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## COMPARATIVE ANALYSIS OF MOBILE BANKING DEVELOPMENT IN DEVELOPED AND DEVELOPING COUNTRIES

M. Kh. Abdinova<sup>1\*</sup>, S. S. Arystanbayeva<sup>1</sup>, A. N. Lambekova<sup>2</sup>

<sup>1</sup>Narxoz University, Almaty, Republic of Kazakhstan

<sup>2</sup>Karaganda Buketov University, Karaganda, Republic of Kazakhstan

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### ABSTRACT

*Purpose of the research.* To conduct a comparative analysis of mobile banking development in developed and developing countries, and to identify factors affecting the success of its implementation and adoption.

*Methodology.* This research is based on the analysis of highly cited scientific articles and mobile banking data published in the Scopus database. The current method includes systematic literature review, as well as comparative analysis of adoption factors, measures and barriers.

*Originality /value.* This research contributes to the literature on mobile banking development and conducts comparative analysis of factors, measures and barriers related to mobile banking adoption in various economic contexts. In addition, it examines economic, technological, cultural and other factors and measures that facilitate or limit its success, and practical recommendations will be offered for all markets for adoption of mobile banking services.

*Findings.* The research results revealed that during adoption of mobile banking services there can arise various issues in different markets. In developing economies challenges such as transaction costs and limited access to services and the internet hinder the development of financial inclusion. In developed countries customers prefer more convenience and user-friendly apps. Differences in economic conditions, access to technology and regulatory approaches significantly impact the success of mobile banking and require adapted strategies for effective implementation.

*Keywords:* mobile banking, adoption, and development of mobile banking, developed and developing countries, factors, barriers, positive and negative indicators.

### INTRODUCTION

Mobile banking as an innovative form of electronic financial services allows users to perform transactions and access financial data via mobile devices. Despite the popularisation of smartphones and mobile internet, the relevance of mobile banking adoption remains uneven across countries and regions. It is important to specify the factors influencing the implementation and development of mobile banking in various economies, and to examine the barriers and incentives affecting consumer adoption of these services.

The researchers specified different factors of mobile banking adoption that we classified based on the countries' economics. These factors have similarities and diversity depending on the economic condition of the country. According to the UNCTADstat Data Center, we classified the countries into developed and developing economies [1]. So, the UK, Portugal, Australia, South Korea, Finland, Singapore, Germany and the USA are classified as the developed countries, and Saudi Arabia, Oman, Bangladesh, Lebanon, Cameroon, Nepal, Malaysia, India, China, Sub-Saharan Africa, Turkey and Brazil are grouped as developing countries. We will analyse the articles where data were collected in the above-mentioned countries using quantitative and qualitative methods.

In **developed countries** such as UK and the USA, security and confidentiality of personal data is the most important factors [2; 3] due to cyber-attacks and identity theft that take place most often as the result of the rapid development of financial technologies. Oh & Kim (2021) collected the data from the platforms where

mobile banking users provided review and conducted a text-mining analysis to find out that security and convenience positively influence app ratings, however insecurity, lower customer support services and not user-friendly apps lead to lower ratings. Choudrie et al. (2018) examined that even in a developed country like the UK, specific groups – such as older people, disabled people and families with lower income - struggle with adoption, use and diffusion of mobile banking.

The second group of factors is convenience and ease of use [3; 4; 5]. Riquelme and Rios (2010) found that women prioritize ease of use and social norms while men focus more on the usefulness of mobile banking than other criteria.

The third factor is cost [5]. Analysis conducted by Wessels and Drennan (2010) showed that respondents have less willingness if the cost of using m-banking is expensive. So, the cost is quite important for adoption of mobile banking over all countries leading to the negative effect.

The fourth factor is trust [2; 6; 7]. One of the key factors is trust in mobile banking adoption [7], where confirmation, perceived security and privacy have a significant impact on trust if people believe that their personal data are protected by financial institutions. Trust in mobile banking is also a key factor among the elder users [2], so if they do not trust it can lead to the barrier for adoption of m-banking and if elder users trust it will mitigate the risk related with use of mobile banking. Therefore, according to Choudrie et al. (2018), quality of system and interface, perceived security and social factors have greater impact on trust. Koenig-Lewis et al. (2010) found that trust and credibility are dominant to reduce the risk in mobile banking adoption.

The fifth factor is quality [8; 9]. Tam and Oliveira (2016) considered three types of quality such as system quality, service quality and information quality, and they concluded that users are satisfied by mobile banking if all qualities are on the high level. In the study of Lee and Chung (2009), system quality and information quality have a positive effect on the customers satisfaction, however interface design quality is less critical for mobile banking users.

The sixth factor is tradition [10]. Laukkanen (2016) focused on the barriers that appear while accepting the mobile banking including functional and psychological barriers. He found out that traditional consumers accept mobile banking with less enthusiasm because innovation does not fit the existing values, habits, or social norms of the traditional consumers.

**In developing countries**, mobile banking users prioritize the following factors: ease of use and perceived usefulness in Saudi Arabia [11] and in Sub-Saharan Africa [12], system and service quality in Oman [13] and in Libiya [14], trust and security in Libiya [14] and in Malaysia [15], social and cultural factors in Malaysia [16] and in Pakistan [17], cost and accessibility in Nepal [18] and in Bangladesh [18], financial and digital literacy in Sub-Saharan Africa [12] and in Nepal [18].

The factors that are important for developed countries are also significant in developing countries. The only exception is the financial and digital literacy which can act as a barrier due to lack of awareness and knowledge of mobile banking services. Therefore, literacy programs can significantly improve the adoption of mobile banking services in such countries.

Regulatory and legal framework issues also play a significant role in mobile banking adoption. Hornuf et al. (2025) point out that lack of compatibility between technological standards and weak regulatory frameworks in developing countries hinder the mass adoption of fintech services. Governments could assist by improving infrastructure and enabling competition.

This literature review demonstrates that the successful adoption of mobile banking depends on a comprehensive consideration of the countries' peculiarities. Despite growing interest in mobile financial services, its widespread adoption remains limited in the countries with transitional economies due to a number of social, regulatory, literacy and infrastructural barriers. Improved user confidence, training, solved regulatory aspects and improvement of infrastructure could encourage greater use of mobile banking, especially in regions with limited accessibility to traditional banking services.

This research topic is now relevant due to growing consumer demand for digital convenience, because people get to use to have access on financial services on a 24-hour basis. Consumers can transfer money and pay for services and goods instantly using their mobile banking apps. As of 2024, Statista reports that more than 2,3 billion people worldwide use mobile banking - a figure projected to rise further as AI-driven functionalities and biometric security continue to enhance user experience.

The second reason of relevance of this topic is that mobile banking significantly improves access to financial services in unbanked regions, especially where traditional bank branches are scarce. So financial inclusion issues can be eliminated in the emerging countries while digital banking develop rapidly. In Kenya, Safaricom's M-Pesa mobile service has radically increased access to financial services, especially in rural areas. By being able to use a regular mobile phone to transfer money and pay for services, users were able to access financial services without having to visit a bank [19]. As a result, financial inclusion rates have increased from 26% in 2006 to over 84% in 2021 [20], and M-Pesa became as a global example of successful mobile finance adoption.

Cost efficiency and operational effectiveness for banks highlights another applicable reason. By decreasing dependence on expensive physical infrastructure and manual support, mobile banking enables financial institutions to concentrate on delivering services through scalable and automated digital platforms.

The following research questions will be studied in this article:

- 1) What measures exist for mobile banking development in developed and developing economies?
- 2) What are the main barriers to mobile banking adoption in different markets?

## THE MAIN PART OF THE STUDY

### Research Methods.

We conducted a comparative review of high-cited scientific articles collected from the Scopus database between 2008-2025 on factors affecting mobile banking adoption under different economic conditions. The articles were selected based on keywords such as 'mobile banking' and/or 'mobile banking adoption'. This ensured both quality and breadth of data, covering empirical studies, theoretical models, and country-specific case analyses. The research articles about Kazakhstan were collected from Google Scholar.

The research methodology included a systematic literature review, a comparative analysis of adoption factors and components, as well as barriers and their classification. This approach enabled the systematic identification of core factors influencing mobile banking adoption across various countries. In our comparative analysis, we categorized the influencing factors into thematic groups: economic, technological, social, behavioural, infrastructural, traditional, behavioural, and regulatory dimensions. Furthermore, we outlined and classified the primary barriers to adoption within these frameworks. The analysis was conducted across two country categories—developed and developing economies. The rationale behind this approach lies in its ability to reveal universal drivers and context-specific barriers, enabling a deeper understanding of mobile banking ecosystems globally.

We analysed key studies and data on Kazakhstan's mobile banking landscape, drawing on sources such as the National Bank of Kazakhstan, academic research, and regional assessments of digital financial inclusion. The country has experienced a swift rise in mobile banking usage, driven in part by integrated super-apps like Kaspi.kz that bundle payments, lending, and e-commerce into a single digital platform.

### Results and Discussion.

The analyses of selected articles aided to classify key measures that have an influence on mobile banking development. The table 1 below presents the groups of measures, as well as their positive and negative indicators in both developed and developing countries.

**Economic measures.** The cost of mobile transactions impacts the decision to continue using mobile banking services [7]. Mobile banking development should reduce costs for both users and financial institutions.

**Technological measures.** Lee et al. (2009) concluded that trust of the customers is the primary factor influencing users' satisfaction with mobile banking; system quality and information quality play a greater role in establishing trust in mobile banking than in directly affecting customer satisfaction; and while interface design quality contributes to building trust in mobile banking, it is less critical compared to system quality and information quality [8]. Oh and Kim (2022) observed that greater positive perceptions of security and convenience in mobile banking app reviews lead to higher user satisfaction and improved ratings. Heightened negative perceptions of insecurity, inadequate customer support, lack of user comfort, and app complexity result in lower user satisfaction and less favourable ratings. Security stands out as the most critical factor influencing user satisfaction with mobile banking apps [3].

Table 1 – Classification of key measures of mobile banking development in developed and developing countries.

name OF THE MEASURE	POSITIVE INDICATORS	NEGATIVE INDICATORS
Economic MEASURES	Cost reduction	High costs of mobile transaction
Technological MEASURES	System quality Information quality Interface design quality Enhanced security Ease of use User trust Innovative technology Integration with other platforms Technological support	Lack of privacy Security concerns Complexity
Infrastructural MEASURES	Higher financial inclusion Customer support Convenience	Lack of infrastructure in the rural areas
Social MEASURES	Social influence/norms Perceived ease of use Perceived usefulness Recommendations Electronic Word of Mouth User satisfaction	Perception of risk Discomfort
Regulatory MEASURES		Low technology standards Weak regulatory frameworks
Behavioural MEASURES	Compatibility with lifestyle Trust Credibility Ease of use Usefulness Self-efficacy	Cost on behavioural intention Risk Costs of acquisition and use Need for interaction with personnel
tradition- specific and cultural measures	Power distance, Long-term orientation	Usage barrier (small text & graphs, difficult to enter the data, authorization problems, etc.) Value barrier (offer more than existing alternatives) Risk barrier Psychological barriers Negative images (too difficult to use) Uncertainty avoidance, Individualism-collectivism, Masculinity-femininity, Short-term orientation

Source – Compiled by the authors based on the articles from the reference.

**Social measures.** Riquelme et al. (2010) found that social norms and social risks are more important for female users because advice and recommendations of family members, friends or relatives have a greater impact on women's decisions. Therefore, social, and external impacts should not be ignored while developing the m-banking services and products [4].

**Behavioural measures.** The study of Koenig-Lewis et al. (2010) showed that early adoption of m-banking services is higher among men than female users. Young customers in Germany are more inclined to perceive m-banking services as user-friendly, beneficial, and trustworthy – free from security and privacy concerns – when they hold positive beliefs about the compatibility of this new technology. Compatibility, perceived usefulness, and perceived risk are key determinants in the adoption of mobile banking services. Compatibility plays a vital role in shaping perceived ease of use, perceived usefulness, and trustworthiness. Trust and credibility are essential in minimizing the overall perceived risk associated with mobile banking. Compatibility enhances the likelihood of adopting m-banking in the prospect of behavioural measures [6]. Wessels et al. (2010) found in their research that attitude acts as a mediator in the relationship between perceived usefulness,

perceived risk, cost, compatibility, and the intention to adopt mobile banking. Perceived usefulness exerts the most substantial direct and combined influence on the intention to use mobile banking. Perceived risk and cost negatively impact consumers' attitudes and intentions to adopt mobile banking. In addition, compatibility between mobile banking and consumers' lifestyles enhances their intention to use it [5].

**Tradition-specific and cultural measures.** Customers prefer interacting with staff instead of using the innovative services and products, leading to psychological barriers [10]. Usually, they fear they will not get what they expect from the innovative services. Psychological resistance is closely connected to tradition-specific barriers. People want human contact to resolve issues and ask questions. In societies with high adherence to tradition, Laukkanen (2016) notes, consumers may have negative associations with the shift to remote banking, preferring face-to-face interactions.

Furthermore, we analysed the articles that conducted questionnaires among mobile banking users in developing countries. The authors focused on the main factors and measures that influence greater to adoption of mobile banking services in their respective countries. The table 2 below provides a summary of these articles, specifying the research questions, methods or models used and measures tested to find out the key drivers and barriers to the development of m-banking services:

Table 2 –

#	Title, authors, and year	Research questions	Independent measures	Dependent measures	Mediating measures	Methods/Models
1	Mobile banking adoption: application of diffusion of innovation theory (2012), Authors: Ibrahim M Al-Jabri, M Sadiq	What factors influence mobile banking adoption in Saudi Arabia?	Relative advantage, compatibility, observability, complexity, trialability, and perceived risk	Satisfaction (surrogate measure)	-	Diffusion of innovation theory (DIT)
2	Consumer adoption of mobile banking services: An empirical examination of factors according to adoption stages (2018), Mahmud Akhter Shareef, Abdullah Baabdullah, Shantanu Dutta, Vinod Kumar, Yogesh K Dwivedi		Perceived Awareness (PA), Availability of Resources (AOR), Computer-Self Efficacy (CSE), Perceived Ability to Use (PATU), Multilingual Option (MLO), Perceived Information Quality (PIQ), Perceived Trust (PT), Perceived Uncertainty (PU), Perceived Security (PS), Perceived Functional Benefit (PFB), Perceived Image (PI)	Mobile bank adoption at the static stage (MBA-S), interaction stage (MBA-I), and transaction stage (MBA-T)	-	GAM model
3	Consumer use of mobile banking (M-Banking) in Saudi Arabia: Towards an integrated model (2019), Abdullah M Baabdullah, Ali Abdallah Alalwan, Nripendra P Rana, Hatice Kizgin, Pushp Patil	What are the main factors that could predict the use of mobile banking as well as how using such a system could contribute to both customer satisfaction and customer loyalty?	Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Hedonic Motivation, Price Value, Habit, Information Quality, System Quality, Service Quality	Usage; Satisfaction, Loyalty	-	Combination of UTAUT2 and the D&M IS Success Model



4	Determining factors and impacts of the intention to adopt mobile banking app in Cameroon: Case of SARA by afriland First Bank (2021), Jean Robert, Kala Kamdjoug, Serge-Lopez Wamba-Taguimdje, Samuel Fosso Wamba, Ingrid Bive'e Kake	What are the factors determining the adoption of M-Banking app among customers in Cameroon? What are the causes that influence users in their decisions to adopt a system or technology such as the M-Banking app, and to use it? What is the impact of the adoption of M-Banking on the customers and financial inclusion?	Rational perception (utilitarian expectation, hedonic expectation, status gain, status loss avoidance); Terminal security (perceived severity, perceived vulnerability, perceived privacy concern); Behavioral control (habit, quality concern); Enhanced use (locus of innovation); Financial inclusion (access, usage, quality/relevance, welfare); Mobile banking use impacts (loyalty, user satisfaction);	Intention to adopt M-Banking App (IA)	Exploitative use; Explorative use;	Combination of Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT2), Information System Success Model (ISSM), Protection Motivation Theory (PMT) and others
5	Examining the role of trust and quality dimensions in the actual usage of mobile banking services: An empirical investigation (2019), Sujeet Kumar Sharma, Manisha Sharma	What is the new research model by extending the DeLone & McLean information systems (D&M IS) success model to understand users' actual usage of m-banking?	Service quality, information quality, system quality, trust	Actual usage	Satisfaction, intention to use	extended DeLone & McLean information systems success model
6	Users' adoption of e-banking services: the Malaysian perspective (2008), Wai-Ching Poon	What are the determinants of users' adoption momentum of e-banking in Malaysia?	Convenience, Accessibility, Feature availability, Bank management and image, Fees and charges, Privacy, Security, Design, Content, Speed	Usage of e-banking services	-	one-way ANOVA
7	Customer satisfaction towards mobile banking service quality (2023), Sushil Prasad Panthi	What is the relationship between tangibility, reliability, assurance, empathy and responsiveness with customer satisfaction? What is the effect of tangibility, reliability, assurance, empathy and responsiveness on customer satisfaction?	Tangibility, reliability, assurance, empathy and responsiveness	Customer satisfaction	-	Descriptive research design and Causal Comparative research design; Convenience sampling methods
8	Examining the role of consumer satisfaction within mobile eco-systems: Evidence from mobile banking services (2021), Ahmed Geebren, Abdul Jabbar, Ming Luo	What is the mechanism of customer satisfaction enhancement in mobile banking (MB), focusing on the role of trust?	System quality, information quality, services quality, task characteristics and structural assurance	Mobile banking user satisfaction	Trust	Structural equation modelling with partial least squares (PLS-SEM)
9	Mobile-banking adoption: empirical evidence from the banking sector in Pakistan (2018), Maya F Farah, Muhammad Junaid, Shahid Hasni, Abbas Khan Abbas	What are the important factors which help explain consumer intention and use behaviour in mobile banking (m-banking) adoption?	Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Condition, Habit, Hedonic Motivation, Perceived Value, Trust, Perceived Risk	Use Behaviour	Mobile banking adoption Intention	Unified theory of acceptance and use of technology 2 (UTAUT2) theory

Al-Jabri & Sohail (2012) employed convenience sampling to recruit 1,500 participants, majority of whom were university students, from three major cities in Saudi Arabia, yielding 496 valid responses. In the questionnaire they found that 330 respondents were current mobile banking users, and 136 respondents were potential users. 43.7% of respondents had been using mobile banking for one year or more. Male users outnumbered female users by 58%. Main findings of the study showed that relative advantage, compatibility, and observability positively influenced the adoption of m-banking. Trialability and complexity had no significant effect on mobile banking adoption. Perceived risk negatively affected the adoption.

Shareef et al. (2018) collected 201 surveys and identified three phases of mobile banking services in Bangladesh, namely static, interaction, and transactional. Their main findings showed that the original models for mobile banking adoption during the static and transaction phases did not align well with the data, requiring adjustments to achieve a better fit. In the static phase, the primary factors influencing mobile banking adoption were perceived usability, trust, functional benefits, and information quality. In the transaction phase, the key drivers of mobile banking adoption included perceived usability, functional benefits, and security. The revised model for the transaction phase accounted for 55% of the variance in mobile banking adoption.

Baabdullah et al. (2019) had 429 completed questionnaires by the Saudi Arabian bank customers. The result of the survey displayed those five factors from the UTAUT2 model—performance expectancy, easing conditions, hedonic motivation, price value, and habit—and two factors from the IS success model—system quality and service quality—positively influenced mobile banking usage in Saudi Arabia. A strong positive relationship was seen between mobile banking usage and customer satisfaction, as well as between customer satisfaction and customer loyalty. Effort expectancy, social influence, and information quality did not significantly affect mobile banking usage.

284 responses collected by Sharma et al. (2019) to conduct the research. Their analysis found that satisfaction and intention to use are the primary factors driving the actual usage of mobile banking. Satisfaction mediated the effects of service quality, information quality, and trust on the intention to use, but not the effect of system quality. Service quality and trust are the most influential factors shaping both satisfaction and intention to use, affecting actual usage.

Poon (2008) analyzed 324 responses for his study. The analysis presented that privacy and security are the main causes of dissatisfaction, while accessibility, convenience, design, and content contributed to user satisfaction with e-banking in Malaysia. Key factors for the success of e-banking in Malaysia included speed, product features, service fees, and the bank's operational management. The features of mobile devices such as WAP, GPRS, and 3G did not significantly affect the adoption of e-banking services in Malaysia.

Sushil et al. (2023) have the following main findings after analysis of 299 answers from the respondents: all service quality dimensions—tangibility, reliability, assurance, empathy, and responsiveness—were positively associated with customer satisfaction. Tangibility and responsiveness have the most significant positive impact on customer satisfaction with mobile banking. While reliability, assurance, and empathy positively influence customer satisfaction, their effects were not statistically significant.

Geebren et al. (2021) analysed the data from 659 respondents. The outcome revealed so trust plays a crucial role in positively influencing customer satisfaction in mobile banking. It was found to serve as a full mediator between service quality, structural assurance, and customer satisfaction. Trust acted as a partial mediator in the relationships between system quality, information quality, task characteristics, and customer satisfaction.

Farah et al. (2018) analyzed 385 respondents' answers. Hence, performance expectancy, effort expectancy, social influence, hedonic motivation, and perceived value were key positive factors influencing the intention to adopt mobile banking. Habit has a significant negative effect on the intention to adopt mobile banking. The intention to adopt mobile banking was shown to strongly and positively affect actual usage behaviour.

The research done by Picoto et al. (2021) emphasised the significant influence of cultural factors on mobile banking adoption. The paper examined the five cultural dimensions -power distance, uncertainty avoidance, individualism-collectivism, masculinity-femininity, and long/short-term orientation - and their role in decision-making about the use of mobile banking services. The study noted that factors such as power distance and long/short-term orientation particularly influence users' intention to adopt mobile banking. High levels of power distance in countries with hierarchical societal structures, such as India and Brazil, may hinder the use of mobile banking, while a longer-term future orientation favours its adoption and diffusion [21].

The barrier faced by the countries also varies. A comparative analysis of the studies reveals that users in developing countries tend to face more significant barriers in adopting mobile banking compared to users from developed countries. For instance, in the developed countries customers value accessibility and ease of use of mobile banking services, at the same time they are more concerned about confidentiality and security of personal data [22]. Studies show that perception of difficulty of use and cost are the main factors influencing reluctance to use mobile banking in countries such as Brazil and Pakistan [17; 23]. In developing countries, the key barriers of m-banking adoption are low financial literacy and lack of infrastructure in the rural areas [24].

#### **Mobile banking in Kazakhstan**

While Kazakhstan has not yet produced as large a volume of academic research on mobile banking as other economies, the existing studies and reports support our findings.

The share of the population using online banking in Kazakhstan has surged from just 25% in 2018 to almost complete coverage by 2024. The proportion of digital transactions has grown dramatically as well — from only 7% in 2014 to 89% by 2024. Nearly all public services, government payments, and administrative transactions have been digitized, largely due to close collaboration between the government and financial institutions. Over 90% of the working-age population now actively uses the eGov platform. At the same time, the volume of digital transactions per person rose sharply from around \$20 in 2014 to \$13 800 in 2023. This rapid shift to digital payments has fueled explosive growth and diversification in Kazakhstan's fintech and e-commerce sectors [25].

The main barriers of mobile banking adoption in Kazakhstan are the followings:

► **Failure of trust and cybersecurity challenges** – Rybina L. (2021) conducted a research among Kazakhstani youth and the results showed that trust and a sense of security are key factors in the decision to use mobile payments, while material aspects, such as the cost of services or the availability of alternatives, had minimal impact. Young users are more willing to switch to digital services if they are confident in their reliability, while perceived risks, on the other hand, significantly reduce their willingness to use such technologies [26].

► **Low digital literacy of the population** – Mamadiyarov Z. (2024) pointed out that the 'digital literacy gap' among certain groups of the population, especially in rural areas, is a serious obstacle to the effective implementation of digital banking in the Central Asian Countries [27].

► **Infrastructure constraints and availability of services** – Kazakhstan is a country with a large territory and uneven population density, so ensuring widespread access to modern services takes time. Kazakhstan's widespread adoption of digital payments and financial inclusion is supported by strong national policies aimed at digital inclusion. With approximately 92% of the population connected to the internet across its vast territory, and over 90% of individuals aged 15 and older owning a mobile phone, the country has built a solid foundation for remote transactions, especially accelerated during the COVID-19 pandemic [25]. Since the introduction of QR-code payments in Kazakhstan in 2017, people have increasingly shifted from using cash and bank cards to opting for mobile payment methods [28].

► **Perception of technology and cultural factors** – Older generation prefer to stay in 'comfort zone' where they can talk to humans than robots and/or chat-bots. It is difficult for them to use digital services where they are afraid to make mistakes. Perceived usefulness and convenience of technology is becoming critical: according to Rybina L. (2021), in Kazakhstan, it is perceived usefulness and perceived ease of use that significantly influence young people's intention to use mobile payments. Youth and elder people welcome user-friendly interface. In Kazakhstan, people always have alternatives in payments, so payment can be made by cash, cards or online using gadgets. It is worth noting that Kazakhstani banks sometimes show restraint when introducing innovative solutions, focusing on the attitude of top management to technology and the expected reaction of customers. According to the study of Moldabekova S. (2021), perception of technology and expectations for its adoption by users significantly influence implementation decisions, which makes the perception factor a barrier for both consumers and service providers themselves [29].

#### **CONCLUSION**

Within the framework of the comparative analysis of mobile banking adoption and development, different outcomes and problems were identified across various countries. In developed countries the users of mobile



banking services focus on convenience and time saving, and factors such as trust, and perceived safety being less important [30]. Users from developed countries are more sensitive to privacy and data protection issues, so banks and developers emphasise multi-level authentication and data encryption [31]. In developing countries, security concerns are also significant, but awareness and protection tend to be lower, so users rely more on trust in local financial institutions and support from social groups [18; 32].

There exists higher potential development of mobile banking services in developing countries. An analysis of the articles revealed that the level of financial inclusion should be increased to open access for the m-banking services in these countries. The complex of economic, technological, social, infrastructural peculiarities, among other factors mentioned above should be considered to implement and develop these services, which leads to improve the financial and digital literacy of the population. Improved user confidence, training and the removal of technical limitations could help accelerate mobile banking adoption, which is particularly important for developing countries.

Counties preferences can vary, so for instance, increased convenience through improved mobile app interfaces and design, as well as the introduction of more features such as personalised offers and financial data analytics are favoured by users in developed countries. However, easier access to the internet and low-cost smartphones, as well as financial literacy programmes, which can significantly increase mobile banking adoption may be more important for the customers in developing countries. Based on the research, we can say that gaining the trust of future customers is quite important and providing reliable and accurate information is crucial for all customers.

While Kazakhstan has made remarkable progress in digital transformation and mobile banking adoption, several barriers continue to hinder full inclusion. Key challenges include trust and cybersecurity concerns, low digital literacy among certain population groups, infrastructure limitations, and cultural resistance to new technologies. Addressing these barriers through targeted education, user-centered design, and continued investment in digital infrastructure will be essential for ensuring inclusive and sustainable growth of mobile banking services across the country.

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## СРАВНИТЕЛЬНЫЙ АНАЛИЗ РАЗВИТИЯ МОБИЛЬНОГО БАНКИНГА В РАЗВИТЫХ И РАЗВИВАЮЩИХСЯ СТРАНАХ

М. Х. Абдинова<sup>1, \*</sup>, С. С. Арыстанбаева<sup>1</sup>, А. Н. Ламбекова<sup>2</sup>

<sup>1</sup> Университет Нархоз, Алматы, Республика Казахстан

<sup>2</sup> Карагандинский университет имени академика Е.А. Букетова, Караганда, Республика Казахстан

### АННОТАЦИЯ

*Цель исследования.* Провести сравнительный анализ развития мобильного банкинга в развитых и развивающихся странах, а также выявить факторы, влияющие на успешность его внедрения и принятия.

*Методология.* Данное исследование основано на анализе высоко цитируемых научных статей и данных о мобильном банкинге, опубликованных в базе данных Scopus. Данный метод включает в себя системный обзор литературы, а также сравнительный анализ факторов, мер и барьеров внедрения.

*Оригинальность / ценность исследования.* Данное исследование вносит вклад в литературу по развитию мобильного банкинга и проводит сравнительный анализ факторов, мер и барьеров внедрения мобильного банкинга в различных экономических контекстах. Кроме того, рассматриваются экономические, технологические, культурные и другие факторы и меры, которые способствуют или ограничивают его успех, а также предлагаются практические рекомендации для всех рынков по внедрению услуг мобильного банкинга.

*Результаты исследования.* Результаты исследования показали, что при внедрении услуг мобильного банкинга на разных рынках могут возникать различные проблемы; в развивающихся экономиках это могут быть транзакционные издержки и ограниченный доступ к услугам и интернету, которые препятствуют развитию финансовой доступности. В развивающихся странах клиенты предпочитают более удобные и практические приложения. Различия в экономических условиях, доступе к технологиям и регуляторных подходах определяют успех мобильного банкинга и требуют адаптированных стратегий для эффективного внедрения.

*Ключевые слова:* мобильный банкинг, внедрение и развитие мобильного банкинга, развитые и развивающиеся страны, факторы, барьеры, положительные и отрицательные показатели.

## ДАМЫҒАН ЖӘНЕ ДАМУШЫ ЕЛДЕРДЕ МОБИЛЬДІ БАНКИНГТІҢ ДАМУЫН САЛЫСТЫРМАЛЫ ТАЛДАУ

М. Х. Абдинова<sup>1, \*</sup>, С. С. Арыстанбаева<sup>1</sup>, А. Н. Ламбекова<sup>2</sup>

<sup>1</sup> Нархоз университеті, Алматы, Қазақстан Республикасы

<sup>2</sup> Академик Е.А.Бөкетов атындағы Қарағанды университеті, Қарағанды, Қазақстан Республикасы

### АНДАТПА

*Зерттеу мақсаты.* Дамыған және дамушы елдерде мобильді банкінгтің дамуына салыстырмалы талдау жүргізу, сондай-ақ оны енгізу мен қабылдаудың сәтті болуына әсер ететін факторларды анықтау.

*Әдіснамасы.* Мақала Scopus деректер базасында жарияланған жоғары дәйексөз алынған ғылыми мақалалар мен мобильді банкінг туралы деректерді талдауға негізделеді. Бұл әдіс әдебиеттерге жүйелі шолу жасауды, сондай-ақ енгізу факторларына, іс-шаралар мен кедергілеріне салыстырмалы талдауды қамтиды.

*Зерттеудің бірегейлігі / құндылығы.* Бұл зерттеу мобильді банкінгті дамыту жөніндегі әдебиеттерге үлес қосады және әртүрлі экономикалық жағдайларда мобильді банкінгті енгізу факторларына, іс-



шаралары мен кедергілеріне салыстырмалы талдау жүргізеді. Сонымен қатар, оның жетістігіне ықпал ететін немесе шектейтін экономикалық, технологиялық, мәдени және басқа факторлар мен іс-шараларды қарастырады және мобильді банкинг қызметтерін енгізу бойынша тәжірибелік ұсыныстар жасайды.

*Зерттеу нәтижелері.* Зерттеу нәтижелері мобильді банкинг қызметтерін әртүрлі нарықтарға енгізу кезінде түрлі мәселелер туындауы мүмкін екенін көрсетті; дамушы экономикаларда бұл транзакциялық шығындар мен қаржылық қолжетімділіктің дамуына кедергі келтіретін қызметтер мен Интернетке шектеулі қолжетімділік болуы мүмкін. Дамушы елдерде тұтынушылар ыңғайлы, практикалық қосымшаларды қалайды. Экономикалық жағдайлардағы, технологияларға қолжетімділік пен реттеуші тәсілдердегі айырмашылықтар мобильді банкингтің сәтті болуын анықтайды, әрі тиімді жүзеге асыру үшін бейімделген стратегияларды қажет етеді.

*Түйін сөздер:* мобильді банкинг, мобильді банкингті енгізу және дамыту, дамыған және дамушы елдер, факторлар, кедергілер, оң және теріс көрсеткіштер.

#### ABOUT THE AUTHORS

**Abdinova Makpal Khamitkhanovna** – PhD Candidate of Narxoz University, Assistant Professor of Business and Economics Department, International Information Technology University, Almaty, the Republic of Kazakhstan, email: m.abdinova@yahoo.com, ORCID: <https://orcid.org/my-orcid?orcid=0000-0002-7482-5609>\*

**Arystanbayeva Saule Sabyrovna** – Doctor of Economics, Professor of Narxoz University, Almaty, the Republic of Kazakhstan, email: saule.arystanbayeva@narxoz.kz, ORCID ID: <https://orcid.org/0009-0004-9040-390X>

**Lambekova Aigerim Nurlanovna** – PhD, Associate Professor of Buketov Karaganda University, Karaganda, the Republic of Kazakhstan, email: aygerim.lambekova@mail.ru ORCID ID: <https://orcid.org/0000-0001-6818-3665>

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#### ЭКОНОМИКО-МАТЕМАТИЧЕСКАЯ МОДЕЛЬ ПОСТРОЕНИЯ КРЕДИТНОЙ ПОЛИТИКИ КОММЕРЧЕСКИХ БАНКОВ НА ПРИМЕРЕ АО «БАНК ЦЕНТРКРЕДИТ»

**М. К. КАЛИБАЕВ<sup>1\*</sup>, А. Б. БЕРІКБАЕВ<sup>1</sup>**

<sup>1</sup>Университет международного бизнеса имени Кенжегали Сагадиева,  
Алматы, Республика Казахстан.

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#### АННОТАЦИЯ

*Цель исследования.* Основной целью исследования является разработка экономико-математической модели построения кредитной политики коммерческого банка, направленной на оптимизацию структуры кредитного портфеля, снижение кредитных рисков и повышение финансовой устойчивости банка в условиях изменяющейся экономической среды.

*Методология исследования* включает применение экономико-математического моделирования, таких как корреляционный и регрессионный анализы, что позволило выявить ключевые зависимости между макроэкономическими показателями, внутренними параметрами кредитного портфеля и их влиянием на общую доходность и риск.