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Comparative Analysis of Pre- and Post-COVID Integration of Digital Communications in Serbian Banks. Part I

Sladjana Neogradi

Assistant professor, Faculty of Business Studies and Law, University „Union-Nikola Tesla“, Belgrade, Serbia, <https://orcid.org/0009-0002-0976-5483>

Milan Vemic

Full professor, Faculty of Business Studies and Law, University „Union-Nikola Tesla“, Belgrade, Serbia, <https://orcid.org/0000-0002-6814-8031>

***Corresponding author:** milan.vemic@fpp.edu.rs.

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Abstract: The main goal of the present study is to introduce and discuss the similarities and differences that have occurred in the Serbian banking business due to the impact of digitisation within five years (2019–2024). This is explored through focused bank surveys. Emphasis is placed on the attitudes and gender differences of bank managers regarding mobile and electronic banking in meeting the needs of clients. Other digital channels will also be evaluated, such as whether the orientation toward applying digital solutions within the banking sector will replace bank branches. At the time of the first survey in 2019, the authors could not even imagine what effect COVID-19 would have on the development of digitisation during the second survey in 2024. According to the research results, most bank managers predict that digital sales channels will replace traditional branches in the foreseeable future, that mobile banking holds an advantage due to its user-friendly nature, and that clients are now best informed about the bank's products via mobile phones. Personal interactions in bank branches have, therefore, significantly declined since 2019. The study helps bank managers identify e-banking components influenced by gender. Research results also show that to increase their profitability in the Serbian market; banks can turn their existing customers into online users by directing them to digital banking. This research contributes to the scientific literature by providing an overview of the

relationship between the development of digital communication integration before and after the pandemic. Research results have implications for e-banking segmentation, strategies, and tactics. Gender aspects are significant for local, national, and global banks. However, the study's focus on Serbia limits our understanding of banking sectors in other regions. Considering the scope of the research, the authors will present additional research results through the following two papers.

Keywords: bank branches, digitisation, gender, integrated digital communications, marketing communications, online mobile banking, sales channels.

Introduction

Digital banking experiences increasingly result from the economic development of major emerging economies such as India, which Shaikh and Anwar (2023) and Sivathanu (2019) discussed. Bueno et al. (2023) also effectively debated the recent Brazilian experience.

In the present research, the authors will discuss the integration of digital communications in Serbian banks in a comparative way.

The marketing orientation of financial organisations implies the continuous entrepreneurial activity of marketing managers in creating and implementing an effective marketing communication strategy. As Al-Omouh et al. (2020) discussed, this represents a potential driver of E-banking. Jaworski and Kohli (1993) showed how market orientation has clear antecedents and consequences, while Jahan et al. (2020) discussed its impact on customer satisfaction. This is performed based on the compatibility of the goals and resources of the organisation and other elements that influence the choice of a compelling communication mix, particularly in a digital and transformative banking environment, which Kitsios et al. (2021) evaluated. The strategy's primary focus is a mutual combination of instruments in the marketing mix to obtain a more significant synergistic effect within a value chain, as observed by Naimi-Sadigh et al. (2022). Synergy is achieved effectively by combining the factors rather than having the effect obtained by the simple sum of the impact resulting from each element of a particular marketing mix approach.

Holistic marketing is critical to marketing orientation. It incorporates Kotler's four dimensions of internal marketing, integrated marketing, relational marketing strategies, and socially responsible banking platforms, representing the basis of banking sector operations. In addition to the traditional approach, relationship marketing strategies focus on modern online media and other digital aspects. As shown by Chege et al. (2020) in their research on Kenyan experiences, information technologies and innovation have a significant impact on firm performance. However, firms are bank customers, and consequently, these factors, in addition to gender issues, impact bank performance (Mahmoud, 2019).

By striving for a competitive digital advantage, banks invest heavily in operations and know-how to meet client's current and future needs while achieving the desired profit. As observed by Bueno et al. (2023), it is not easy to reach a break-even point in financial performance, and according to Pandey et al. (2021), this also requires careful consideration of the involved credit risks (Sokolov, 2007). Gunin (2024) proved that fintech, innovation, borrowing, non-performing loans, risk, and mortgage expansion are linked. The pursuit of competitive digital advantage affects the increase in the promotion of banking services and the improvement of communication and sales channels, as advocated earlier on by Hernando and Nieto (2007). Possibilities for improving the results of digital bank operations are reflected through technological solutions that upgrade communication and interaction with clients, for example, through electronic banking, which was debated and challenged by Yang et al. (2018). Consequently, this requires an analytical insight into the client's habits, needs, and capabilities with an adequately adapted bank offer, as well as automation and high digital efficiency of business processes.

Research Problem

In the comparative analysis of pre- and post-COVID integration of digital communications in banks, the authors considered the present relevance of the problem, the social and scientific benefits, and whether the questions are sufficiently researched to allow learning.

The present relevance of the problem reveals that digitisation has provided new opportunities in the financial services sector and facilitated the creation of new business models that reduce marginal costs and increase banks' profits. This trend should indeed be analysed now that COVID-19 is behind. The analytical question is whether the improvement of business results is reflected through technological solutions for better communication with clients or through insight into their needs and the efficiency of business processes. To have a competitive advantage, banks have seriously approached solving this challenge by investing in promoting services and introducing innovations in their operations. Banks also focus on improving and integrating their communication and sales channels.

As for social and research benefits, technological and digital solutions seem to lead to better communication with clients, improve sales, and increase the efficiency of business processes in all segments of society. These benefits are also expected in the banking sector. The results of the conducted research will prove that digitisation represents a new trend and the creation of new macro policies and regulations to which the banking sector and the entire social community are adapted.

The scientific field of bank digitalisation should further consider changes in information technology, which produce numerous macroeconomic consequences in the labour market, and encourage the banking sector and the professional public to adapt to accelerated changes. In their marketing campaigns today, banks use a combination of different sales channels, and the share of digital communication channels has significantly increased compared to the period before COVID-19 when the dominant form of marketing communication in bank campaigns was advertising through TV commercials. Scientific research needs to consider how to maintain a competitive advantage, whether banks must invest in promoting services and introducing digital innovations into their operations, and how to improve and integrate their communication and sales channels. The advantages of digital (online) marketing are accessibility, practicality, wealth of information in one place, interactivity and immediacy, targeted marketing, building mutual connections, flexibility, lower costs, and significant market share. Likewise, disadvantages of online marketing are efficiency measurement problems, information overload, and privacy of data collected on the Web.

Analysis of research results will consider whether the distribution channels significantly influence the perception of the quality of banking services and whether the problem at stake is being increasingly researched to produce sufficient evidence. It seems that banks that apply multiple sales channels to increase their profitability in the Serbian market need to consider the potentialities of electronic banking, which has already been discussed and proved in several cross-country studies (Dietrich & Wanzenried, 2014; Le & Ngo, 2020; Sokolov, 2007). Also, the research indicates that banks should use social networks to a greater extent to promote their products and services. Social networks make it possible to connect clients and empower banks with an opportunity to understand better the needs of clients, which was discussed by Jahan et al. (2020), and to anticipate future market development trends to achieve profitability, which was pointed out by Halawani et al. (2020).

New things that can be learned about the problem and opportunity of digitisation reveal how it facilitates simplifying processes and how the bank's response to client requests can also be faster. In addition to continuous employee education advocated by Salehi and Alipour (2010), who provide empirical evidence on Iran, the authors also find that banks should monitor and implement relevant modern technologies related to digital business platforms. The results of the conducted research indicate that the priority of banks should be investment in the education and training of clients and bank managers in digital communications and sales channels. Also, the research results indicate the necessity of implementing modern information technologies and continuous improvement in the digital business

segment. Monitoring social media trends actively and involving the bank in relevant related activities is necessary. Also, it seems that digital communications should be a complementary part of integrated marketing activities to be used toward synergistic value chain effects Naimi-Sadigh et al. (2022) and consequently to improve competitive advantage and success in the market.

Research Focus

The research focuses on investigating the impact of implementing and interacting with digital communications and sales channels on improving the bank's business performance, that is, its market position, by comparing pre-and post-COVID integration of digital communications in Serbian banks.

The research provides an overview of the impact of digitisation on managers in the financial sector in the Republic of Serbia's market. It examines digitisation in the banking sector from 2019 to 2024 to observe potential accelerated technological development and the impact of macroeconomic factors.

Research Aim and Research Questions

This research aimed to explore the underlying impact of the digital transformation of commercial banks in Serbia, therefore providing critical information for bank management and leadership to make effective and accurate decisions. By considering both male and female bank managers, this study sought to address the following key questions.

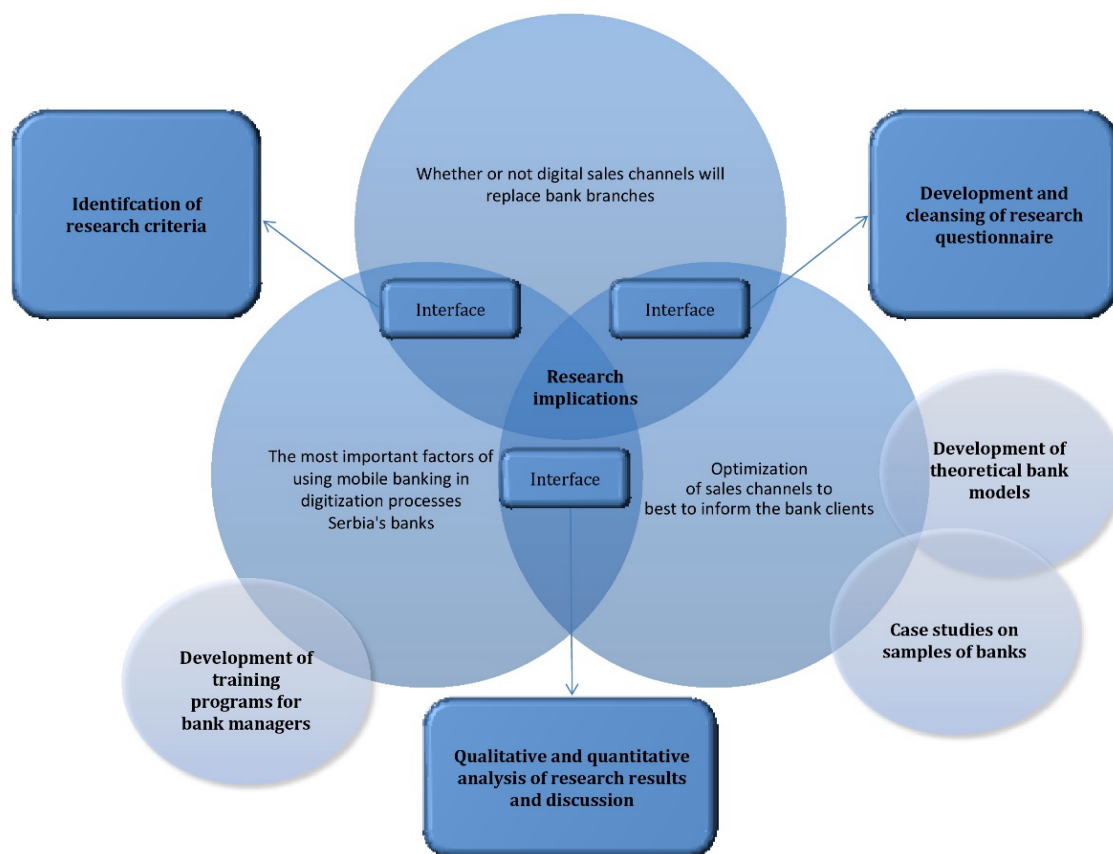
- (1) Will digital sales channels in the foreseeable future replace bank branches in Serbia, transforming them, according to Di Febo and Angelini (2022), into “service lounges rather than rows of tellers handling daily transactions”?
- (2) What are the most important factors of using mobile banking in the digitisation processes of Serbia's banks? Which sales channels will be best for informing the bank clients?
- (3) Finally, what recommendations can realistically be made to optimise the adjustment of banks in Serbia in the context of digital transformation?

By addressing these key questions, the authors explored whether the integration of digital communications and sales channels improves banks' market positions, improves their business performance, and improves their business portfolio.

The following research model is proposed for the present research (Figure 1).

Figure 1

Research Model



Source: Author's development.

Literature Review

According to earlier research, banking services' complexity requires applying three types of marketing strategies: external, internal, and interactive (Zethmal et al., 2006). Through external marketing, banks focus on propaganda, sales promotion, public relations, and direct marketing. Through interactive marketing, interaction is achieved between the client and associates in the bank. Communication occurs through personal sales, the contact centre, the point of sale itself, and the service environment.

Fill (2005) defined marketing communications as a management process through which an organisation establishes contact and builds relationships with its target audiences. According to Schultz et al. (1993), integrated marketing communications (IMC) represent the development of a database of existing and potential customers. Belch and Belch (2004) analysed the communication mix as a set of the following instruments: propaganda, direct marketing, sales promotion, personal selling, public relations, and Internet marketing. Kotler then defined IMC as a concept in which the company carefully integrates and coordinates the many communication channels to convey a clear, consistent, and acceptable message about the organisation and its products (Kotler & Keller, 2016, pp. 570-605).

IMC, as also a tool, is reflected in applying the concept of planning, implementation, and coordination of marketing communications to achieve a synergistic effect with the strategic unification of promotional mix activities (Tongiani & Burchielli, 2019).

Ultimately, IMC should be designed to make all aspects of marketing communications work together as a unified force rather than each working in isolation. Therefore, IMC implies the strategic coordination of several marketing mix elements (propaganda, public relations, sales promotion,

sponsorship, and direct marketing) to optimise the effects of persuasive communication for the targeted audience (Bilir, 2019; Domazet & Neogradi, 2018).

Personal selling in branches represents traditional distribution channels, which represent the cost of buying or renting office space and hiring more employees. On the other side, as observed by Onay and Ozsoz (2013), Internet banking adoption has a positive impact on the level of profits, deposits, and loans per branch, and this was in agreement with the finding of Di Febo and Angelini (2022), that this positively influenced the net interest income. Internet banking was the most frequently exercised transaction product in a poll of Latin American SMEs (International Finance Corporation, 2010, p. 51). However, it should be noted that according to Shaikh and Anwar (2023), credit card transactions at ATMs and POS portrayed a negative influence on the cost of funds.

Technology adoption dramatically changes how we live and work daily (Singavarapu & Singh, 2016). To keep pace with changes, banking institutions must accelerate Real-Time Gross Settlement (Shaikh & Anwar, 2023), encourage customer loyalty, integrate various communication channels, reduce labour costs, and recognise and manage risk (Cheverton, 2008). Pandey et al. (2021) recently proposed optimal balancing and efficient feature ranking to minimise credit risk. Furthermore, according to Ennew and Nigel (2007, p. 55.), the specificity of financial services is fiduciary responsibility, involving duration of consumption and contingent consumption, which constitutes a part of the risk calculation and management.

According to Klasen (2013), the primary criterion for building a distribution channel should be the specificity of the service, market potential, and market segment. Thus, marketing communication became the intentional exchange of ideas, opinions, information sharing, and instructions with target groups through various symbols to achieve the organisation's goals (Fahy et al., 2019).

According to Stokes (2018), the bank's digital communication represents interactive marketing communication with the bank's clients, which is carried out using modern Internet technologies. The relationship between marketing and profitability is an integral component of the marketing concept. Curak et al. (2012) discussed this in the context of a changing environment.

According to Stone and Jacobs (2018), digital marketing communication (DMC) is an interactive use of media that has the purpose of stimulating a customer's reaction in such a way that it can be tracked, recorded, analysed, and archived in databases to be applied in subsequent promotional campaigns. DMC represents a specific form of marketing, separated from the generalised observation of the client in the mass and, in a new, personalised way, tries to achieve the primary goals of the marketing concept, leading to profitable satisfaction of customer needs. Planning and managing the DMC process became a part of IMC.

Online marketing implies the application of a wide range of information technologies for the improvement of marketing strategies to create more added value for clients through better segmentation, selection of target segments, differentiation, and positioning; better planning and implementation of product concepts, distribution, promotion and prices of goods, services, and ideas; creating an exchange that meets the needs of individual clients and the goals of financial organisations.

There are several other relevant studies on the effectiveness of electronic banking activities, especially from emerging markets. These studies justify the need for the authors' present research. For example, the performance of banks in African emerging markets was analysed by Oyewole et al. (2013), who did specific studies on Nigeria, while Aduda and Kingoo (2012) and Chege et al. (2013) researched banks in Kenya. Arno et al. (2024) emphasised internal and external development factors in the example of Indonesian banks. The availability of social media has recently reshaped the IMC. It offers new channels and methods of communication with consumers, allowing them to fully use this medium, which is why it is also called consumer-generated media (Gordon-Isasi et al., 2021).

Materials and Methods

In particular, the methodological-hypothetical framework of the explanatory research is focused on the analysis and identification of factors that influence the improvement of business in the application of digital sales channels among the surveyed male and female bank managers. The authors shall explore why reliance on digital channels is increasing in Serbia when limited sources of confirmed information are available. It is perceived that this exploration can increase our understanding of the given topic. It will be established how or why this particular phenomenon occurs, and prediction of future occurrences shall be attempted.

In their exploratory approach, the authors relied on already proven models of the optimisation of the service distribution process and on identifying the factors that influence them to prove or disprove the assumptions from the hypotheses of the work. The structural modelling approach (George, 2018), with particular emphasis on the methodological-hypothetical framework of the research, is placed on the analysis of already proven models of optimisation of the service distribution process, as well as on the identification of factors that influence them, to prove or disprove the assumptions from the work.

The developed three-pronged methodological-hypothetical framework of the research (Vemić, 2022) is particularly focused on exploring proven optimisation models of the service distribution process (Tongiani & Burchielli, 2019) and on identifying factors that influence them to prove or disprove the assumptions from the present research.

In the included sample, authors particularly analysed the views of both male and female bank managers on the impact of digital reforms and their contribution to improving the bank's business structure.

Tables 1–6 portray lists of variables and descriptive statistics. All data resulted from the survey of Serbian bank managers in 2019 and 2024. Table 7 includes the results of correlation analysis for 2019 and 2024. Tables 8-10 provide the development of covariance matrices and eigenvalues/eigenvectors for 2019 and 2024 on key research questions relating to the potential replacement of bank branches by digital sales channels, essential factors of using mobile banking, and best sales channels for informing clients. A brief interpretation of the findings follows the tables.

Sample and Participants

Out of the total number of managers employed in Serbian banks in 2019, the survey questionnaire was sent to the email addresses of 298 bank managers, which represents a sample of 20.9% of the total employed bank managers in Serbia. Out of the 298 questionnaires sent to the managers of Serbian banks, 171 completed the structured questionnaire and thus participated in the research; 57% of the respondents filled out and submitted questionnaires.

The author's structured questionnaire consisted of a set of standardized questions with a fixed scheme that specified the exact wording and order of the survey questions. It was designed to collect the required information from bank managers.

In 2024, the sample was increased to obtain more relevant responses. The same questionnaire was sent to the e-mail addresses of 550 bank managers in Serbia; 390 of them filled out the questionnaire and thus participated in the research, i.e. 70.90% of respondents filled out the delivered survey questionnaire. In the observed sample, 68.97% of female respondents and 31.02% of male respondents answered the questionnaire in the conducted research.

Instruments and Procedures

The authors used a survey instrument tailored to the context of bank digital transformation. Besides gender, age, branch location, and education level, the bank survey questionnaire covered factors influencing the bank's digitisation and sales channels. When the research questionnaire was completed,

an online form of the authors, one of whom is working at Addico Bank (Addico, 2019, 2024), and then the survey was distributed to the bank managers.

Data Analysis

Descriptive statistics and correlation analysis were performed in SPSS statistics for both 2019 and 2024.

Results

Table 1

Descriptive Statistics for 2024 on whether Digital Sales Channels will in the Foreseeable Future Replace Bank Branches

2024	Male	Female
Yes	67.6	53.2
No	14.9	27.4
Unsure	17.5	19.4
Total	100.00	100.00

Source: Authors' development.

When the same question was asked to bank managers in 2024, their attitude changed. They now believe that digitisation will have an increasing influence on the work of the banking sector, with a greater degree of online transactions and that the needs of clients have changed and become more difficult in a more significant percentage of 67.77% of internet banking compared to the segment of clients who go to branches. This finding coincides with recent research in Turkey because, according to Suluk (2023, p. 364)

“The total number of financial transactions made using the Internet banking service in the October-December 2021 period was 123 million, and the volume of transactions was approximately 3 trillion TRY. As of January-March 2023, the total number of financial transactions made using internet banking service is 126 million, while the volume of transactions is about 6 trillion TRY”.

Table 2

Descriptive Statistics for 2019 on whether Digital Sales Channels will in the Foreseeable Future Replace Bank Branches

2019	Male	Female
Yes	39.1	50.0
No	13.0	17.9
Unsure	47.8	32.1
Total	100.00	100.00

Source: Authors' development.

Bank managers in the Republic of Serbia in 2019 believed that digital sales channels would replace bank branches in the digital future, where 39.2% answered that they did not have an opinion on the given question, and 45.1% said that this would happen. Looking at the research by gender, 47.8% of male managers are unsure whether branches will be closed. In comparison, 50% of female managers believe this will happen amid new trends and the application of digitalisation.

Table 3

Descriptive Statistics for 2024 on the Most Important Factors of Using Mobile Banking in Digitization Processes

2024	Male	Female
Perceived financial cost	2.48	0.74
Perceived usefulness	12.40	8.92
Ease of use	80.17	82.53
Intent of use	2.47	3.35
In total	97.52	95.54
Security	2.48	4.46
Total	100.00	100.00

Source: Authors' development.

Respondents stated several reasons why they consider mobile banking the most important. Ease of use is prioritized by 80.17% of male managers and 82.53% of female managers, while costs only play a role in the range from 0.74% to 2.48%. Managers also insist on a higher level of security in 2024.

Table 4

Descriptive Statistics for 2019 on the Most Important Factors of Using Mobile Banking in Digitization Processes

2019	Male	Female
Perceived financial cost	-	10.70
Perceived usefulness	34.80	28.60
Ease of use	52.20	50.00
Intent of use	13.00	10.70
Total	100.00	100.00

Source: Authors' development.

Respondents in the 2019 research stated several reasons why they consider mobile banking to be the most important. Of these, 51% of all respondents prioritise ease of use, while costs only account for 5.9%. Male users also prefer ease of use (52.2%). By comparing 2019 and 2024, it was found that bank managers pointed out that the level of ease of use has increased with the introduction of two-factor protection when using mobile data.

Table 5

Descriptive Statistics for 2024 on Which Sales Channels Will be Best to Inform the Clients

2024	Male	Female
Via mobile phone/electronic banking	64.46	45.35
In person at the branch	7.44	8.92
Advertising on a TV channel/radio	14.88	15.99
Through social networks	10.74	25.28
Something else (CRM campaigns, etc.)	2.48	4.46
Total	100.00	100.00

Source: Authors' development.

In a new survey conducted in 2024, bank managers believe that clients will be best informed via mobile phone or electronic banking, 64.46% of male respondents have this opinion, and 45.35% of

female respondents. Social networks are second as ideal platforms for building and conducting a positive PR strategy over the Internet. Electronic and mobile banking are the most common types of digital communication channels in banks.

Social media influencers represent a new type of independent third parties who shape audience attitudes through blogs, tweets, and other social media use (Gorry & Westbrook, 2009). Websites and social networks (Facebook, Instagram, Twitter, and LinkedIn) were proven by previous research results on the frequency of use of digital communications in the banks of Serbia (Neogradi, 2019).

As part of this research, CRM is represented in a tiny percentage in 2024 compared to 2019. CRM is an irreplaceable instrument for promotional and communication purposes, which, through the application of information technologies, establishes direct communication with clients and significantly influences their relationship with the bank (Domazet & Neogradi, 2023).

Table 6

Descriptive Statistics for 2019 on Which Sales Channels Will be Best to Inform the Clients

2019	Male	Female
Via mobile phone/electronic banking	21,7	32,1
In person at the branch	73,9	50,0
Advertising on a TV channel/radio	4,3	14,3
Through social networks	1,00	3,0
Something else (CRM campaigns, etc.)	0,00	0,00
Total	100.00	100.00

Source: Authors' development.

In 2019, bank managers believed that clients are best informed when they come to the branch in person, ranging from 50% to 73.9%, via mobile phones 21.7% to 32.1%, while social networks were insignificant. Branches enable direct contact and face-to-face interaction between the client and the bank employee. This channel is sold in addition to being preferred by its clients, especially male bank managers (73.9%).

Results of Correlation Analysis

For correlation analysis, authors needed to identify paired variables that could be compared. Here are the critical pairs that the authors considered:

1. The percentage of males and females believe digital channels will replace bank branches in 2019 and 2024.
2. The factors considered necessary in mobile banking for males and females in 2019 and 2024.
3. The preferred sales channels for informing clients in 2019 and 2024.

The authors calculated the correlations for these pairs.

Correlation Calculation. The authors calculated the correlation coefficients using the values from Tables 1–6 in the context of digital transformation. The authors used Pearson correlation for the analysis and performed the Python calculations.

English statistician Karl Pearson's coefficient is given in Formula 1:

$$r = \frac{n \sum(xy) - (\sum x)(\sum y)}{\sqrt{[n \sum x^2 - (\sum x^2)][n \sum y^2 - (\sum y^2)]}} \quad (1)$$

Table 7*Correlation Results*

Variable	Pearson's coefficient for male bank managers	Pearson's coefficient for female bank managers
Replacement of Bank Branches by Digital Sales Channels	0.319132	0.774052
Essential Factors of Using Mobile Banking	0.891284	0.926096
Best Sales Channels for Informing Clients	0.001683	0.170938

Source: Authors' development.

Interpretation of Correlation on Replacement of Bank Branches by Digital Sales Channels

- The correlation for males (0.319) suggests a weak positive relationship between the years 2019 and 2024.

- The correlation for females (0.774) indicates a strong positive relationship, suggesting that opinions among females have been more consistent over time.

Interpretation of Correlation on Important Factors of Using Mobile Banking

- The correlation between males (0.891) and females (0.926) shows strong positive relationships, implying that the importance of various factors has remained consistent over the years for both genders.

Interpretation of correlation on Best Sales Channels for Informing Clients

- The correlation for males (0.002) and females (0.171) suggests a weak or almost no positive relationship. This indicates that the preferred sales channels have changed significantly from 2019 to 2024.

To explore the underlying structure of the data and the extent to which two variables change together through covariance matrices and eigenvalues, authors performed the following statistical analyses:

1. Computed the covariance matrices for the datasets.
2. Calculate the eigenvalues and eigenvectors of these covariance matrices.

The authors proceeded with these calculations using Python (Table 8–10).

Table 8***Development of Covariance Matrices and Eigenvalues/Eigenvectors on Replacement of Bank Branches by Digital Sales Channels***

Covariance Matrix for 2019	[327.99 196.04] [196.04 258.74]
Eigenvalues for 2019	[492.44, 94.29]
Eigenvectors for 2019	[0.7661 -0.6427] [0.6427 0.7661]
Covariance Matrix for 2024	[882.34 505.37] [505.37 312.01]
Eigenvalues for 2024	[1177.46, 16.90]
Eigenvectors for 2024	[0.8635 -0.5043] [0.5043 0.8635]

Source: Authors' development.

Table 9

Development of Covariance Matrices and Eigenvalues/Eigenvectors on Important Factors of Using Mobile Banking

Covariance Matrix for 2019	[534.96 414.79] [414.79 348.98]
Eigenvalues for 2019	[867.06, 16.88]
Eigenvectors for 2019	[0.7806 -0.6250] [0.6250 0.7806]
Covariance Matrix for 2024	[1921.44 1925.62] [1925.62 1935.53]
Eigenvalues for 2024	[2.85, 3854.12]
Eigenvectors for 2024	[-0.7084 -0.7058] [0.7058 -0.7084]

Source: Authors' development.

Table 10

Development of Covariance Matrices and Eigenvalues/Eigenvectors on Best Sales Channels for Informing Clients

Covariance Matrix for 2019	[978.86 612.54] [612.54 441.96]
Eigenvalues for 2019	[1379.19, 41.62]
Eigenvectors for 2019	[0.8371 -0.5471] [0.5471 0.8371]
Covariance Matrix for 2024	[577.34 358.72] [358.72 259.90]
Eigenvalues for 2024	[810.88, 26.35]
Eigenvectors for 2024	[0.8380 -0.5456] [0.5456 0.8380]

Source: Authors' development.

Interpretation of Covariance on Replacement of Bank Branches by Digital Sales Channels

2019: The eigenvalues suggest that the first component (492.44) captures the primary variance better than the second component (94.29).

2024: The primary variance is much higher in the first component (1177.46) than in the second component (16.90), indicating a stronger underlying trend in the data for 2024.

Interpretation of covariance essential factors of using mobile banking

- 2019: The eigenvalues (867.06 and 16.88) suggest a significant primary component capturing most of the variance.

- 2024: A significant increase in variance (3854.12) is captured by the primary component in 2024, indicating a substantial change in the factors affecting mobile banking usage.

Interpretation of Covariance Best Sales Channels for Informing Clients

- 2019: The eigenvalues (1379.19 and 41.62) indicate a substantial primary component.

- 2024: The variance captured by the primary component (810.88) has decreased compared to 2019, suggesting more distributed importance among different sales channels in 2024.

Discussion

The main goal of the research is to present the similarities and differences that have arisen in the Serbian banking business due to digitisation's impact over five years (2019–2024).

Based on the research, Digital sales channels will replace bank branches in Serbia in the foreseeable future.

The most critical factor in using mobile banking in digitising banks in Serbia is the simple and easy availability of banking services for clients. Using applications on their phones, clients can perform all the banking services they need without going to branches. For this very reason, bank managers believe that the best way to inform clients about banking services is through mobile banking.

Recommendations for optimising and adjusting banks' digital transformation in Serbia are: innovating digital platforms on mobile or electronic applications, it is necessary to introduce and develop a digital product. Also, harmonise the legislative and digital transformation concerning exposure to risks that increasingly intense hacker attacks can cause.

To work on the education of both bank employees and the general population.

A limitation of the empirical research is the implementation of descriptive statistics among the bank managers of one bank. It is necessary to expand the empirical study on the attitudes of managers of all banks in the territory of the Republic of Serbia.

The majority of surveyed Serbian bank managers believe that in 2024, digital sales channels will replace branches in the foreseeable future, with 67.6% of male respondents and 52.2% of female respondents confirming this. The gender aspect of the author's finding was confirmed by recent research in Turkey. According to a recent study conducted in Turkey by Suluk (2023), "active retail digital banking customers consist of approximately 66% of men and 34% of women as of January-March 2023" (p. 363). This finding is similar to the findings of Al-Omouh et al. (2020) and the fintech findings of Chen et al. (2023).

However, Serbian bank managers are of the majority opinion that mobile banking has an advantage due to its ease of use, with 80.17 male respondents and 82.53 female respondents agreeing with this statement. Such prospects were also emphasised earlier by Rahman et al. (2020) and Suluk (2023). The research results also show that in their marketing campaigns, banks believe that the client will be best informed about all the bank's products and services through mobile banking. Furthermore, the position of the bank manager in the empirical research is that clients are the least informed about banking services obtained through CRM or recommendations.

As many as 64.46% of male bank managers believe that clients are best informed about the bank's products via a mobile phone, while personal contact in a bank branch is significantly reduced compared to 2019. This seems to conform with IMF's Global Financial Stability Report 2020, which calls on policymakers at all levels to encourage banks to take a broad range of measures to improve operating efficiencies, including branch reduction where warranted (International Monetary Fund, 2020, p. 79).

25.28% of Serbian female bank managers believe that social networks take second place when informing clients about products and services. These effects were also discussed in the context of business performance by Halawani et al. (2020) using a study of hotels in Lebanon.

The present research on the attitudes of bank managers with a university degree showed that an emerging way to inform clients about the bank's products and services in Serbia is via mobile phone. Mobile banking seems particularly widely used in financial organisations to target younger clients.

The research results indicate that there is a dependency between the manager's attitude about using sales channels through which the client will be best informed and the professional qualifications of the surveyed bank managers in Serbia.

The research indicated that banks should heavily use social networks to promote their products and services because social networks enable connecting clients and allow banks to anticipate future trends in market development.

According to the present research, the Internet and information and communication technologies have become synonyms for shortcuts when performing almost all activities in the banking sector. In line with this, the Internet bank manager's attitude is that there are two groups of clients: those who fulfil their needs for banking services through online banking and the segment that prefers going to bank branches.

In various empirical research studies, the attitude of bank managers showed that Internet banking will affect the closing of branches, which is also evident from recent research in Turkey. According to Suluk (2023, p. 365), the number of branches in Turkey was 10.199 in 2019 and has decreased to 9.639 in June 2023 (). Similarly, as Hernando and Nieto (2007) discovered earlier, it will also affect bank performance. It will determine customer satisfaction (Jahan et al., 2020). According to Nurjanah (2023), it seems that the more digital technologies are applied, the greater the opportunities for improving the process of managing service distribution channels, which is somewhat different from the authors' research for 2019, which shows that personal selling is the distribution channel that best informs clients about the bank's products and services.

The present research results show that financial institutions apply a combination of sales channels with a tendency to digitalise. The manager's position in the empirical research is that the most important sales channel is mobile banking, which includes sending SMS messages, conducting CRM campaigns based on data about the clients of natural persons and businesses they own, and then advertising the bank's products and services on television and radio.

The research results indicate that banks still use a combination of different sales channels in their marketing campaigns today and that the share of digital communication channels had significantly increased compared to the period before COVID-19, when the dominant form of marketing communications in bank campaigns was advertising through TV commercials.

The analysis of the research results indicates that distribution channels significantly influence the perception of the quality of banking services, as Bauer et al. (2005) also pointed out. Banks continue to apply multiple sales channels to increase their profitability in the Serbian market. The present research proved that if financial institutions used a combination of mobile banking, CRM model, and TV/radio advertisements as sales channels, the number of new clients would increase as an output variable.

If the communication channels are based on digital technologies, such as mobile and electronic banking, the bank's portfolio will increase. Because of the rapid way of life, the development of modern technology means that clients do not have time to come to branches but want to solve all their needs through mobile applications.

According to Domazet et al. (2019), the more communication channels are based on digital technologies, the more communication channels are available to existing and potential markets, and the degree of efficiency of service provision should be greater due to overcoming time and space distance.

If the distribution channels are more efficient and accessible, the macroeconomic effects on the entire social community and economy should be more positive. Preferred sales channels for informing clients have seen significant changes from 2019 to 2024, particularly among males.

Additionally, for a financial organisation to increase its market share, it is necessary to constantly upgrade its digital platform on mobile phones because paying bills through a mobile application increases the bank's competitiveness.

Mobile marketing, loyalty, and analytics enrich the marketing offer through mobile advertising.

Duong et al. (2024) discussed the prospect of digital banking and reached similar conclusions, while Nurjanah (2023) empirically established that banking experienced growth due to digital transformation.

The eigenvalues and eigenvectors of this study reveal that the primary components capture the most significant variance in the data, especially in 2024 for the replacement of bank branches and mobile banking factors. This suggests more robust trends and more distinct patterns in the data for 2024 compared to 2019. The underlying structure of the data has become more pronounced over time, reflecting changes in consumer behaviour and preferences.

In summary of the discussion, according to this research among Serbian bank managers, there is a firmer consistency in opinions regarding replacing bank branches with digital sales channels among female managers compared to male managers. Additionally, both genders have shown a high level of consistency in what they consider essential factors in mobile banking, similar to evidence from India (Gupta & Mahakud, 2020).

Conclusions and Implications

This paper emphasises the attitudes of both male and female bank managers toward mobile and electronic banking, which is used to meet clients' needs, as well as other digital channels. Specifically, the study researches whether the orientation towards applying digital solutions within the banking sector will replace bank branches in Serbia regarding essential factors of using mobile banking and the best sales channels for informing clients.

The authors pointed out that many studies show how the use of alternative distribution channels indicates the future of the banking business. This is supported by the fact that the application of new technologies in financial institutions and the use of smartphones, especially among younger clients, reduces costs for banks, not only in Serbia. M-banking, E-banking, and the application of Viber applications, which are still in the initial phase of application by some financial institutions in Serbia, seem to make business operations with the bank more straightforward and faster. They seem to represent the future of banking in the Serbian market. This is similar to other cross-country experiences studied comparatively by the authors, particularly in Europe (Golovkova et al., 2019), Macedonia (Curak et al., 2012), Kenya (Chege et al., 2020), India (Shaikh & Anwar, 2023) and Nigeria (Aduda & Kingoo, 2012).

The authors found that for banks to use digital communications effectively and to achieve a competitive advantage of these financial institutions in the market, they must integrate them into the system of marketing activities and the bank value chain. Other authors confirmed this finding. According to Akhisar et al. (2015), electronic banking services are innovations affecting bank performance. Additionally, according to Ngamal and Perajaka (2022), this opens up opportunities for the banking industry to increase customer numbers and profits to achieve further bank development and growth. Behera et al. (2015) found that this also changes the mode of performance measurement.

Based on the results of empirical research, it is concluded that digital communications contribute to a more efficient consideration and improvement of various types of communication with clients, trying to bring the offer closer to them.

In the following two interlocked research papers, the authors will address additional aspects of the bank digitisation segment, as suggested in Figure 1. Research topics will include analysis of sales channels and changes in bank processes and models aimed at retaining and attracting new clients and influence of qualifications and training of bank managers on digitalisation.

Suggestions for Future Research

Regarding the positive implications of high ease of reliance on digitisation, it is recommended to explore to what extent mobile banking apps are intuitive and user-friendly and whether adoption rates

tend to rise significantly. This is because customers seem more likely to begin and continue using a mobile banking service if it is easy to navigate. Similar comparative recommendations for future research in India were recently made by Chauhan et al. (2022). A smooth, hassle-free experience encourages banks and researchers to explore additional features and conduct modernised transactions. Additionally, a research question is raised whether complex or confusing interfaces can lead to user frustration and eventual abandonment of digital communications. Moreover, vice versa, the question is whether the high ease of use shortens the learning curve, making customers less likely to quit.

When it comes to potential implications of intent to use digital technologies and motivation, it is recommended to explore to what extent users with a strong intent to use the app are more motivated to engage with mobile banking services, whether this is a strong predictor of long-term engagement, and whether users who intend to use mobile banking regularly are more likely to stick with it over time.

Regarding the significance of the interaction between ease of use and intent of using digitisation, it is recommended to explore to what extent positive experiences lead to sustained engagement and full utilisation of various app features.

Regarding potential implications for design consideration, it is recommended that research to what extent digitisation of bank services can minimise complexity and improve the clarity of navigation with concise labels and intuitive product design. This allows real-time feedback during interactions, such as transaction success messages or error alerts. Regular usability testing and user feedback are crucial for the ongoing evolution of an app. Another potential research area is exploring how apps should adapt to meet user needs and keep pace with changing technology. Monitoring user behaviour metrics (e.g., customer retention and task completion rates) is essential to evaluate the impact of product design changes. In this connection, it is interesting to note that Kitsios et al. (2021) recently suggested attaching more significance to evaluating the acceptance rate of E-Services. Similarly, Bueno et al. (2023) showed in the Brazilian experience that break-even aspects of digital bank management are becoming increasingly crucial for upcoming scientific research.

In line with Salehi and Alipour's earlier recommendations (2010), the authors will additionally show in Paper II that the key research question is how to educate customers and bank managers about the app's features to enhance their understanding and motivation in conditions of rapid digitization.

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Conflict of Interest

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