



DEVELOPMENT OF ELECTRONIC BANKING IN SERBIA DURING THE COVID-19 PANDEMIC

Milena Nikolić^{1*},
Miloš Stojanović²,
Kristina Bojić³

¹Singidunum University,
Belgrade, Serbia

²Metropolitan University,
Belgrade, Serbia

³PhD candidate,
Singidunum University,
Belgrade, Serbia

Abstract:

Contemporary business environment is characterized by rapid changes, hyper-competition, globalization of business and an increasingly fast development of IT technologies. Monitoring and adapting to these changes, along with the continuous introduction of business innovation in the 21st century is the prerequisite for the survival and development of banks in the financial market. In response to these changes, banks have expanded their offer to include and develop electronic banking. The COVID-19 pandemic has shown the significance of electronic banking when it is necessary to reduce visits to bank branches due to isolation and avoiding threats to people's health. The development of electronic banking in Serbia during the COVID-19 pandemic is analysed in this paper, with the aim to determine whether the COVID-19 pandemic has affected the development of electronic banking in Serbia and to highlight the possibilities for further development of this type of banking in the country.

Keywords:

electronic banking services, electronic channels, financial market, COVID-19, Serbia.

1. INTRODUCTION

A bank, as a financial institution, represents a very important segment of society. That is why it is of crucial importance that it monitors and oversees all changes both in the internal, as well as external environment. The development of technology affects changes in business processes. The obligation of the banking sector is to listen to the market and to create new services, based on the information it collects, that will meet the needs of contemporary clients.

Contemporary clients are characterised by a fast lifestyle and lack of free time. This is why they need simple and fast access to bank products and services from all locations and at all times (Chaimaa et al., 2021). Today, electronic banking provides such possibilities, which offers an automatized delivery of services to clients through electronic channels of communication (Radenković et al., 2015), (Božić-Miljković et al., 2019). The following channels are most frequently used for the distribution of electronic bank services: home banking, internet banking, mobile banking, paying cards, e-money, POS (Point of Sales) and ATMs (Automated Teller Machine) (Hadžić, 2021).

Electronic banking as a new distribution channel of banking services enables the bank to quickly adapt to market changes and to completely fulfil the needs of contemporary clients, without having to be physically present in the bank's branch, without having to do any paperwork and with minimum spent time and money saved. Despite the numerous advantages of electronic banking, distrust of clients and insufficient IT literacy have restrained its development (Andreou & Anyfantaki, 2021), (Sa et al., 2022).

Correspondence:
Milena Nikolić

e-mail:
milena.nikolic@singidunum.ac.rs



The quick spreading of COVID-19 globally affected a large number of countries that introduced measures to protect people's health – a state of emergency and physical isolation of people, which implied limited movement, certain social distancing, home office, etc. Nikolić et al., (2021) which created the conditions for people to overcome the existing obstacles and to start using the services of electronic banking. Retail banks that mainly conducted their business and provided their services to clients in branches during COVID-19 switched to electronic banking (Global Data Financial, 2021).

The Global Findex 2021 survey showed that 64% of adults globally (84% of account owners) were involved in at least one electronic payment. Most adults do this in high-income economies 95% (98% account owners), while in, 57% of adults do that (80% account owners) (Demircuc-Kunt et al., 2022). Furthermore, economies with low- and middle-level income (not including China), more than 40% of adults make electronic payments in shops or online, by payment cards, by telephone or the internet, first since the pandemic began, and more than a third of adults in economies with middle-income pay utility bills electronically directly from their accounts (World Bank). In the euro area, the number of ATMs decreased by 4.2% in 2021, while the number of POS terminals increased by 9.8%. The total number of non-cash transactions for all forms of payments increased by 12.5% (European Central Bank, 2022). In the United Kingdom, during the COVID-19 pandemic, 8,500 branches and their businesses were organized through online banking (Global Data Financial, 2021). Electronic (digital) banking, which is realized through the internet or mobile phones, has become an important way of conducting transactions in the retail sector (Bhasin & Rejesh, 2021).

For years banks in the Republic of Serbia have operated electronically and they have offered new, digitalized services to their clients – checking their account balance, monitoring debts in the form of loans and credits, currency change, performing financial transactions locally and abroad, applying online for loans without having to go to the bank (Banca Intesa A.D. Beograd), (OTP Banka Srbija A.D. Novi Sad), (UniCredit Bank Srbija A.D. Beograd), (Raiffeisen Bank A.D. Beograd), (Erste Bank A.D. Novi Sad), (Eurobank Direktna A.D. Beograd) and (Procredit Bank A.D. Beograd). However, according to the World Bank research (2022) citizens in Serbia are still not using services of electronic banking sufficiently. This paper analyses whether the COVID-19 pandemic has affected the use of electronic banking services in Serbia in order to determine the effects of this pandemic on the development of electronic banking and to identify the possibilities for stimulating its development in the future.

The paper is divided into a few parts. Following the introduction, the second part provides a literature review. The third part describes the methodology of empirical research. The fourth part presents results and discussion, and the final part represents the conclusion.

2. LITERATURE REVIEW

The importance of digitalizing banking services for their survival and competitiveness in contemporary business conditions has been discussed in numerous studies. The outbreak of the COVID-19 pandemic increased the importance of digitalization and the use of electronic banking conditions, according to papers on this topic during the past few years.

Saka et al. (2022) investigated whether exposure to the COVID-19 pandemic affected the change of financial technologies used in a large number of countries. They combined data from the Gallup World Polls and Global Findex surveys in their research, covering about 250,000 individuals in 140 countries along with information on the incidence of epidemics and local 3G internet infrastructure and they used the linear probability model with difference-in-differences. They found that the pandemic affected the increase in remote access to banking services (an increase in transactions performed via online and mobile banking) and a decrease in those performed in branches. Al-Hayri et al. (2022) analyzed the development of electronic banking during the COVID-19 pandemic in Oman. Linear regression and t-test were used to analyze data obtained from a survey that included 200 bank clients in Oman. The research results showed that electronic banking services were used more frequently during the period of the COVID-19 pandemic, and they also showed that clients' willingness to accept these services depended on the perception of how easy they were for use, uncertainty, easier conditions and self-efficacy. In their research, Gani et al. (2022) examined the impact of the perceived usefulness, reliability of the banking system and the COVID-19 pandemic on the effectiveness of digital banking in Malaysia, using the technology acceptance model for analyzing data obtained from the survey, based on 228 customers of ABC Bank. The perceived usefulness and reliability of the banking system proved to be significant for the efficiency of digital banking, while the impact of the COVID-19 pandemic was not determined. Bekiris (2022) analyzed the impact of electronic banking on customer satisfaction in Greece during the COVID-19 period based on the data obtained from questionnaires/surveys of 237 Greek customers using correlation and regression analysis. According to the results of this research, the technology of e-banking and ease of use of e-banking services, as well as their costs, their adoption and their future purposes proved to be statistically significant for the satisfaction of bank clients.



Hag and Awan (2022) investigated the impact of e-banking services on e-loyalty during the pandemic in three systemically important banks in Pakistan. In order to collect data, they used questionnaires sent by e-mail and text messages, as well as the database of a local marketing company in Pakistan. Data collected from 976 respondents were analyzed using structured equation modeling. In their research, the authors found that website reliability and website design increase loyalty in e-banking. Stefanović et al. (2021) investigated the cross-section of digitalization and sustainability in banking and its effect on bank performance on a sample of 25 banks in Serbia, in the period from 2011 to 2022. The research results showed that banks oriented towards digitalization and sustainability were profitable even during the COVID-19 pandemic and that digital inability in banking needs to be included in the bank strategy in the post-covid period.

The importance of digitalizing banking services for their survival and competitiveness in contemporary business conditions has been discussed in numerous studies (Olmo et al., 2021), (Tinashe & Kelvin, 2016), (Krstić & Tešić, 2016) and (Dragišić, 2019). The outbreak of the COVID-19 pandemic increased the importance of digitalization and the use of electronic banking services, instead of paper or manual banking services. Saka et al. (2022) investigated whether exposure to the COVID-19 pandemic affected the change of financial technologies used in a large number of countries. They combined data from the Gallup World Polls and Global Findex surveys in their research, covering about 250,000 individuals in 140 countries along with information on the incidence of epidemics and local 3G internet infrastructure and they used the linear probability model with difference-in-differences. They found that the pandemic affected the increase in remote access to banking services (an increase in transactions performed via online and mobile banking) and a decrease in those performed in branches. Al-Hayri et al. (2022) analyzed the development of electronic banking during the COVID-19 pandemic in Oman. Linear regression and t-test were used to analyze data obtained from a survey that included 200 bank clients in Oman. The research results showed that electronic banking services were used more frequently during the period of the COVID-19 pandemic, and they also showed that clients' willingness to accept these services depended on the perception of how easy they were for use, uncertainty, easier conditions and self-efficacy.

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3. METHODOLOGY

The analysis of the growth and evolution of electronic banking in Serbia was conducted using quarterly data on the acceptance network¹ of electronic services, the number of users according to terms of the type of certain payment services and payment transactions number and value for the transfer of funds that were made using cards and e-money², as well as the number and value of the purchase of goods and services transactions through the internet using cards and e-money.

With the intent of determining the development of electronic banking during the COVID-19 pandemic, data from nine quarters of the pre-pandemic period and nine quarters from the period after the onset of the pandemic were analysed.

1 The acceptance network is a network that includes acceptance devices (ATMs, POS terminals, electronic money terminals) and virtual points of sale in the Republic of Serbia, where the payment service provider provides the service of accepting payment instruments.

2 Electronic money represents "specific monetary information that is transmitted by means of electronic impulses in real time between transactors performing payments" (Kovačević & Đurović, 2014, p. 34). Users can receive this money after making a payment of funds using a card, through account transfer or direct payment (NBS).



As the COVID-19 pandemic in Serbia became apparent at the end of March in 2020, the pre-pandemic period includes data from the first quarter in 2018 until the first quarter in 2020. The period after the outbreak of the pandemic includes data from the second quarter in 2020 to the second quarter in 2022.

The development of the acceptance network was conducted using the comparison method for the period from 2010 to 2021 and for the period from 2018 to 2022. The comparison method was used for analysing data on the number of users according to the type of payment services, after the changes in the number of users for each service in the period before and after COVID-19 was identified. The same method was applied in the analysis of the payment transactions number and value for the transfer of funds that were made using cards and e-money, as well as the number and value of payment transactions for the purchase of goods and services through the internet that were made using cards and e-money, but the comparison of these indicators was made on the basis of the total number of transactions and their value in pre and post COVID-19 pandemic period.

Two hypotheses were tested in the paper:

H1: The increase in the use of electronic channels for the distribution of banking services and products in Serbia was affected by the COVID-19 pandemic;

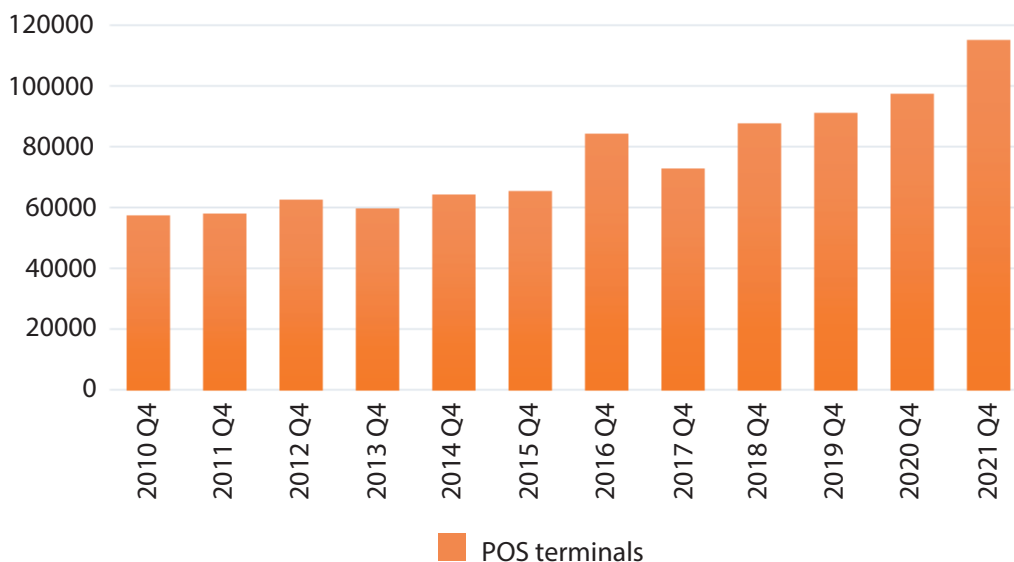
H2: During the COVID-19 pandemic, bank clients recognized the advantages of using electronic channels for the distribution of bank services.

Descriptive statistics and comparison methods were used for testing the hypotheses. Secondary data of the National Bank of Serbia (NBS) were used in the analysis. These data were processed in Microsoft Excel and SPSS.

4. RESULTS AND DISCUSSION

By observing the movement of the number of devices in the acceptance network and virtual points of sale in the period from 2010 to 2021 in Serbia, a trend of their increase can be noticed (Figure 1) (Figure 3). While the number of ATMs was relatively stable with occasional decreases and increases in the number of ATM devices, the number of POS terminals generally increased, with the increase being more pronounced during the COVID-19 period (Figure 2) (Figure 4).

Figure 1. Acceptance network - POS terminals during the period from 2010 to 2021



Source: Author's presentation using NBS data(NBS, 2010-2015) (NBS, 2016-2022)



Figure 2. Acceptance network - POS terminals before and after COVID-19

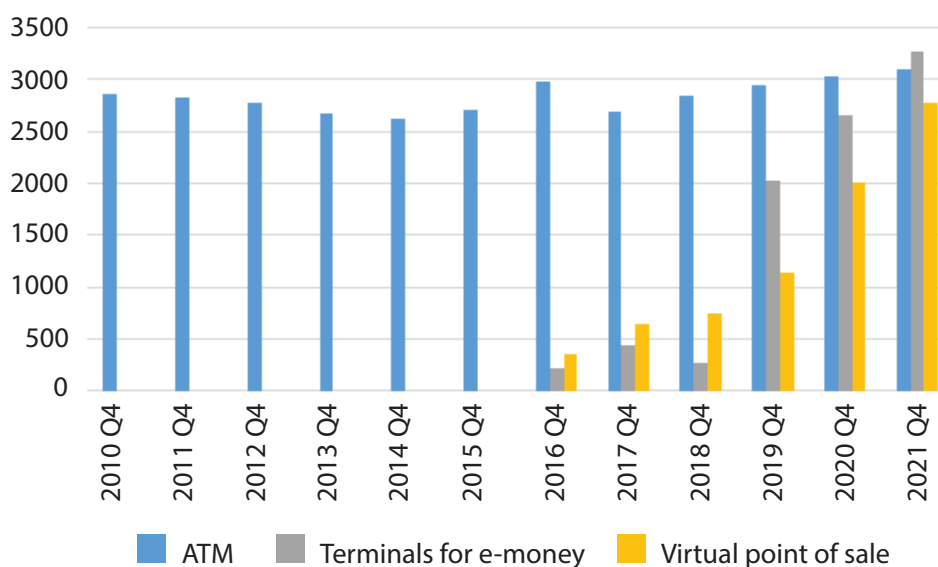


Source: Author’s presentation using NBS data(NBS, 2016-2022)

During the period from 2010 to 2021, an increase in the number of terminals for e-money and the number of virtual points of sale, especially during the pandemic when both indicators reached their highest values so far.

However, the increase in the number of e-money terminals was higher in the pre-COVID period, while the increase in the number of virtual points of sale was more pronounced during the COVID-19 period.

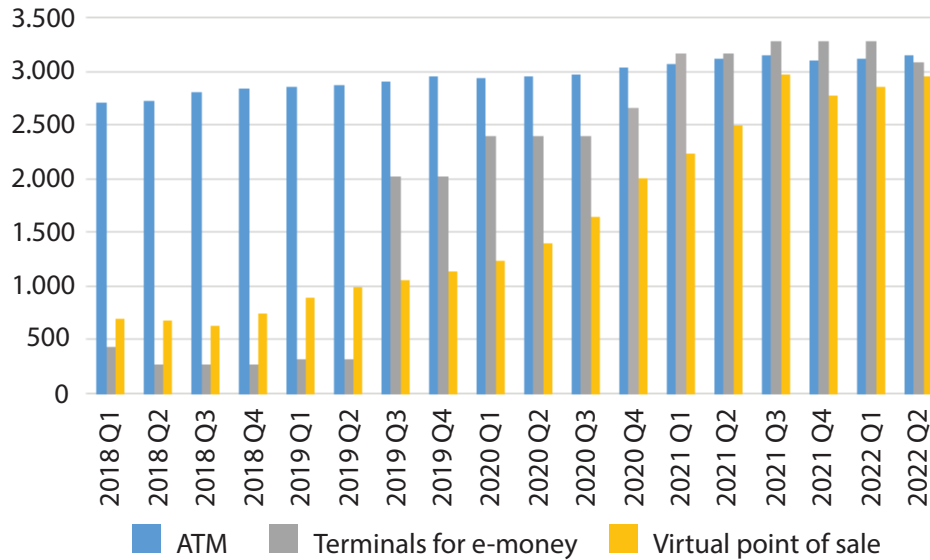
Figure 3. Acceptance network without POS terminals in the period from 2010 to 2021



Source: Author’s presentation using NBS data(NBS, 2010-2015) (NBS, 2016-2022)



Figure 4. Acceptance network without POS terminals in the period before and after COVID-19



Source: Author’s presentation using NBS data(NBS, 2016-2022)

The trend of increasing the number of users according to all types of payment services (except e-money) from 2018 to 2020 is obvious (Table 1). The greatest increase in the number of users of payment services both in the pre-COVID-19 and in the COVID-19 period was noted in current account, mobile, online and telephone payments.

The largest increase among electronic channels in the COVID-19 period was found in the number of users of mobile payment services, which clearly shows that this electronic banking channel is of crucial importance for the development and acceptance of electronic banking services in Serbia in the future. The number of users using e-money in Serbia was reduced in comparison with the time since the outbreak of COVID-19.

Table 1. Number of users by type of payment service

Type of payment service	Pre-pandemic	Post-pandemic
	Number	Number
Current account	302652	605363
Other payment account	10089	651912
E-money account	10059	-4846
Telephone payment	66982	107302
Online payment	796161	831715
Mobile payment	570738	1460174

Source: Author’s calculation using NBS data (NBS, 2018-2022a)

The increasingly frequent use of electronic banking services during the COVID-19 pandemic is confirmed by data on the number and value of transactions related to the transfer of funds and the purchase of goods and services over the internet, using a card or e-money. The number of fund transfer transactions using cards and e-money during COVID-19 increased by 48.83%, while the number of purchase of goods and services transactions

via the internet using cards or e-money in RSD, Euros and dollars increased by 290.50%, 59.91% and 67.49%, respectively (Table 2).

**Table 2.** Transactions number by type of payment transactions

Type of payment transactions	Transactions number		
	Pre-pandemic	Post-pandemic	%
Payment transactions of funds transfer using cards	519399277	773031894	48.83
Payment transactions of the purchase of goods and services via the internet using cards and e-money (RSD, million)	12417066	48488196	290.50
Payment transactions of the purchase of goods and services via the internet using cards and e-money (EUR)	6529017	10440275	59.91
Payment transactions of the purchase of goods and services via the internet using cards and e-money (USD)	4984254	8348116	67.49

Source: Author's calculation using NBS data(NBS, 2018-2022b) (NBS, 2018-2022c)

An increase in the number of these transactions was accompanied by an increase in their value. When compared to the period before the COVID-19 pandemic, the value of funds transfers transactions using cards and e-money increased by 59.98%.

The value of the purchase of goods and services transactions via the internet using cards and e-money in RSD, Euros and dollars increased by 261.85%,67.61% and 86.48%, respectively (Table 3).

Table 3. Transactions value by type of payment transactions

Type of payment transactions	Transactions value		
	Pre-pandemic	Post-pandemic	%
Payment transactions of funds transfer using cards	928645	1485647	59.98
Payment transactions of the purchase of goods and services via the internet using cards and e-money (RSD, million)	32734217948	118450122049	261.85
Payment transactions of the purchase of goods and services via the internet using cards and e-money (EUR)	280663492	470407994	67.61
Payment transactions of the purchase of goods and services via the internet using cards and e-money (USD)	123955403	231148093	86.48

Source: Author's calculation using NBS data(NBS, 2018-2022b) (NBS, 2018-2022c)

5. CONCLUSION

Electronic banking is a significant distribution channel of bank services and products, and it is necessary for the survival and development of contemporary banking. It enables a bank to make rapid adjustments of its business to the changes in the environment, in the financial market and emergency situations such as the COVID-19 pandemic so as to fulfil the needs of its clients and maximally protect them from numerous risks. Despite the insufficient IT literacy, distrust of citizens for electronic channels and insufficiently developed awareness about the importance and advantages of electronic banking in Serbia, a large number of clients started using the service of electronic banking during the COVID-19 pandemic.

The results of the empirical research confirm the set hypotheses. In the post-pandemic period, the expansion of the acceptance network continued, especially the

number of POS terminals and virtual points of sale. The largest increase in the number of users of payment services in non-cash payments was noted – mobile, online and telephone payments, as well as an increase in the number and value of funds transfer transactions and purchase of goods and services via the internet, using payment cards or e-money.

During the COVID-19 pandemic, the awareness of bank clients in Serbia about the importance and advantages of using electronic banking services has clearly increased. This fact is significant for the development of electronic banking in Serbia because it shows policymakers that special attention in strategic planning should be paid to the digitalization of banking services. Further development of electronic banking services in Serbia should be based on improving the protection of customer data and the security of electronic transactions, continuing the education of clients for the use of digital technologies in



banking, as well as investing in the improvement of the existing and the development of new innovative banking products and services which will improve customer experience. Priority should be given to the development of mobile applications since mobile banking is the distribution channel of banking services with the greatest potential for the development of electronic banking services in Serbia.

Considering the fact that not much time has passed since the onset of the pandemic, this research should be repeated over time (so that the analysis covers a longer period of time) and it should be supplemented with new research that will analyze the needs and satisfaction of clients by electronic banking services in Serbia and factors that influence their choice to use electronic banking services should be determined, as well as the factors that influence the increase of their satisfaction with these services.

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