline in cash payments in the country. In April 2021 the Central Bank of Sweden completed the first stage of a digital currency (e-krona) pilot project. At the next stage of the project, the bank plans to add real market participants to the network, test offline payments and integration with POS terminals.

The Central Bank of the Russian Federation is also exploring the issue of introducing a national digital currency - the digital ruble. In October 2020 the Bank of Russia released a report for public consultations, which presented possible options and ways to implement the digital ruble, as well as the necessary functional requirements. Based on the results of the public discussion, the Bank of Russia

developed the concept of the digital ruble, which provides for the use of a two-tier retail architecture. In 2022, the regulator plans to test a prototype of the digital ruble platform.

A research on the introduction of a digital currency was also initiated by the European Central Bank in July 2021.

The issue of implementing a central bank digital currency is also being researched in Kazakhstan. In May 2021 the National Bank published a research report for public discussions "Digital tenge". The report covered the issues of the nature of the digital tenge and the potential technology for its implementation, the possible benefits and risks from the introduction of the digital tenge. At present, the first stage of the pilot project has been completed, in which the basic scenarios for the life cycle of the digital tenge were implemented. In 2022 the functionality of the platform will be expanded, the research will also focus on economic, methodological and regulatory aspects of the digital tenge. The decision to introduce the digital tenge will be made based on the results of a comprehensive study.

3. Analysis of the current state of the payment market in Kazakhstan and the main trends

The main trends in the payment market of Kazakhstan are currently:

1. Digitization of financial and payment services, provision of services remotely via the Internet and mobile banking;
2. Development of new innovative payment services (QR-code, biometrics, contactless payments, payments with the use of mobile number, etc.);
3. Development of "bank-centric" digital ecosystems with functions of fintech companies (ecosystems, marketplaces).

3.1 Development of remote/online services

The most significant trend in recent years in the financial industry has been the **provision of online services through the Internet and mobile applications**. Financial services' provision is transitioning to remote channels (online/mobile banking). The use of financial technologies is changing the principles of customer service. By introducing innovative technologies banks are moving from physical customer service to remote.

Banks and Kazpost JSC conducted 4.9 billion transactions with the use of payment instruments (payment instructions, payment requests, checks, payment order, collection orders, payment notices, payment cards) in the amount of 467.7 trillion KZT for the period of 9 months of 2021.

The most common payment instrument in Kazakhstan in terms of number of payments is payment cards (the share is 95%), in terms of volume of payments - payment instructions (the share is 84%) (Tables 1 and 2). The high share of payment cards in terms of quantity is associated with the use of this payment instrument mainly for payments and money transfers for small amounts, namely, it is used by the population for retail payments and money transfers.

At the same time, payment instructions prevail in terms of payment volumes, which is associated with the use of this instrument for payments and money transfers between bank accounts.

Checks, due to their specifics and the transition of the population to more convenient and innovative methods of making payments and money transfers, are the least used payment instrument in the market

Among all payment instruments payment cards show the largest growth in usage. The number and volume of payments with the use of payment cards over the past 3 years (*for the period of 9 months of 2021 compared to the same period in 2019*) increased by 4.3 times and 3.1 times, respectively.

Table 1.

Payment instruments
The number of payments (in thousand units)

Payment instruments	2019	2020	9m. 2021	Share	Growth (2019 - 9m.2021)
Payment instructions	242 196.5	271 443.3	210 696.8	4%	-13%
Payment requests	1,598.0	1,109.5	1,113.0	0%	-30%
Checks	1.7	1.3	1.0	0%	-39%
Payment order	46,592.5	29,928.0	24,564.8	1%	-47%
Collection orders	960.8	1475.6	1445.3	0%	50%
Payment cards	1,571,455.1	3,174,351.3	4,594,807.3	**95%**	**+192%**
Payment notice	36,441.3	32,510.3	19,498.2	0%	-46%

Source: NBK.

Table 2.

Payment instruments
Volume of payments (billion KZT)

Payment instruments	2019	2020	9m. 2021	Share	Growth (2019 - 9m.2021)
Payment instructions	419 807.7	408 597.9	394 708	**84%**	-6%
Payment requests	30.8	34	34.8	0%	13%
Checks	7.4	6.7	2.7	0%	-64%

Payment order	5,183.6	7580.1	6492.7	1%	25%
Collection orders	184.4	182.3	144.1	0%	-22%
Payment cards	30,375.4	51,915.3	65,144.1	14%	**114%**
Payment notice	1477.7	1455.7	1 199	0%	-19%

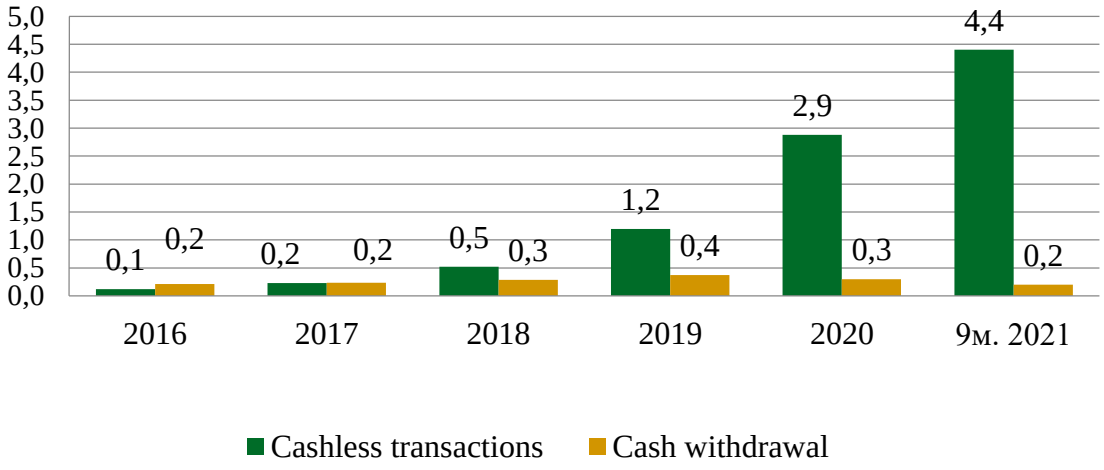
Source: NBK.

Tables 1 and 2 show the dynamics of the use of payment cards in Kazakhstan over the past 5 years. Over the past five years the volume of cashless payments with the use of payment cards in Kazakhstan has grown by 22 times, from 1.5 trillion KZT in 2016 - up to 35.3 trillion KZT in 2020 (Figure 3). At the same time for the period of 9 months of 2021 there were transactions in the amount of 50.2 trillion KZT carried out.

Figure 2.

Dynamics of payment cards use

The number of transactions, in billion units

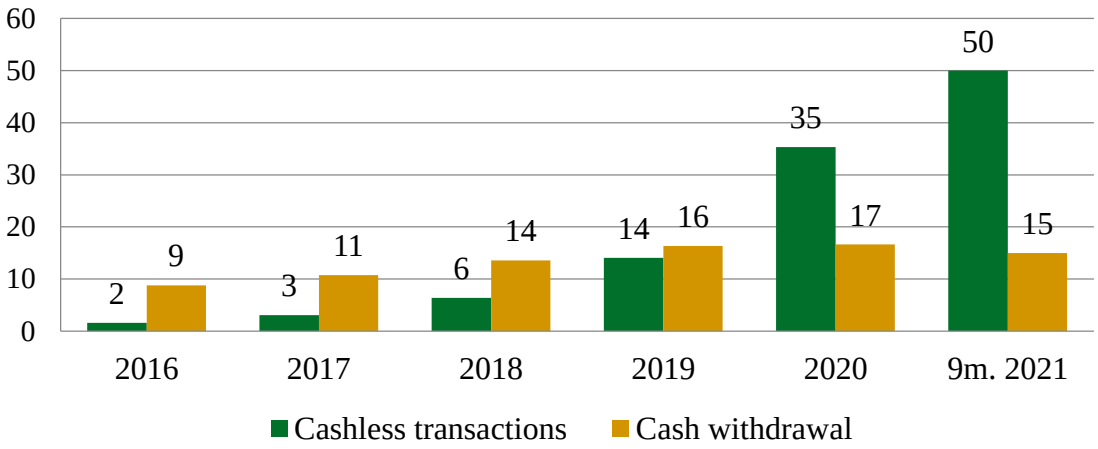


Source: NBK.

Figure 3.

Dynamics of payment cards use

The volume of transactions, trillion KZT.



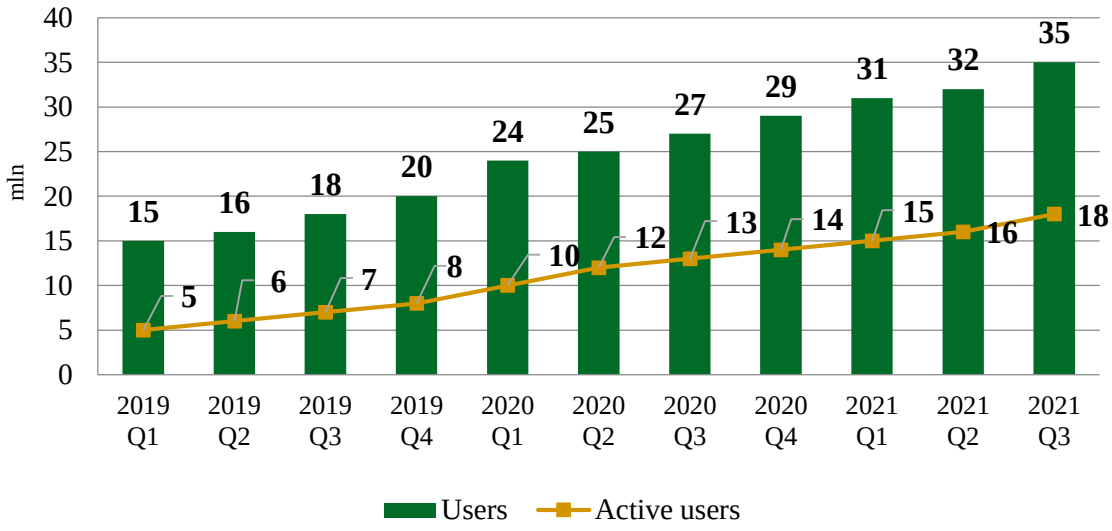
Source: NBK.

The share of cashless payments in the total volume of retail trade in 2020 amounted to 57%, having increased by 40.1 percentage points since 2016. This is due to the development of the infrastructure of cashless payments and the high availability of payment services. The conditions of quarantine restrictions also affected the growth of cashless payments.

The segment of Internet and mobile operations shows stable growth from month to month, there has been recorded an increase of 46% in banks' online channels usage due to restrictions on physical contact over the period of 2020. Compared to 2018, the number of Internet/mobile banking users increased by 2.2 times, the number of active users rose by 2.8 times (Figure 4).

Figure 4.

Internet/mobile banking users

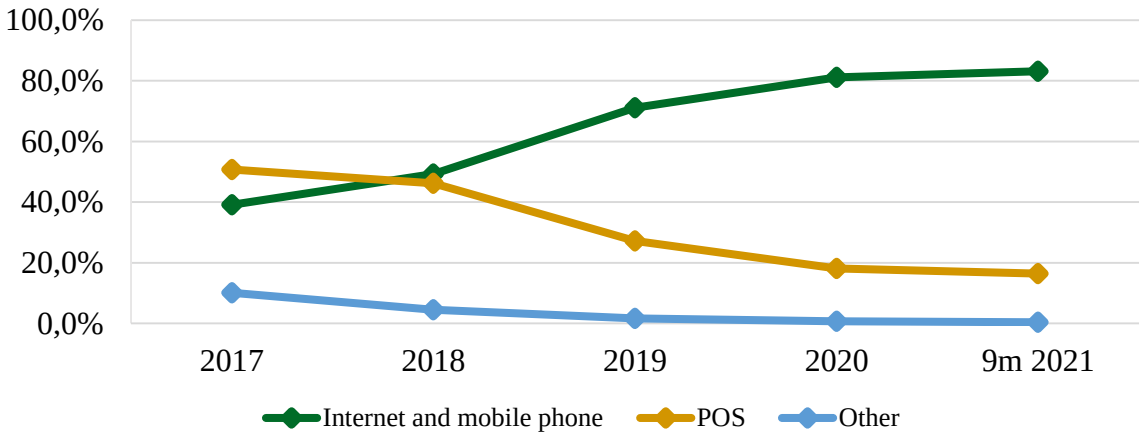


Source: NBK.

Over the past 5 years the number of payments made via online channels has grown by 55 times (from 31.1 million transactions to 1.72 billion transactions). The development of the online payment method has led to the disappearance of payment methods such as payment through a bank kiosk and imprinter. With the development of payment through online channels, the overall share of payments through POS-terminals has decreased (Figures 5 and 6).

Figure 5.

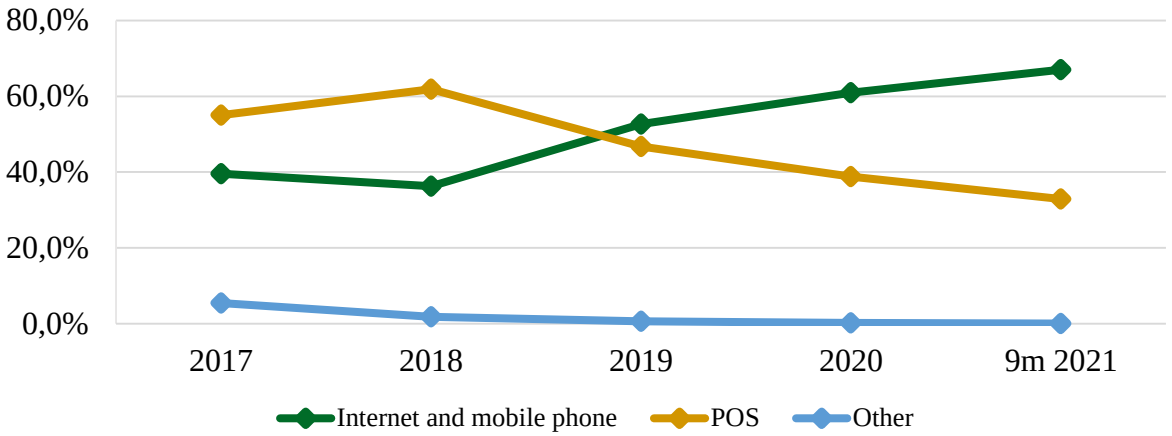
Payment methods in total volume of cashess transactions



Source: NBK.

Figure 6.

Payment methods in total number of cashless transactions



Source: NBK.

These results became possible, among other things, due to the rapid reorientation by banks of their business processes towards strengthening information technology capabilities, expanding the line of digital services through mobile applications. The digitalization of financial services has led to the development of electronic commerce, cashless payments and new payment services.

Payment services in the market of Kazakhstan are also provided by **non-bank companies -** payment organizations**.** The Law of the Republic of Kazakhstan "On Payments and Payment Systems" introduced regulation of payment organizations. Payment organizations carry out their activities after registration in the National Bank of the Republic of Kazakhstan.

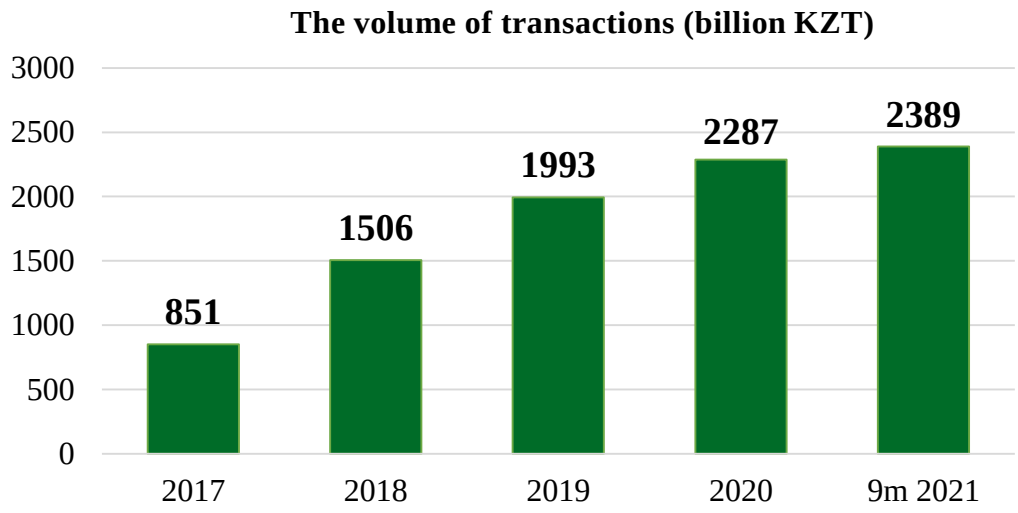
Payment organizations provide the following types of payment services:

- acceptance of cash payments without opening a bank account;
- e-money services: processing of e-money transactions;
- processing of transactions initiated electronically via the Internet and mobile application.

As of September 1, 2021, 81 payment organizations are registered in Kazakhstan.

There were transactions in the amount of 2.3 trillion KZT conducted via payment organizations in 2020, every third transaction was carried out online. The volume of transactions carried out through payment organizations in the first 9 months of 2021 exceeded the volume of transactions in 2020 and amounted to 2.4 trillion KZT (Figure 7).

Figure 7.

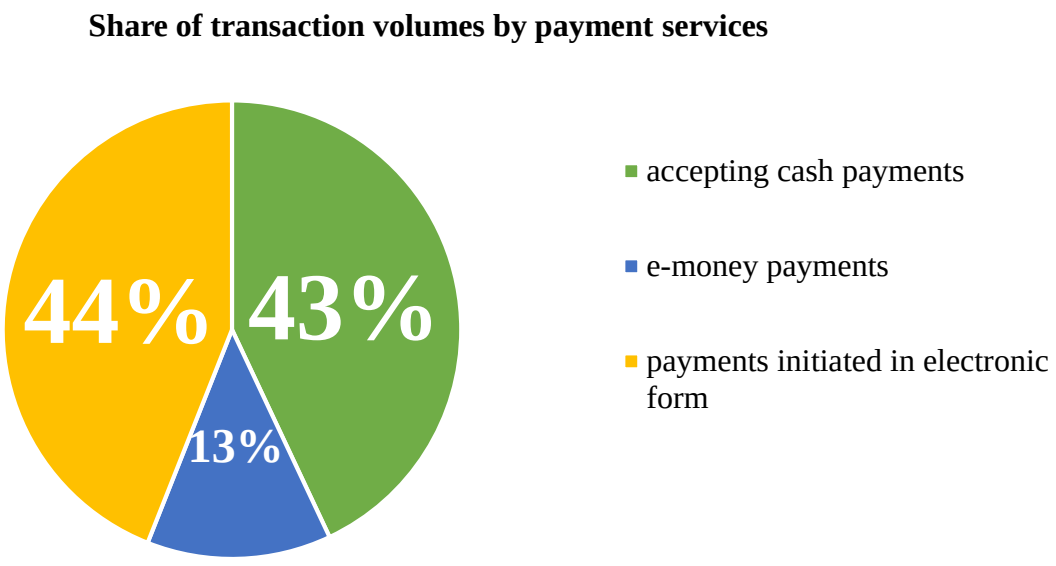


Source: NBK.

Over the past 5 years - from 2017 to 9 months of 2021 the volume of transactions conducted via payment organizations increased by 2.8 times.

The key trend in payment organizations' services is the growth in electronic payments. According to the results for the period of 9 months of 2021, payment organizations conducted the largest volume of transactions through the service of processing payments initiated in electronic form (Figure 8).

Figure 8.



Source: NBK.

3.2 QR code, biometrics and contactless payments

Currently, all basic payment services, including opening a bank account, issuing a payment card, money transfers, are available remotely and online.

Availability of remote financial services was enhanced by the launch of a remote biometric customer identification system in a pilot mode by the National Bank on April 1, 2020.

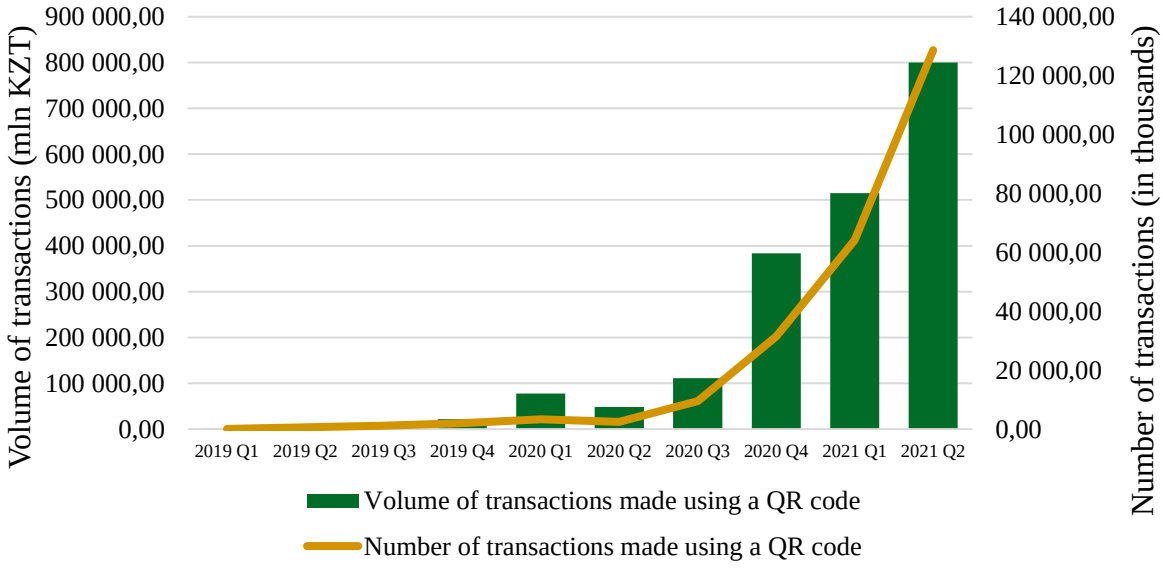
The launch allowed banks to open accounts remotely for crediting social benefits during the pandemic. The service was launched fully in October 2020. The mechanism allows customers of banks and other financial/payment organizations to receive financial services remotely using available devices, regardless of geographic location. Client identification is carried out on the basis of his/her biometric parameters (face recognition). Since the start of the service more than 9.8 million requests for customer identification have been processed. In January-September 2021 3,584 thousand financial transactions were carried out, on average, 512 thousand transactions were carried out per month.

Besides, citizens make payments by **scanning QR codes**, which contain information about the recipient of money.

In the first half of 2021192.8 million transactions with the use of QR code in the amount of 1.3 trillion KZT were carried out, which is 26.4% of all cashless payments made online (Internet and mobile phone) with the use of payment cards (Figure 9). The number and volume of QR code payments increased by 33 times and 10 times, respectively, compared to the same period in 2020.

Figure 9.

Dynamics of QR code payments



Source: based on commercial banks' data.

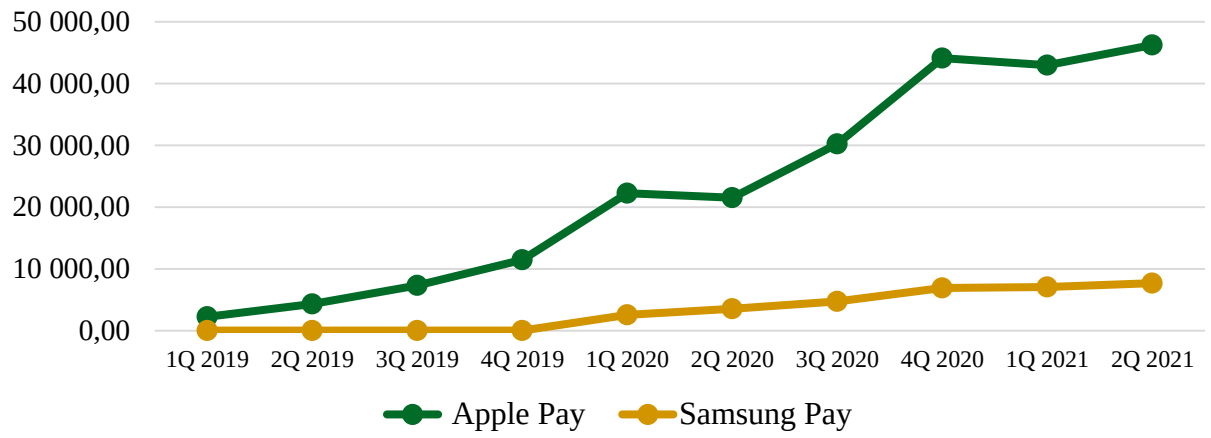
In order to unify the QR code formats used by various financial organizations on August 13, 2021, the authorized state body of the Republic of Kazakhstan approved QR code standard, which is for the use by business entities to receive payments ("СТ РК" 3712-2021) (order "№.297-НК")

Consumers also actively make contactless payments with the use of a mobile phone or smart watch (Apple Pay and Samsung Pay services).

Figures 10 and 11 show the volume and number of transactions made via Apple Pay and Samsung Pay from January 2019 to June 2021.

Figure 10.

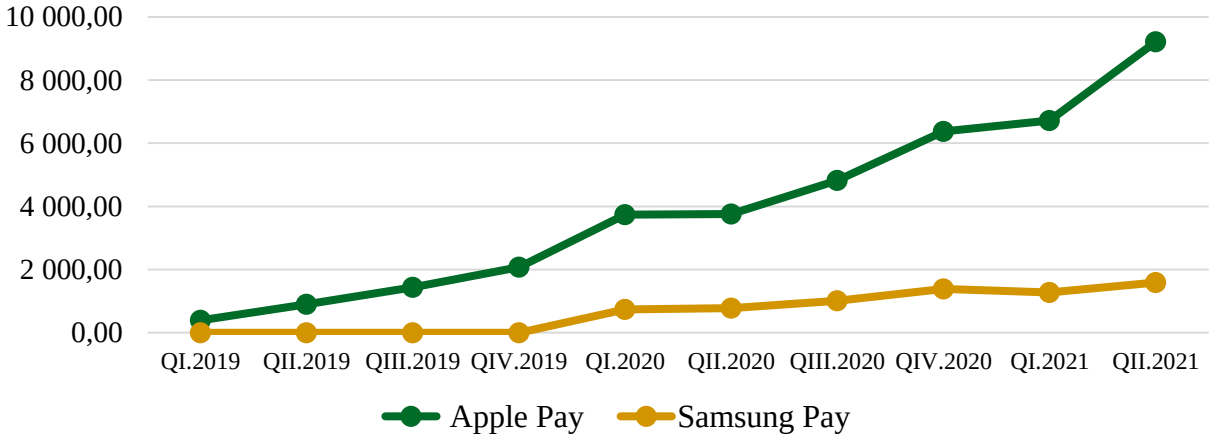
The volume of Apple Pay and Samsung Pay transactions (in mln KZT)



Источник: based on commercial banks' data.

Figure 11.

The number of Apple Pay and Samsung Pay transactions



Источник: based on commercial banks' data.

In the first half of 2021 the population made 18.8 million transactions via Apple Pay and Samsung Pay in the amount of 104 billion KZT, of which 85.8% in number and 84.7% in volume were made via Apple Pay.

3.3. “Bank- centric” digital ecosystems

In recent years banks have been reengineering their financial and payment services towards more innovation. Banks prefer not to open new branches, instead they concentrate on digital methods of providing services (a new banking model) with the use of mobile applications and other modern technologies.

The leading players in the financial market are banks and non-bank financial organizations that are able to implement “fintech” solutions in their services by creating new and developing financial services provided (digital banks). Digital banks and platforms that provide a full range of financial services (financial ecosystems) through mobile and Internet applications are fully running in the market today.

Banks provide various types of services in ecosystems, including those not related to traditional banking activities, i.e. build their products to satisfy all the basic needs of a client.

Financial organizations in Kazakhstan implement non-traditional services through the development of their platforms and the creation of large closed ecosystems. To ensure the functioning of a full-fledged ecosystem, individual banks have carried out work to redirect their own business towards development as fintech companies. The main motive for switching to this business model is, first of all, their complementarity with the core business and, due to this, an improvement in the quality of customer experience, seamless service provision, an increase in the time spent by the client within the ecosystem, reduced need of the client to leave the ecosystem and an increase in business margins. Equally important is the acquisition of transactional data about the client - enrichment of client data for scoring targeted offers in ecosystem, which further strengthens the position of platforms.

For instance, there is Kaspi.kz platform. It provides a marketplace, payment infrastructure, consumer lending, services for buying/selling tickets, i.e. provides a wide range of financial and non-financial services.

Halyk Bank of Kazakhstan is also developing its own ecosystem: a marketplace, Buy Now Pay Later, auto insurance, investment solutions, etc. have been launched. Similar platforms are built by other players (First Heartland Jusan Bank, ForteBank).

The emergence of such financial institutions with a closed ecosystem in the market has both advantages and disadvantages for the development of the financial system. This is due to the fact that banks develop and provide payment services within their closed ecosystems, mainly with the use of card technologies.

Understanding and recognizing all the undeniable advantages for the consumer provided by the services of such closed ecosystems, it should be noted

that the unregulated development of ecosystems already today creates significant arbitrage with other business models, challenges the competitive environment, makes a merchant dependent on rules and tariffs of ecosystems, binds a consumer and often determines his consumption pattern.

4. Conclusion

The payment sector around the world is transforming towards active digitalization and the development of cashless payments. Innovative electronic and instant payments such as QR code payments, payments by mobile phone number are expanding on the global scene, the role of BigTech and FinTech companies and of global digital ecosystems is increasing.

A new generation of digital products (mobile and virtual wallets, contactless technologies, chat bots, online platforms and other digital applications) has emerged. Biometric technologies which provide access to financial services with the use of a client's biometric data (fingerprints, voice and face recognition) and so significantly increase the reliability and security of customer identification are in active use too. Besides, one of the most significant recent trends is the issue of implementing a CBDC.

Global trends in payment industry are also relevant for Kazakhstan. Kazakhstani banks also actively implement technological innovations and are switching to a digital form of customer relationship. The local payment market has achieved serious results and successes (e.g. in the development of Internet and mobile banking, QR code payments). Over the past 5 years, the number of payments made in online environment in Kazakhstan has grown by 55 times. At the end of 2020, the use of online banking channels increased by 46%. In the first half of 2021, compared to the same period in 2020, the number of QR code payments increased by 33 times. Digital ecosystems and banks' marketplaces which provide both financial and non-financial services are also actively developing in the country.

Remote biometric client identification system allows to increase the availability and reduce the time and cost of financial services for the population. Under thorough research is also the issue of implementing a digital tenge.

The Program for the Development of the National Payment System adopted by the National Bank in 2020 depicts the further development of the payment market, including the development of a modified instant payment system that ensures real-time payments and money transfers, and national switching and clearing system for card transactions.

Thus, the development of a new innovative ecosystem of payment market is actively underway. The current level of the local market's digital maturity

demonstrates all the necessary prerequisites for the further successful and rapid development of the payment market.

It is assumed that over the next few years, financial technologies in the world will advance with the use of artificial intelligence, machine learning, and big data analytics. Separate banking services can be fully automated and provided based on the analysis and processing of data, consumer behavior of customers, without the participation of personnel.

Bibliography:

1. Financier Worldwide (May 2021). *Cashless society: the future of digital payments.* https://www.financierworldwide.com/cashless-society-the-future-of-digital-payments#.YR9B3Khxfs0

2. Abalakin T. (2021, Sept 24). PwC прогнозирует трехкратный рост безналичных операций к 2030 году. *Frank RG.* https://frankrg.com/51950

3. Fintech Magazine (2021). *Going cashless: Are banknotes in danger of extinction?* https://fintechmagazine.com/digital-payments/going-cashless-are-banknotes-danger-extinction

4. ACI Worldwide (2021). *Prime Time for Real-time*.

5. Capgemini (2020). *World Payments Report 2020.*

6. ACI Worldwide (2021). *Global Real-Time Payments Transactions Surge by 41 Percent in 2020 as COVID-19 Pandemic Accelerates Shift to Digital Payments - New ACI Worldwide Research Reveals*. https://investor.aciworldwide.com/news-releases/news-release-details/global-real-time-payments-transactions-surge-41-percent-2020

7. Capgemini (2021). *World Payments Report 2021.*

8. Makarova, Y. (2021). Что такое бизнес-экосистемы и зачем они нужны. *RBC*. https://trends.rbc.ru/trends/innovation/6087e5899a7947ed35fdbbf3

9. PYMNTS (2021). *QR Codes Are Making Touchless Payments A Reality.* https://www.pymnts.com/digital-payments/2021/qr-codes-making-touchless-payments-a-reality/

10. Xiao, J. (2021, April 26). QR codes: What the West can learn from the East when it comes to payments. *AltFi*. https://www.altfi.com/article/7836_qr-codes-what-west-can-learn-from-east-when-it-comes-to-payment

11. Juniper Research (2021). *Biometrics to secure over $3 trillion in mobile payments by 2025; driven by shift to app-based mcommerce*. https://www.juniperresearch.com/press/biometrics-to-secure-over-3-trillion-in-mobile.

12. Bloomberg (2021). *China's Digital Yuan Trial Reaches $5.3 Billion in Transactions.* https://www.bloomberg.com/news/articles/2021-07-16/china-s-digital-yuan-trial-reaches-5-3-billion-in-transactions