

ADOPTION OF MOBILE BANKING IN THE REPUBLIC OF SERBIA

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***Abstract:** The aim of this study is to determine which factors significantly influence the adoption of mobile banking application in the Republic of Serbia based on Technology acceptance model (TAM). The study was conducted using an online questionnaire during June-July 2020 on a sample of 167 respondents who are users of mobile banking application. Authors used the software package SPSS 25 for the analysis. Factor analysis with the principal component method and varimax rotation was used to group questions into the corresponding factors, i.e., information on m-banking, perceived usefulness, perceived security, perceived ease of use, and technological proficiency and conditions. After that, binary logistic regression was approached where the dependent variable was represented by the intention to use the mobile banking application in the future, while the independent variables were five factors defined based on factor analysis. The results show that the statistically significant factors that influence the intention to use mobile banking application in the future are information on m-banking ($p=0.046$), perceived usefulness ($p=0.000$), and perceived security ($p=0.008$).*

***Keywords:** Mobile banking, adoption, banking sector, TAM, Serbia*

1. INTRODUCTION

The technological revolution in the financial sector has led to changes in how financial institutions operate. To achieve success on the market, the speed of adapting to constant changes is essential. The trend of the increasing use of mobile phones, as well as the continuous improvements of applications, has significantly changed the interaction of people with the financial system. In order to achieve a better market position banks need to create various technological solutions to meet clients' needs and expectations (Petrović, 2011, 261). Also, the personalization of services is recognized as an essential activity in the future operations of banks (Đorđević, 2007, 39). Providing opportunities for existing and potential bank clients

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to access several functions through the mobile banking application, as well as the constant improvement of the application by banks are the consequences of the increasing use of mobile phones in everyday life. In EU, 11% of households accessed the internet only via mobile devices in 2019. Comparing with 2010 this is an increase of 6.9 pp. (European Commission, 2020). According to the data of the Statistical Office of the Republic of Serbia on a sample of 2,800 individuals in 2019, when accessing the internet outside the home, 79.8% of respondents used mobile phone, 8.7% laptop and 6.9% tablet. In terms of frequency of use, as many as 93.2% used the internet every day or almost every day for the last three months (Kovačević et al., 2019). Everything mentioned indicates that mobile phones are becoming a significant device for performing daily activities as well as for banking purposes.

Changes in the banking sector that involve switching the focus from branches and ATM (local-centric) to internet banking (place-centric), and to access anywhere 24/7 (equipment-centric) contributes to saving time and reducing queues in banks (Tam, Oliveira, 2017, 5). Also, Jović (2014) pointed out that the difference between mobile banking and visiting a branch is simplicity, mobility, and a cheaper way of using services via a mobile application. This claim is confirmed by the results of a study conducted in the United States on 1,643 clients since the largest number of respondents prefer the digital experience using mobile banking (42%). This study also showed that respondents preferred to a lesser extent in-branch experience (31%) and e-banking (27%) (Coconut Software and WBR Insights, 2019). However, a survey published in 2019 conducted by IMAS International for Erste Group including seven CEE countries (Austria, Czech Republic, Serbia, Croatia, Slovakia, Romania, and Hungary) revealed that the combination of in-branch and digital channels was dominant. The analysis also showed that Serbia and Croatia were the countries where the fastest growing was "digital and branch" approach. In these countries wherein the previous period in-branch experience was predominant, can be noticed that more and more users are becoming interested in the use of digital channels such as m-banking and e-banking (Erste Group, 2019).

E-banking (online or internet banking) is considered to be the forerunner and represent the basis for creating mobile banking adapted to the habits of clients. E-banking can be defined as the delivery of information and services to customers of the banks via different devices such as a PC and a mobile phone with browser or desktop software, telephone, or digital television (Daniel, 1999, 72). So, m-banking is the closest alternative to e-banking as a self-service channel (Thakur, 2014, 629). According to European Commission estimation, mobile devices will reduce the use and role of computers to access various online content (European Commission, 2017), indicating that mobile banking is an important part of banks' strategy. Juniper Research forecasts from 2014 indicated that by 2019 there would be over 1.75 billion

mobile banking users, representing 32% of the global adult population (Juniper Research, 2014). Unfortunately, data related to the number of mobile banking users in 2019 are not available, so we can't determine whether these predictions were correct. Recent estimation from March 2020 has shown that by 2024 there will be over 3.6 billion digital banking users, which is an increase of 54% compared to 2020 (Juniper Research, 2020).

The advantages and disadvantages of mobile banking were explained in detail by Chandran (2014). He stated that the advantages are: 1. Time-saving (client can check account balance, receive payments, transfer money, etc. without going to bank branch); 2. Convenience (clients can perform banking transactions at any time and from anywhere); 3. Security (well-secured applications usually have a security guarantee or send a verification code via SMS. Mobile banking is considered to be better secured than e-banking); 4. Easy access to finances (clients can access their financial information regardless of the end of the bank's working hours); 5. Increased efficiency (contributes to reducing congestion in banks and the use of paper for both, the client and the bank); 6. Fraud reduction; 7. Availability (clients can access 24/7/365, which is very important for those who are living in rural areas). On the other hand, the disadvantages which the author mentioned are: 1. The risk that the client will receive a false SMS message; 2. The loss of a mobile phone; 3. Problems with an internet connection or due to runs out of battery on the phone; 4. Incompatibility of the phone with antivirus software. Otamurodov (2017) noted that clients should focus and pay attention to the background of the bank and check security-related information when using the application. This shows the potential security impact on the use of mobile banking service.

It should also be mentioned that mobile banking has a particular effect in terms of banks' costs. Research conducted by Javelin Strategy & Research revealed that financial institutions could make savings given that the average cost per mobile transaction is 10 cents. In contrast, in the case of a personal visit to the bank, this cost is \$4.25 (Fiserv, 2016). KPMG study also confirms this claim. Their results indicated that the transaction costs for the bank were, compared to a mobile channel, 43 times higher in the case of a branch, 13 times in the cases of call centre and ATM, and two times in the case of online banking (KPMG, 2015). Authors noted that banks in cooperation with IT companies create and enable clients to use mobile banking applications, which, to some extent, contribute to increasing the operational risk of their business. Therefore, it is vital that banks carefully choose which company to outsource as a third party, having in mind the consequences it may also cause because of system errors.

When we talk about the banking sector of Serbia, in October 2020, 22 (out of 26), banks offer mobile applications to their clients. This means that most banks operating in Serbia have recognized the importance of mobile banking in their operations and have adapted to this trend. Authors note that one of the banks (Bank of China) does business only with legal entities. Banks which did not have mobile banking were Opportunity bank, Expo bank, and Srpska bank. In order to determine the interest in the application of mobile banking in Serbia and their average rating, the authors analyzed data from Google Play store. According to the authors' research in October 2020, more than 1,700,000 times mobile banking applications were downloaded (but it should be considered that some users have been able to download the application several times due to installation problems). The applications which had the most downloads were Banca Intesa and Mobi bank (each bank more than 500,000 times). Mobi bank (former Telenor bank) is the first online bank in the region which was started operating in Serbia in 2014. (Mobi bank, 2014). Mobi Bank's business strategy is based on the use of digital channels in customer relations; there are no branches, which means that there are specific savings in terms of employee and rental costs. However, clients can also use ATMs located throughout Serbia so they can perform some of the transactions according to their needs which represent some physical relationship with the bank. The average rating of all mobile banking applications was 3.85 based on reviews of about 27,000 users. Eurobank had the best-rated application (4.6) based on the reviews of 1,000 users, while Vojvođanska bank had the lowest rating (3.0) based on 514 user reviews. The authors can assume, based on the data of the Statistical Office of Serbia (2020), that there is a growing interest in the use of mobile banking applications, given that there has been an increase in the number of mobile payment users (1,764,819 in the first quarter of 2020 compared to 1,921,347 in the second quarter of 2020).

Based on the above, we can conclude that most banks in Serbia offer mobile banking. The success of the implementation of mobile banking application depends on whether the application is recognized by existing and potential clients as adequate for use. Therefore, it is crucial that the bank appropriately informs about this service regarding benefits, how the application works, etc. Accordingly, this research aims to determine which factors significantly influence the adoption of mobile banking in the Republic of Serbia.

This research could be used as a literature source because it will suggest areas and directions for further analysis. Hence, these results will enable more information that could help banks to adequately adapt their business to bring the user experience to a satisfactory level, as well as developing and improving applications. The results of this study could help banks in creating a suitable marketing strategy which should generate an application's popularization.

2. LITERATURE REVIEW

In recent years in the academic literature, special attention has been concentrated on studies related to the adoption of mobile banking. For that reason, due to insufficient research on this topic in the Republic of Serbia, we consider that it is necessary to expand the literature and conduct a study in order to obtain additional information.

Mobile banking application can be defined as a service offered by a bank via mobile phone or tablet to meet customers' needs (Muñoz-Leiva et al., 2017, 2). The most common functions provided by mobile banking are checking account balance, paying bills, sending money to relatives or friends, transferring money between two accounts, and locating ATM or branch. However, constant improvement of technology leads to the development of more convenient and new functions of m-banking (Dahlber et al., 2008). For this paper, we defined user of mobile banking application as a person who currently has a mobile banking application installed on his smartphone or tablet and uses it to some extent.

This research is based on the technology acceptance model (TAM) since this is the most commonly used theoretical framework for mobile banking (Lai, 2017). TAM is based on the Theory of Reasoned Action (TRA), which was introduced by Fishbein and Eisen in 1975. The first version of TAM was presented by Fred Davis in 1985 in his doctoral dissertation. This model implied system features and capabilities as a stimulus which affected users' motivation to use the system. In the end, the result of that motivation is the actual use of the system. Two primary constructs of the original TAM model were perceived ease of use and perceived usefulness. Davis (1986) defined ease of use as the degree of free of effort when using the system. Also, this referred to the level of stress when the person using a particular system. He defined usefulness as "the degree to which a person believes that using a system would enhance his or her job performance" (Davis, 1986). Over time, the original TAM was modified in 1989 by adding behavioral intention to use the system which was affected by perceived usefulness and perceived ease of use (Davis, 1989). To validate that modified model Davis et al. (1989) conducted a survey on 107 respondents. That study revealed that perceived usefulness and perceived ease of use had little significance. In 1996 the final TAM was presented. That version included external variables, i.e., characteristics of the system, participation of the user, user training and implementation of process (Venkatesh, Davis 1996). In order to test the validity of that model, the researchers conducted the study which revealed that TAM predicted very well the user adoption.

Perceived ease of use has been an element of numerous studies that have examined this topic (Hanafizadeh et al., 2014; Gu et al., 2009; Raza et al., 2017; Akturan,

Tezcan, 2012; Singh et al., 2010, Jeong, Yoon, 2013; Lukić et al., 2019). In addition to the definition given by Davis, perceived ease of use, according to Lin (2011) represents the extent to which a mobile banking application service can be considered easy to understand and use. Since the use of the application must be tailored to the needs of clients, it is also important that it does not require a particular mental effort when using it. In order to make a decision about using the mobile application, clients take into account the benefits that are realized in terms of costs and time in relation to other channels of communication with the bank. Accordingly, it is necessary to include in the analysis the variable perceived usefulness, which has been the subject of many studies (Gu et al., 2009; Akturan, Tezcan, 2012; Hanafizadeh et al., 2014; Luarn, Lin, 2005; Wessels, Drennan, 2010; Lukić, 2019). It can be noticed that perceived ease of use and perceived usefulness are the most significant drivers of intentions to adopt m-banking (Tam, Oliveira, 2017). TAM is usually extended with the risk component (Herzenstein et al., 2007). Risk refers to the security fears that a client must overcome in order to be able to use the mobile banking application service (Akturan, Tezcan, 2012, 488). Kleijnen et al. (2009) consider that functional and psychological barriers hinder the adoption of innovations. For that reason, perceived risk can be considered a predictor of future user behavior (Alalwan et al., 2016, 120). There is also empirical evidence of a significant impact of perceived security on attitudes towards mobile banking (Akturan, Tezcan, 2012; Zhang, 2019; Lukić et al., 2019). Generally, trust is a crucial segment because clients expect some security of their privacy as well as the functioning of the application following the protection in case of attempted fraud. Laukkanen & Kiviniemi (2010) argue that guidance information about the functions of using play a significant role. To be able to use the mobile banking application, current clients or potential clients must be informed about the characteristics and benefits that using an application provides.

It should be noted that one of the characteristics of non-adopters is the lack of information (Kuisma et al., 2007). Because of that, it is essential to be informed as before and during the usage (Filotto et al., 1997). In order to adequately and without a hitch use the application, the appropriate conditions must be met in terms of owning a mobile device as well as availability and access to the internet. In general, the experience and habit of using applications on mobile devices will, to some extent, contribute to understanding better the way the mobile banking application works.

The results of the survey based on extended and the trust-based TAM conducted in Korea using a web questionnaire on the Woori Bank site confirmed the impact of ease of use, trust, and perceived usefulness on the intentions to use mobile banking. The survey was conducted on a sample of 910 mobile banking users (64.9% men), 43% of respondents belong to the age group thirties, and about 65% of respondents

were employees (Gu et al., 2009). The study conducted in India by Kumar et al. (2017, 244) revealed that perceived ease of use, perceived usefulness, trust, and social influence affected the intention to use mobile banking. According to Arif et al. (2016), there was a significant positive impact of perceived ease of use and perceived usefulness on users' attitude towards m-banking. Also, the authors analyze risk factors such as security, privacy, time, and financial risk. Results revealed that there was a negative impact of these factors on users' attitude. Karjaluoto et al. (2010) stated that the adoption of mobile banking was significantly affected by compatibility, perceived usefulness, and risk. Alalwan et al. (2016) found that perceived usefulness, perceived ease of use, self-efficacy and perceived risk had an impact on intention to use m-banking in Jordan based on a sample of 343 respondents. Alsamydai (2014) conducted research on a sample of 238 customers of the Jordan Banks and revealed that the strongest correlation was identified between perceived ease of use and experience. Lule et al. (2012) found that, based on 395 valid responses of M-Kesho users, perceived ease of use, perceived usefulness, perceived self-efficacy, and perceived credibility significantly influences customer's attitude towards using of m-banking. The structure of respondents was 52% male, and 48% female. Most of them were 21-30 years old (47.6%) and married (46.8%). However, it is also essential to consider the barriers for not adopt mobile banking pointed out by Cruz et al. (2010). From their point of view, the main barriers are risks, costs, and when it is not simple to use.

The latest research about mobile banking in Serbia was conducted in May 2019. The study included 100 respondents, with the majority of the population of younger and middle-aged, i.e., 41% of those aged 21-30 and 41% of those aged 31-40. Results showed that 59% of respondents used the mobile banking application. In terms of perceived security, about 38% of users thought that the mobile banking application was completely secure, which shows that there is still not enough trust from the clients. The most common reasons for not using the application were: uncertainty regarding the security of money and data (56%), insufficient knowledge of the conditions of use of the application (19.5%), as well as insufficient knowledge of the existence of the application (4.9%) (Soleša, Brkić, 2019). This confirms the previously mentioned that it is important to inform both potential and current users of mobile banking. On the other hand, results of the study conducted on a sample of 100 respondents in December 2016 indicated that 85% of respondents have a mobile phone that has Internet access, while 62% use mobile banking services. From the aspect of perceived security when using the application, 22% of respondents considered that the application is completely safe. As reasons for not using the application, respondents stated that they were not aware of its existence, but that they intend to be users (38%), while 9% of respondents not knowing about the existence and not want to be a user (Todić, Dajić, 2018). If we compared these two research

results, we could conclude that perceived security plays a significant role in the adoption of mobile banking in Serbia. This is confirmed by the results of research published in 2019 by Lukić et al. (2019). That study was conducted using an online questionnaire on a sample of 134 Serbian students. The authors concluded that the factors that have the highest impact on the intention to use mobile banking in the future were perceived security (Lukić et al., 2019). Having in mind all the above mentioned, the main objective of this study is to determine more precisely which factors have a statistically significant influence on the adoption of mobile banking in Serbia, mostly based on the research of Lukić et al. (2019).

3. METHODOLOGY

Data and methods

In order to identify the factors that influence the adoption of mobile banking, authors created an online questionnaire which was shared in the period June – July 2020 mainly via social media services: Instagram, LinkedIn, Facebook, WhatsApp and Viber. On the other hand, two people helped with sharing via corporate emails of their firms. The authors can estimate that more than 2,500 people have seen the survey link. For each social network, the authors analyzed the time interval of maximum user engagement. The survey link was posted on social media based on this statistic. The questionnaire has consisted of two parts: general questions about respondents and questions related to mobile banking. To identify those who use mobile banking, the first question was: *Do you use mobile banking?* The total number of responses is 420 (included both yes and no answers), but 167 of them use mobile banking, i.e., about 40% of all respondents. Those who responded *yes* were redirected to the part with relevant questions related to mobile banking and they represent the main subject of our analysis. Since the authors noticed in the pilot testing that the respondents have ambiguities related to the terms e-banking and m-banking, within the special section of the questionnaire authors added text and picture explanation for these two terms in order to be more precise.

The structure of respondents who use mobile banking application is showed in the table below.

Table 1. The gender structure of those respondents who use the mobile banking application

Gender	Number of respondents	% of respondents
Female	133	79.64
Male	34	20.36
Total	167	100

Source: Authors' research

As we can see from Table 1, the majority of respondents who use mobile banking application are female. According to the data of Statista the percentage of male Instagram users in the Republic of Serbia in November 2020 was slightly higher (52.9%) than female users (Statista, 2020), so our sample structure may be a consequence of that the person who posted the survey link on Instagram has the largest number of female followers. The summary of the sample structure is presented in Table 2.

Table 2. Sample structure

Age			Level of education			Work status		
Group	Number of users	% of users	Level of education	Number of users	% of users	Work status	Number of users	% of users
18-24	75	44.91	Bachelor's degree	100	60	Employed	99	59.28
25-34	57	34.13	Associate 's degree	24	14	Student	53	31.74
35-44	19	11.38	High school diploma	42	25	Unemployed	12	7.186
45-54	10	5.99	Elementary school	1	1	Other	3	1.80
55+	6	3.59						
Total	167	100		167	100		167	100

Source: Authors' research

The largest number of respondents (79.04%) belongs to the age group 18-35, and about 60% of the sample is those who work. Also, most of the respondents have a bachelor's degree. Thus, mobile banking is recognized as a useful tool for young people who work or study with regard to their lifestyle and compatibility with new technologies.

The frequency of using mobile banking application will be shown in the Table 3.

Table 3. Frequency of using mobile banking application

How often do you use m - banking app?	Percentage of respondents
Everyday	28.14
2-5 times a week	33.53
Once a week	17.37
2-3 times in a month	13.17
Once a month	4.19
Less than once a month	3.52
Total	100

Source: Authors' research

As you can see from the table above, most of the respondents use mobile banking application 2-5 times a week, which means that application is significant and necessary for performing banking transactions. In order to determine for which purposes they use the application, we asked them to check all the functions they usually use. The most commonly used functions of mobile banking applications will be shown in Table 4.

Table 4. The most frequently used functions of mobile banking

Which functions of mobile banking do you usually use?	Percentage of respondents
Checking account balance	95.21
Paying bills	74.85
Sending money to relatives or friends	61.68
Transferring money between two accounts	46.11
Exchange to other currency	32.34
QR code payment	14.97
Locating ATM or branch	14.37

Source: Authors' research

Results revealed that the largest number of respondents uses mobile banking application to check account balance and for paying bills, which means that mobile banking allows users to make payments without going to the bank, post office or through other payment service providers. So, they can make savings on fees and commission, as well as the time they would waste waiting in the queue. Also, we expected an increase in the percentage of use of the QR code since most banks introduced this service in 2020. We also examined the satisfaction of the users of the m-banking application, so the average rate given by the respondents is 4.49. The average rate is close to the maximum of 5. However, having in mind that this result is based on 167 responses, for more precise information it is necessary to increase

the sample size, given that a significantly lower average score was identified by observing data from Google Play for each bank.

For the analysis, the authors used software SPSS Statistics 25 and 95% confidence interval was applied.

In the first phase, authors used factor analysis with the principal component method and varimax rotation to identify questions which were significant and to group them into the corresponding factors. The analysis identified five factors, i.e., information on m-banking, perceived usefulness, perceived security, perceived ease of use, and technological proficiency and conditions. The questions were defined and based on the five-points Likert scale following the study conducted by Lukić et al. (2019). The list of questions and the correlation between the variables are presented in Table 5.

Table 5. Results of factor analysis

Question – statement	1- Information on m-banking	2- Perceived usefulness	3- Perceived security	4- Perceived ease of use	5- Technological proficiency and conditions
I believe I am well informed about banking services in general	0.842				
I believe I am well informed about mobile banking	0.892				
I believe I am well informed about the advantages of mobile banking	0.866				
I frequently access the internet using my mobile phone					0.640
I have adequate access to the internet during the whole day				0.506	
I like using downloadable applications on my mobile phone					0.732
I learn quickly how to use applications on my mobile phone					0.675

Conducting banking transactions using a mobile phone application contributes to cutting my banking costs		0.622			
Conducting banking transactions using a mobile phone application gives me free time for doing other activities		0.771			
Conducting banking transactions using a mobile phone application requires less effort compared to visiting a branch or using online banking		0.800			
Conducting banking transactions using a mobile phone application is more convenient compared to visiting a branch or using online banking		0.806			
Learning how to use a mobile banking application is not difficult				0.553	
Interaction with the bank using a mobile banking application is simple				0.774	
Interaction with the bank over mobile banking application is clear and understandable				0.805	
I consider mobile banking to be safe			0.799		
I consider my personal data to be protected when using mobile banking			0.839		
I consider mobile banking application to be more secure than online banking			0.590		

In general, I have trust in the Serbian banking system			0.684		
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Extraction method: Principal Component Analysis
 Rotation Method: Varimax with Kaiser Normalization.

Source: Authors' research

The results presented in the Table 5, show us that only difference comparing to Lukic et al. (2019) is in statement *I have adequate access the internet during the whole day* which belong to *Perceived ease of use* in this research, but in their study belonged to *Technological proficiency and conditions*. This means that users have understood this statement differently and linked its meaning to the effort of using the application.

To determine which factors significantly influence the intention to use mobile banking application, in the second stage, authors approached binary logistic regression analysis using the Enter method. Independent variable is the intention to use mobile banking in the future. This variable was measured initially on 5 points Likert scale (1 = "strongly disagree"; 5 = "strongly agree"), but in this part, it was coded into binary (0 = "not sure about using in the future ", 1 = "sure about using in the future "), i.e., 0 referred to the values 1,2,3 or 4, while 1 referred to answers marked with 5. Dependent variables are all five factors which are identified in the first stage. Detailed information about variables and their measurement is presented below in Table 6.

Table 6. Summary of the variables

Type of Variable	Name of Variable	Measurement scale	
		Factor analysis	Regression analysis
Dependent	Intention to use mobile banking in the future	Likert scale 1 = "strongly disagree" 5 = "strongly agree"	0=not sure about using mobile banking in the future* 1= sure about using mobile banking in the future**
Independent	Information on m-banking Perceived usefulness Perceived security Perceived ease of use Technological proficiency and conditions		Likert scale 1 = "strongly disagree" 5 = "strongly agree"

* 0 referred to the marked values 1,2,3 or 4

**1 referred to the answers marked with 5.

Source: Authors' research

Before the results of the regression, we needed to see whether this model can be used. Regarding that, the regression model is significantly based on the results of Omnibus model coefficient tests ($p < 0.05$) so it can be used in the next stage (see Table 7).

Table 7. Omnibus tests of model coefficients

		Chi-square	df	Sig.
Step 1	Step	30.852	5	.000
	Block	30.852	5	.000
	Model	30.852	5	.000

Source: Authors' research

Also, Nagelkerke R Square is higher than 0.3, which means that this model is appropriate for further analysis (see Table 8).

Table 8. Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	87.495 ^a	.169	.332

a. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Source: Authors' research

The results of the regression analysis indicate that the factors that significantly influence the intention to use mobile banking in the future are *information on m-banking* ($p=0.046$), *perceived usefulness* ($p=0.000$) and *perceived security* ($p=0.008$). Authors found no statistical significance of the factors *perceived ease of use* and *technological proficiency and conditions* ($p > 0.05$). These results are presented in Table 9.

Table 9. Regression analysis

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	Information on m-banking	.504	.253	3.967	1	.046	1.656
	Perceived usefulness	.856	.224	14.608	1	.000	2.354
	Perceived security	.750	.284	6.980	1	.008	2.116
	Perceived ease of use	.364	.237	2.359	1	.125	1.439
	Technological proficiency and conditions	.337	.256	1.724	1	.189	1.400
	Constant	2.685	.373	51.880	1	.000	14.658

Source: Authors' research

Analyzing the obtained results, the authors conclude that the coefficients B for the variables information on m-banking, perceived usefulness and perceived security are positive, which means that these factors increase the probability of response that clients will use for sure the application in the future. The value Exp (B) indicate that the odds of intention to use mobile banking application in the future is 2.354 times more likely for each one-point increase in the respondent's perceived usefulness score (from strongly disagree to strongly agree), holding all other variables constant. The value Exp (B) for perceived security indicate that the odds of intention to use mobile banking application in the future is 2.116 times more likely for each one-point increase in the respondent's perceived security score, holding all other variables constant; while the odds of intention to use mobile banking application for sure in the future is 1.656 times more likely for each one-point increase in the respondent's information on m-banking score, holding all other variables constant.

The significance of perceived usefulness has been confirmed in many studies (Gu et al., 2009; Karjaluoto et al., 2010; Lule et al., 2012; Alalwan et al., 2016; Arif et al., 2016; Kumar et al., 2017; Tam & Oliviera, 2017; Lukić et al., 2019). Generally, perceived usefulness plays an essential role in the adoption of mobile banking because it is crucial for clients to have some benefits when using the application in terms of costs, time and compatibility compared to other channels of communication with the bank. If we analyze perceived security most studies indicated the importance of this variable (Akturan & Tezcan, 2012; Arif et al., 2016; Alalwan et al., 2016; Zhang, 2019; Lukić et al., 2019). A significant impact of perceived security is expected given the previously conducted research related to Serbia and the fact that there is not enough user trust when using mobile banking application. Although results of research conducted by Lukić et al. do not coincide with the results of this study in terms of information on m-banking, we consider that clients should be informed promptly about existing and new services that are offered by the and that they should be aware of all the advantages and disadvantages of using this service.

Numerous studies indicated the importance of variable perceived ease of use (Gu et al., 2009; Singh et al., 2010; Akturan & Tezcan, 2012; Jeong & Yoon, 2013; Hanafizadeh et al., 2014; Raza et al., 2017; Lukić et al., 2019), but this is not in line with our results. Also, variable technological proficiency and conditions are not recognized as significant in contrast to the study conducted by Lukić et al. We consider that statistical significance of the factors perceived ease of use and technological proficiency and conditions is a consequence of the fact that the largest number of respondents belong to the age group 18-34. This category is familiar with mobile devices, so we assume that they learn quickly how to use application. Also, we believe that they have modern mobile devices and have an adequate quality of the Internet connection, which is a consequence of the modern way of life.

4. CONCLUSION

Over the last ten years the banking sector has undergone a significant transformation, which means that digital channels are increasingly replacing the traditional business model. This is a consequence of the increasing use of mobile phones in people's daily lives. For that reason, banks need to continue follow the trends and needs of existing and potential customers to ensure their market position.

In this paper, we analyzed which factors, based on Technology acceptance model, significantly influence the intention to use the mobile banking application. Respondents were users of the mobile banking application in Serbia. In the first step of the analysis, we identified five factors that are assumed to predetermine the intention for future use of the mobile banking application. For this purpose, we used factor analysis with the principal component method and varimax rotation. Authors identified five factors: information on m-banking, perceived usefulness, perceived security, perceived ease of use, and technological proficiency and conditions. In the second step of the analysis, regression analysis was approached, i.e., binary logistic regression, where the dependent variable was the intention to use the mobile banking application in the future. The independent variables were all five factors identified in the previous step.

The results of the research show that the factors which significantly influence the intention to use mobile banking application in the future are *perceived usefulness*, *perceived security*, and *information on m-banking*. The authors found no statistical significance of the factors *perceived ease of use* and *technological proficiency and conditions*.

The results of this research can help decision-makers in making public policies given that the banking sector is essential for economic development. Also, these results are important for those working in the banking sector because they can improve the quality of banking services or create new ones that meet customers' needs. Having in mind that perceived security has been identified as the factor with high influence on the intention to use the application in the future, it is important that regulators, i.e., policymakers, focus on monitoring and improving regulation in the field of digital financial services. Therefore, the policymakers, in collaboration with the banks, need to take appropriate measures to protect the users' privacy data in order to regain the trust in the system.

Based on these results banks should focus their promotional activities on the following: 1. timely notification of new products/services they offer, 2. highlighting

the benefits of using the application 3. pointing out the small number of theft cases of financial resources and user data through mobile banking.

Although the sample used in this research is not nationally representative, this paper can be an appropriate basis for future studies. Further research should include a larger number of respondents to get a better and more realistic picture of the population. It would be useful to analyze this study from the aspect of gender structure, as well as to make a comparative analysis with other banking markets in the region, i.e., Croatia, Slovenia, Slovakia, etc.

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REFERENCES

1. Akturan, U., & Tezcan, N. (2012). Mobile banking adoption of the youth market. *Marketing Intelligence & Planning*, 30(4), 444-459.
2. Alalwan, A. A., Dwivedi, Y. K., Rana, N. P., & Williams, M. D. (2016). Consumer adoption of mobile banking in Jordan. *Journal of Enterprise Information Management*, 29(1), 118-139.
3. Alsamydai, M. J. (2014). Adaptation of the technology acceptance model (TAM) to the use of mobile banking services. *international review of management and business research*, 3(4), 2039-2051.
4. Arif, I., Afshan, S., & Sharif, A. (2016). Resistance to mobile banking adoption in a developing country: Evidence from modified TAM. *Journal of Finance and Economics Research*, 1(1), 25-42.
5. Chandran, R. (2014). Pros and cons of mobile banking. *International journal of scientific and research publications*, 4(10), 1-5.
6. Coconut Software and WBR Insights, <https://www.coconutsoftware.com/wp-content/uploads/2019/11/Banking-Consumer-Study-Relationship-Between-Bank-Branch-and-Customer.pdf> (10.11.2020).
7. Cruz, P., Neto, L. B. F., Munoz-Gallego, P., & Laukkanen, T. (2010). Mobile banking rollout in emerging markets: evidence from Brazil. *The International Journal of bank marketing*, 28(5), 342-371.
8. Daniel, E. (1999). Provision of electronic banking in the UK and the Republic of Ireland. *International Journal of Bank Marketing*, 17(2), 72-82.
9. Dahlberg, T., Mallat, N., Ondrus, J., & Zmijewska, A. (2008). Past, present and future of mobile payments research: A literature review. *Electronic commerce research and applications*, 7(2), 165-181.

10. Davis F. D. (1986). *A Technology Acceptance Model for Empirically Testing New End-User Information Systems*. Thesis (PhD) Massachusetts: Institute of Technology, Sloan School of Management.
11. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 13(3), 319-340.
12. Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management science*, 35(8), 982-1003.
13. Dorđević, B. (2007). Strategijske opcije u razvoju mobilnih bankarskih servisa, *Bankarstvo*, 3(4), 38-48.
14. Erste Group, <https://www.erstegroup.com/en/news-media/news-views/2019/08/29/branches-digital-banking-2019> (17.11. 2020).
15. European Commission, <https://ec.europa.eu/digital-single-market/en/news/europes-digital-progress-report-2017> (11. 10. 2020).
16. European Commission, <https://ec.europa.eu/digital-single-market/en/reports-and-studies/76018/3650> (2. 12. 2020).
17. Filotto, U., Tanzi, P. M., & Saita, F. (1997). Customer needs and front-office technology adoption. *International Journal of Bank Marketing*, 15(1), 13-21.
18. Fiserv, <https://www.fiserv.com/content/dam/fiserv-com/resources/Mobile-Adoption-White-Paper-January-2016.pdf> (10.11.2020).
19. Gu, C. J., Lee, C. S., & Suh, H. Y. (2009). Determinants of behavioral intention to mobile banking. *Expert Systems with Applications*, 36(9), 11605-11616.
20. Hanafizadeh, P., Behboudi, M., Koshksaray, A. A., & Tabar, M. J. S. (2014). Mobile-banking adoption by Iranian bank clients. *Telematics and Informatics*, 31(1), 62-78.
21. Jeong, B. K., & Yoon, T. E. (2013). An empirical investigation on consumer acceptance of mobile banking services. *Business and management research*, 2(1), 31-40.
22. Jović, Z. (2014). Primena interneta u savremenom bankarskom i berzanskom poslovanju. *Zbornik naučnih radova sa međunarodne naučne konferencije Sinteza*. 180-185. Beograd: Univerzitet Singidunum.
23. Juniper Research, <https://www.juniperresearch.com/press/press-releases/digital-banking-users-to-exceed-3-6-billion> (10. 11. 2020).
24. Juniper Research, <https://www.juniperresearch.com/press-release/digital-banking-pr1>. (10.11. 2020).
25. Karjaluoto, H., Koenig-Lewis, N., Palmer, A., & Moll, A. (2010). Predicting young consumers' take up of mobile banking services. *International Journal of Bank Marketing*, 28(5), 410-432.
26. Kleijnen, M.m Lee, N., Wetzels, M. (2009). An exploration of consumer resistance to innovation and its antecedents. *Journal Economic Psychology*, 30(3), 344-357.
27. Kovačević, M, Šutić, V, Rajčević, U, & Milaković, A. (2019). *Upotreba informaciono-komunikacionih tehnologija u Republici Srbiji*, Beograd: Republički zavod za statistiku.
28. KPMG, <https://assets.kpmg/content/dam/kpmg/pdf/2015/08/mobile-banking-report-2015.pdf> (10. 11. 2020).
29. Kumar, V. R., Lall, A., & Mane, T. (2017). Extending the TAM model: Intention of management students to use mobile banking: Evidence from India. *Global Business Review*, 18(1), 238-249.

30. Kuisma T, Laukkanen T. & Hiltunen M. (2007). Mapping the reasons for resistance to Internet banking: A means-end approach. *International Journal of Information Management*, 27(2), 75-85.
31. Lai, P. (2017). The Literature Review of Technology Adoption Models and Theories For The Novelty Technology. *JISTEM-Journal of Information Systems and Technology Management*, 14(1), 21-38.
32. Laukkanen, T., & Kiviniemi, V. (2010). The role of information in mobile banking resistance. *International Journal of bank marketing*, 28(5), 372-388.
33. Lin, H. F. (2011). An empirical investigation of mobile banking adoption: The effect of innovation attributes and knowledge-based trust. *International journal of information management*, 31(3), 252-260.
34. Luarn, P., & Lin, H. H. (2005). Toward an understanding of the behavioral intention to use mobile banking. *Computers in human behavior*, 21(6), 873-891.
35. Lukić, V., Čolić, L., & Prica, I. (2019). Perspectives and adoption of mobile banking in Serbia: The case of young adults. *Ekonomika preduzeća*, 67(5-6), 334-344.
36. Lule, I., Omwansa, T. K., & Waema, T. M. (2012). Application of technology acceptance model (TAM) in m-banking adoption in Kenya. *International Journal of Computing & ICT Research*, 6(1), 31-43.
37. Mobi bank, <https://www.mobibanka.rs/en/about-us/news/news-and-press-releases/telenor-banka-opened-first-mobile-online-bank-in-serbia/> (17. 11. 2020).
38. Muñoz-Leiva, F., Climent-Climent, S., & Liébana-Cabanillas, F. (2017). Determinants of intention to use the mobile banking apps: An extension of the classic TAM model. *Spanish Journal of Marketing - ESIC*, 21(1), 25-38.
39. Otamurodov H. (2017). Mobile banking: advantages and disadvantages. *Экономика и бизнес: теория и практика*, 5, 194-198.
40. Petrović, P., & Živković, A. (2011). *Marketing u bankarskoj industriji*. Beograd: Čigoja štampa.
41. Raza, S. A., Umer, A., & Shah, N. (2017). New determinants of ease of use and perceived usefulness for mobile banking adoption. *International Journal of Electronic Customer Relationship Management*, 11(1), 44-65.
42. Singh, S., Srivastava, V., & Srivastava, R. K. (2010). Customer acceptance of mobile banking: A conceptual framework. *Sies journal of management*, 7(1), 55-64.
43. Soleša, K., & Brkić, I. (2019). Analysis of the mobile banking services market in the Republic of Serbia. *Ekonomija: teorija i praksa*, 12(3), 1-17.
44. Statista, <https://www.statista.com/statistics/1024769/instagram-users-serbia/>. (17. 11. 2020).
45. Statistical Office of Serbia, <https://www.stat.gov.rs/en-US/> (09. 11. 2020).
46. Tam, C., & Oliveira, T. (2017). Literature review of mobile banking and individual performance. *International Journal of Bank Marketing*, 35(7), 1044-1067.
47. Thakur, R. (2014). What keeps mobile banking customers loyal? *International Journal of Bank Marketing*, 32(7), 628-646.
48. Todić, M., & Dajić, M. (2018). Perspektive mobilnog bankarstva u Srbiji. *Časopis za ekonomiju*, 8(1), 19-36.
49. Venkatesh, V., & Davis, F. D. (1996). A model of the antecedents of perceived ease of use: Development and test. *Decision sciences*, 27(3), 451-481.

50. Wessels, L., & Drennan, J. (2010). An investigation of consumer acceptance of M-banking. *International Journal of bank marketing*, 28(7), 547–568.
51. Zhang, J., Luximon, Y., & Song, Y. (2019). The Role of Consumers' Perceived Security, Perceived Control, Interface Design Features, and Conscientiousness in Continuous Use of Mobile Payment Services. *Sustainability*, 11(23), 6843.