

# Digitalization and its Impact on Developing Economies: A Case Study of Pakistan's Banking Sector

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## Abstract

This paper explores how digitalization affects Pakistan's developing economy. I examine the potential benefits of digitalization, such as increased efficiency, financial inclusion, and new financial products. I also discuss the challenges posed by digitalization, including digital literacy gaps, cybersecurity threats, and potential job displacement. By analyzing existing research and data on the prevalence of digital banking systems in Pakistan, I document how the rollout of digital banking systems affects the share of people leveraging banking tools such as e-wallets and financial technology apps. The increase in the take-up of these tools suggests a possible growth in the use of banking systems, especially in underdeveloped, rural areas. My findings provide insights for policymakers looking to promote an inclusive and sustainable digital transformation in Pakistan's banking sector.

## Introduction

Digitalization is becoming increasingly important for the global economy, with profound impacts throughout the globe, especially on developing economies. Digitally, technology has penetrated every sector, improving efficiencies, affordability, and overall economic development. The banking sector, in particular, has experienced immense changes driven by digitalization, which has brought new methods of providing financial services and increased to the unbanked and underserved populations for significantly promoting financial inclusion.

Pakistan provides a notable case study of how digitalization has impacted banks in a developing country. Traditionally, banking services in Pakistan revolved around human-operated paper-based processes that were time-consuming and inefficient, with frequent errors due to subpar bookkeeping. Physical branches were the only way to access most transactions, leading to long waiting times. Many people could barely manage a visit at all due to the distance between their rural area and the bank premises (Sumra, Manzoor, Sumra & Abbas 201; Nenova Niang & Ahmad 2009). The provision of these services has significantly improved due to digital technologies, which have eased accessibility, efficiency, and customer-friendly banking.

The State Bank of Pakistan (SBP) has been instrumental in fostering this structural shift by promoting the development of a

national payment infrastructure and encouraging banks to adopt digital technologies (State Bank of Pakistan, 2018). This change has not only maximized operational efficiency but has also led to substantial growth in financial inclusion. For instance, the implementation of mobile banking and digital payment systems has allowed accessible ways of managing financial affairs from a distance, which has contributed to expanded services, particularly for populations who had previously limited or no access to the banking sector (Zahir & Imtiaz, 2019).

This paper explores the impact of digitalization on developing economies, focusing on Pakistan's banking sector. I explore features of banking services, along with their digital initiatives, and determine the correlation between mobile cellular subscriptions and the number of bank accounts via digital avenues. I also explore the benefits, challenges, and opportunities brought by digitalization to the banking sector in terms of efficiency gains, cost savings, and increased consumer satisfaction.

Furthermore, this paper reviews case studies of leading digital banks and fintech startups in Pakistan, shedding light on their strategies, successes, and challenges. It illustrates many of the changes brought by "digitalization" and presents the implications of these changes on digital technology for financial sector expansion. This paper concludes by providing recommendations for policymakers, banks and stakeholders to incubate an inclusive and sustainable digital banking sector in Pakistan.

## Literature Review

The banking sector is critical to Pakistan's economic development and has frequently therefore been studied by researchers, government authorities, and financial regulators. This section reviews the current literature on banking efficiency, digitalization and efficiency convergence in the banking sector.

Over the years, countless technological improvements have transformed banking; since the turn of the twenty-first century, there has been a significant transformation in these long-standing financial institutions. Conventional banking has increasingly been replaced with digital technologies in the form of the internet, mobile, and electronic payment systems. The technologies automate banking operations, cut costs, and improve customer experiences.

Research findings on digitalization and banking efficiency yield mixed results. Previous studies (Ekinci, 2021; Li et al., 2021; Wang et al., 2021; Zuo et al., 2021; Le et al., 2022) found a positive relationship between digital technology adoption and banking efficiency, highlighting the cost-saving and efficiency-enhancing potential of digitalization. In other research, however, Martín-Oliver and Salas-Fumás (2008) and Chen Xie (2015) discovered a negative effect of digital technology, indicating that its use can even lead to new sources of inefficiencies.

While international attention to digital banking has persisted, there is a severe lack of empirical evidence on the effects of digitalization on Pakistan's banking sector. The competition from international banks,

along with stricter legal requirements, restructuring and deregulation has increased investment-related costs. This makes it essential to examine how digitalization affects banking efficiency in banking within Pakistan.

Barro and Sala-i-Martin's (1992) convergence hypothesis points that poor nations or less efficient areas grow more quickly than rich ones, eventually reaching the same level. As in the banking efficiency context, this suggests that the least efficient banks will catch up at a faster pace than the most efficient ones over time until they reach equilibrium.

Research on banking efficiency and convergence has produced mixed results. Some studies have identified convergence in efficiency levels across various regions, including the EU, Latin America, China, Arab countries, and India (Liu, Naveed, Mustafa, & Naveed, 2024).

This was also seen in Pakistan, specifically as less efficient banks overtime caught up to 62-82% of efficiency levels of their developed counterparts (Liu, Naveed, Mustafa, & Naveed, 2024).

Moreover, there are few studies investigating banking efficiency convergence in Pakistan. In addition, global studies rarely consider conditional convergence or the external factors that spur digitalization. Fung (2006) emphasized the conditional convergence in U.S. banks, while Casu et al. (2016) and Izzeldin et al. (2021) showed that there were significant and negative EU productivity gaps with respect to an improvement in the Islamic banks-conventional banking convergence pattern (Liu, Naveed, Mustafa, & Naveed, 2024).

This study addresses several gaps in the existing literature:

- I. **Banking Efficiency in Pakistan:** There is limited research on the efficiency of Pakistan's banking industry, particularly using bias-free methods.
- II. **Impact of Digitalization:** Few studies explore the relationship between digital technology adoption and banking efficiency in Pakistan.
- III. **Global Context:** The influence of digitalization on efficiency convergence in the banking sector remains under explored both globally and domestically.

This literature review emphasizes the need to investigate banking efficiency, digitalization, and efficiency convergence in Pakistan's banking sector. These findings will inform policymakers and financial regulators on the determinants of banking performance, thus enabling a deeper understanding of how to promote an efficient and competitive banking system.

### The Banking Sector in Pakistan

With the introduction of digital technologies, Pakistan's banking industry has undergone a significant transformation. Pre-digitalization banking services in Pakistan were predominantly manual and paper-based. To make a bank transfer, for example, a customer would have to first prepare a check and then submit it at the bank. These services were often time-consuming and prone to human error. To open

accounts, customers would have to follow a long and agonizing procedure (Sumra, Manzoor, Sumra, & Abbas, 2011). Moreover, in order to conduct most of their transactions, customers had to come into physical branches and stand in lines for long periods.

These archaic processes made banking a tedious process with little automation and few online services. Furthermore, financial institutions were also less accessible in rural areas. (Nenova, Niang, & Ahmad, 2009). Time costs, in addition to wait and travel times increased overall banking expenses due lengthy processing for tasks such as transfers and payments. For example, using a check to make payments could take an extended period of time to process as opposed to the rather instantaneous use of debit and credit cards etc.

With the introduction of new technology, Pakistan's banking system has begun to shift significantly. The introduction of ATMs reduced the need for customers to go to physical banks and, digital and mobile banking services removed dependence on physical banks. This shift increased accessibility for existing customers while simultaneously reaching individuals who previously had no access to traditional banking. (Zahir & Imtiaz, 2019). For example, the State Bank of Pakistan (SBP) initiated and drove digitalization by working towards building a national payment infrastructure. This facilitates electronic and digital payments for customers, encouraging banks to adopt the digital infrastructure and increasing their customer base (State Bank of Pakistan, 2018)

A key indicator of digital transformation in the banking sector in Pakistan is the number of bank accounts per mobile cellular subscription. Both numbers have increased significantly over the last decade, as demonstrated by in the graph below. This correlation implies that an increase in mobile phone usage has increased access to banks, highlighting technology's role in fostering financial inclusion.

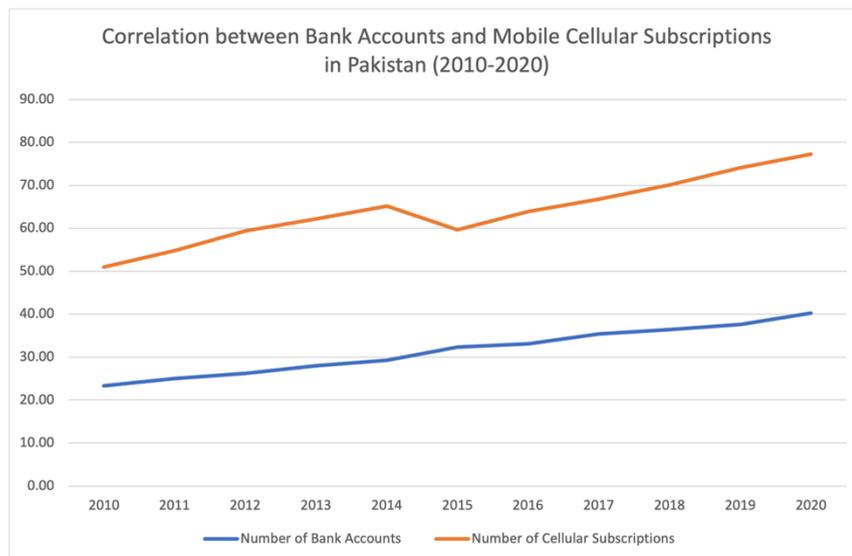


Figure 1. The graph shows the correlation between the number of bank accounts and mobile cellular subscriptions in Pakistan from 2010 to 2020,

highlighting the impact of digitalization on the accessibility and growth of banking services within the country, based on data from the World Bank (World Bank, n.d.-a) (World Bank, n.d.-b).

As the graph reflects, there was a steady increase in bank accounts through 2010–2020, with a similar trend in mobile cellular subscriptions. The trend takes into account the rise of mobile banking services, which are designed to bring more people into formal financial services, including the vast majority who do not have bank branches in their vicinity. Mobile banking applications and services, like SMS banking, provide the opportunity for a large number of customers to check account balances or get statements without going to the bank branch.

Pakistan is now a leading market for branchless banking as banks provide more digital services. This growth is further supported by banks partnering with telecom companies that have introduced mobile wallets and digital banking solutions. With the support of SBP policies, branchless banking has seen rapid development with services such as EasyPaisa or UBL's Omni, similar to Venmo or PayPal in the USA's digital banking sector. These platforms offer various services, from money transfers to paying bills, which leads providers towards a greater level of financial inclusion (Bold, 2012).

In summary, Pakistan's banking sector has undergone a significant transformation, evolving from a traditional, paper-based system to a highly digitized one. The correlation between the number of bank accounts and mobile cellular subscriptions highlights the significant impact of digital technologies on banking services. This digitalization improved efficiency and created a foundation for continued innovations.

### Impact of Digitalization on Pakistan's Banking Sector

In Pakistan, digitization has impacted the banking sector more than almost any other industry, ground-breaking enhancements happening all across Pakistan. This section will analyze how far digitalization has affected Pakistani banks based on key dimensions like efficiency and cost reductions, enhanced financial inclusion activities, newly released models of banking products and services, launched expansion opportunities, etc.

#### Efficiency and Cost Reduction

Digitalization has helped banks in Pakistan increase operational effectiveness and reduce costs. Digital automation has removed repetitive tasks and allocated manpower to focus more on high-level customer needs, increasing satisfaction (Liu, Naveed, Mustafa, & Naveed, 2024). As a result of these digital technologies, banks can reach rural areas more easily, thus leading to lower operational costs and reduced reliance on physical branches.

Furthermore, the advent of digital and mobile banking platforms has simplified many bank processes, which make manual interventions

or paper-based banking services functionally obsolete. Automation has also reduced operational costs and expenses and decreased transaction time. Take digital payments and transfers, for example. They tend to be much faster and cheaper than traditional methods, which benefits both banks and their customers alike (Zahir & Imtiaz, 2019).

#### Increased Financial Inclusion

Like many other developing countries, Pakistan has faced low financial inclusion (Zulfiqar et al., 2016). However, the State Bank of Pakistan (SBP) has been a key driver of greater financial inclusion. While addressing the issues of capital market development, programs like the Financial Inclusion Programme (FIP) have incentivized fintech solution developments.

These initiatives have led to the widespread adoption of mobile banking, branchless banking, and digital payment systems, thereby expanding financial inclusion to millions. Additionally, digitalization has created new financial opportunities in Pakistan, transforming how people conduct business. Innovations such as mobile wallets for secure transactions, savings accounts, and online or digital lending platforms have made financial management more accessible (Noreen, Mia, Ghazali, & Ahmed, 2022).

#### Economic Growth

The increased use of loans and other financial products enabled by digitalization may free resources and enable businesses, entrepreneurs, and consumers to more easily invest and spend through increased availability of funds (Zaidi & Shah, 2023). Banks have similarly relied on a changing economy to develop new products, with digital tools allowing easier access to collect and analyze financial data. This enables banks in Pakistan to better assess creditworthiness and new products that are made as per market needs. For example, this could entail creating microloans for small and medium-sized businesses using digital tools. Not only will this improve the economic performance of these establishments, but it can also encourage expansion, jobs, and more generalized financial movement at large. It could be a cycle that helps create a more dynamic and growing economy in Pakistan. This could help in aiding sustainable economic growth in Pakistan.

#### Launch of New Financial Products and Services

Digitalization has also altered money flow by introducing non-traditional methods and by reshaping spending. Digital tools facilitate the opening of accounts, expense tracking, and seamless payment processing through smartphones. These platforms simplify investment in stocks, bonds, and other assets, while AI-advisors financial advisors provide automated investment guidance. From quick loans to peer-to-peer lending and cryptocurrencies, digital options for financial services are revolutionizing the industry. Moreover, online insurance and financial planning tools enhance financial management. The digital revolution has also enabled the development of products

such as mobile wallets, peer-to-peer payment platforms, and online loans, providing services that meet diverse consumer needs, especially for unbanked or underserved populations. (Manzoor, Javed, Ahmed, & Rauf, 2021).

Ease of Use and Increased Consumer Satisfaction

Digitalization has dramatically increased convenience and enhanced customer satisfaction in Pakistan’s banking sector. Digital and mobile banking platforms allow customers to check balances and transfer funds from the comfort of one place on their phone or any computer that has internet access. Thus, users are freed from physical branch visits and can access a user-friendly interface and excellent customer support at home, reducing the tedious processes involved and making customers feel more satisfied with their banking experience (Hussain, Amin, & Rasool, 2023).

Such conveniences increased customer satisfaction. The convenience and speed of immediate digital banking services are creating happier customers, resulting in higher overall satisfaction with their bank interactions. In addition, there are a host of digital platforms offering ancillary services like personalized financial advice and investment options on one hand, as well as chatbots or online portal-based customer service. Offering value-added services increases customer retention and overall satisfaction, as it provides one platform for all financial needs. This has prioritized the customer experience and introduced a self-service channel into Pakistani banking through digitalization (Metlo, Hussain, Saqib, Phulpoto, & Abro, 2021).

Analysis of Growth in Internet and Mobile Banking Users

The growth in the number of Internet and mobile banking users’ evidences success of digital transformation in the Pakistani banking sector. The following graph shows how the use of digital banking services has increased over the past seven years. It is important to note that mobile banking refers to users of banking applications while internet banking users refers to those using banking websites.

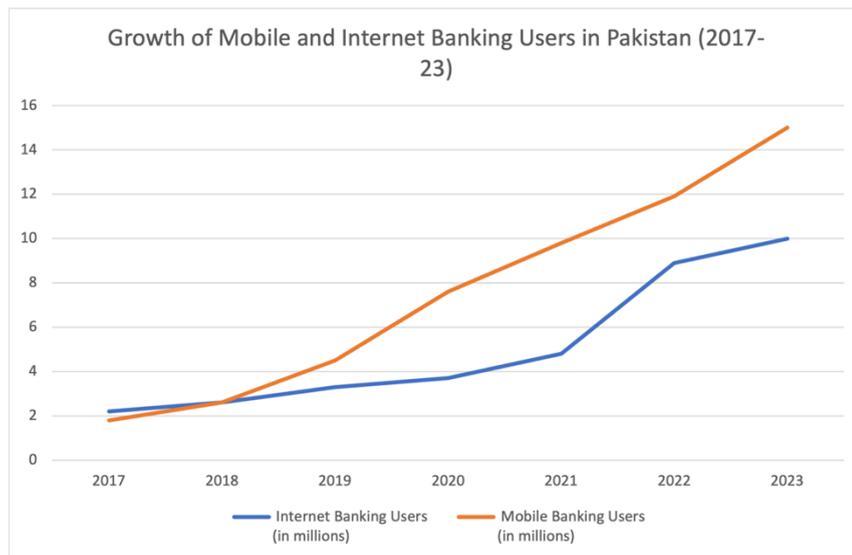


Figure 2. This graph shows the increasing adoption of Internet and mobile banking services in Pakistan from 2017 to 2023, highlighting the shift towards mobile platforms for financial transactions, based on data from the State Bank of Pakistan (Payment Systems Department (n.d.)).

The graph shows us that the number of users has increased over time (with a sharper increase in mobile banking than Internet banking). This reflects the continuing shift in banking usage to mobile devices, as more customers are turning to this form of technology because of its ease and convenience.

To conclude, digitalization has revolutionized the banking sector of Pakistan by promoting efficiency and access to better financial services for inclusion, innovation, and consumer satisfaction. This continuous surge in digital banking services proves how the sector is gradually transforming and contributing to fueling economic growth. In the progress of digitalization, it is predicted that as digitalization progresses, it will integrate advanced technologies to optimize service delivery and customer satisfaction.

Regardless of these developments, however, mobile and internet banking still remain limited due to several factors and concerns about safety. This may have led people to avoid online banking systems or use them only for smaller transactions. In the first quarter of 2024, while digital banking systems handled 83% of the volume of payments, in terms of transactions, they represented only 19% of the value, in terms of monetary value (Payment Systems Department, (n.d.)).

## Challenges

### Digital Literacy

Despite the effectiveness of mobile banking, low levels of digital literacy have hindered its adoption. The adoption of mobile banking services in Pakistan has been held back by low levels of digital literacy among users, despite its significance. Increased digital literacy has a significant positive impact on the intention to adopt these technologies, while wider disparities in digital literacy are associated with lower adoption rates. There is a need for specific educational programs and training to enhance the capability of users of mobile financial services. While financial skills are also a significant factor, digital literacy appears to be more directly linked with adoption intention. Initiatives like these can help users improve their digital literacy, which then ultimately serves to connect them with digital banking. This, in turn, boosts financial inclusion and helps the sector grow (Ullah, Kiani, Raza, & Mustafa, 2022).

### Cybersecurity

Cybersecurity poses a significant challenge to digitalization in banking, particularly due to the high costs involved in securing e-banking systems. The costs for prevention and detection, like firewalls, antivirus software, response only, and recovery, can be significant, greatly affecting budgets for digitalization investments.

These costs can impede product innovation by removing resources from potential new digital products and services, while at the same time creating an environment of trust and security through effective cybersecurity solutions. While the role of cybersecurity may be emphasized as a cost, this also raises objections on whether it is essential for businesses to guard cyber threats and support operational resilience. How much a bank invests in cybersecurity and how it continues to innovate by looking for cost-effective solutions means walking on the high wire, where banks must prevent risks without getting their digital transformation jeopardized. Thus, the difficulty lies in how cyber security investments are handled to avoid hampering digitalization but instead assist it (Khalil, 2020).

### Technological Unemployment

With operational efficiency in mind, banks are turning to internet banking facilities, mobile apps, and ATMs, meaning that there is potential job loss for some traditional roles. This move to a digital process can increase pressure on existing external factors such as cybersecurity and might mean some job losses as banks restructure in order to stay competitive. Moreover, there is another downside to it: the new skills that are emerging will lead to job displacement for people who have older and no longer relevant skill sets, thus ensuring the need for re-skilling of the workforce in order to manage this transition effectively (Liu, Naveed, Mustafa, & Naveed, 2024). Another cause of concern has also been about the future of the physical branches and their staff in light of digitalization.

## 1. Case Study

### EasyPaisa Bank Limited

EasyPaisa Bank Limited, created in 2009 as a joint venture between Telenor Pakistan and Tameer Bank, is one of Pakistan's earliest and most successful mobile banking platforms.

With revenue per user falling in the telecom industry, their leaders sought to offer consumers a product that required the dependence of their telecom services, in particular one of those products being e-wallets. Mobile banking had been a potentially interesting sector for telecom operators, who had hundreds of thousands of agents and retailers that could provide financial services. Telecommunications and financial services converged into a new market, forcing them to innovate quickly in order to stay competitive (Nesse, 2008; Lee et al., 2015).

Based on an empirical analysis of Easypaisa, Wittek (2016) found that the service managed to utilize Telenor's extensive telecom network flexibly in delivering a number of financial services, including money transfers through bill payments and mobile phone top-ups, over its existing market terminal. Several reasons can be attributed to its rapidly increasing success, including:

- I. Extensive Network Reach: Telenor was already operating an extensive telecommunication network spanning the remotest areas

- of Pakistan, which helped tap a large and varied customer base that had no or limited access to traditional banking services.
- II. Convenient Access: Easypaisa massively benefited from widespread availability and reach by making deals with retailers to become its exclusive agents through the Telenor network.
  - III. Innovative Offerings: The service made its way through a number of features, including microfinance products and a comprehensive mobile wallet, reinforcing its position as a leader in the mobile banking sector.

He also found that, despite its success, Easypaisa faced several challenges:

- I. Lack of Standardization: Being the first to market with a mobile banking solution, Easypaisa experienced some difficulties in standardizing on industry standards within their financial services and technology.
- II. Regulatory Constraints: The branchless banking sector in Pakistan was heavily regulated, which presented opportunities and limitations. In terms of innovation, Easypaisa had a challenging time dealing with the regulatory complexities.
- III. Technological Adaptation: Established at a time of rapid technological evolution, Easypaisa management had to keep building on new system upgrades for third-party integration and cyber security enhancements.

The success of Easypaisa highlights the critical role that a fine balance between standardization and innovation plays in mobile banking. This ability to exploit a flexible user-centered methodology and work within an entrenched platform that meets regulatory requirements has catalyzed the rapid growth of the mobile financial services sector in Pakistan (Witteck, 2016).

## 2. Habib Bank Limited

Habib Bank Limited (HBL) was established in 1941 as Pakistan's first commercial bank. Founded originally by the Habib Group, HBL has been one of Pakistan's most prominent companies since its initial international expansion. It was privatized in 2003 and is now the largest retail bank in Pakistan. The expansion of over 1700 branches in Pakistan and across the globe, especially with operations spread to more than 26 nations, makes it a key player in the banking sector.

In a study to find out whether financial technology is preferred by HBL users in Karachi, Dahri et al. (2022) found that HBL is increasingly adopting modern technology to improve its services and operational effectiveness. To align with the growing customer base, the bank has been investing in a number of digital channels. This involves the introduction of mobile banking, online banking platforms, and digital payment solutions designed to enhance the customer experience and the inclusive finance landscape.

HBL's approach to digital transformation focuses on several key areas:

- I. Expansion of Digital Channels: HBL has put together a complete array of digital banking tools, covering mobile apps and online platforms, to provide quick access to its customers. This is an effort to serve both the tech-savvy customer and those who have been underbanked with traditional banking methods.
- II. Customer-Centric Innovations: The bank is focusing on technology tools to improve the user experience. This means more convenient online experiences, robotic customer service, and secure end-to-end solutions to ensure user data remains protected—all necessary requirements to win trust from the consumers in banking.
- III. Financial Inclusion: HBL aims to cater to the unbanked in Pakistan through simpler and more accessible digital financial services, reducing barriers to entering the banking system. Their initiative is part of wider efforts to boost financial inclusion and participation in the economy.

Despite its progress, HBL faced several challenges in its digital transformation journey:

- I. Adoption Barriers: While HBL has 14+ million customers, less than one-fourth of users are active digital banking users. This limited usage is caused by digital literacy and a different level of security when using online financial services.
- II. Regulatory Compliance: The changing regulations in Pakistan require constant alignment of digital strategies for HBL Regulatory Compliance. One of the most important challenges faced with open banking is financial regulations, which influence banks to assure data protection while complying with their legislation and directly affect how far banks can innovate through legal aspects.
- III. Competitive Pressure: The competitive landscape in terms of fintech startups and increased competition from other banks seems to force the firms to innovate continuously, further digitizing bank offerings to stay pertinent within this changing dynamic customer expectation.

Habib Bank Limited highlights the importance of integrating technology into traditional banking to meet contemporary needs and enhance the customer experience. Despite challenges, HBL remains a prime example of long-standing banks managing to navigate their way through shifting sands thanks to smart digital deployments and an unwavering commitment towards financial inclusion. The lessons from HBL can be used by other banks and financial institutions that want to tap into fintech for better customer service and competitive advantage (Dahri, Memnon, & Qureshi, 2022).

### 3. Finja Private Limited

Finja was launched in 2016 as one of Pakistan's earliest fintech startups with ambitions to develop digital payments and lending. Finja aimed to drive cashless transactions by offering merchant discounts and free payments. However, despite early promise, Finja failed to achieve sustainable growth in its initial years, its journey being marked

by regulatory hurdles, financial losses, and strategic missteps, making it a compelling case study in the challenges of fintech innovation in emerging markets.

The company aimed to combine payments and lending, to position itself as a “featherlight digital bank.” However, regulatory restrictions prevented EMIs from lending deposits, forcing Finja to rely on costly external financing for lending (Hassan & Nizami, 2024).

This forced Finja to attempt pivots to several models in effort to stay afloat:

- I. SimSim Wallet (2017-2019): The initial model failed due to high customer acquisition costs and competition from JazzCash and EasyPaisa.
- II. QR Payments & Merchant Lending (2020-2022): This move aimed to shift focus to small-business loans but struggled to gain traction due to rising interest rates.
- III. Digital Banking Licence Bid (2022): Finja attempted a partnership with HBL but was rejected by the State Bank of Pakistan (SBP).
- IV. EMI Licence Sale to OPay (2023): At the end, Finja was forced to attempt a desperate exit strategy which eventually even backfired due to disputes over valuation.

Finja’s struggles highlight key challenges faced by fintech startups in Pakistan:

- I. Regulatory Constraints: Finja’s hybrid EMI/NBFC model was fundamentally flawed as EMIs couldn’t lend deposits, forcing reliance on expensive external funding. Regulatory gaps stifled its “digital bank” ambitions, leaving it stuck between two incomplete licences.
- II. Loss in Funding: After the SBP rejected its digital banking bid, investor confidence eroded. HBL and others withdrew support, leaving Finja scrambling for a lifeline (the distressed OPay sale).
- III. Strategic Missteps: Early bets like SimSim relied on unsustainable subsidies, while late-stage pivots (e.g., merchant lending) came too late. Finja failed to balance innovation with unit economics, sealing its fate.

Finja’s story highlights the importance of sustainable business models and regulatory alignment for survival in the fintech industry. Despite being a pioneer in the fintech innovation in Pakistan, regulatory barriers, financial mismanagement, and fierce competition led to Finja’s decline. Its experience offers a crucial lesson for startups, that innovation alone isn’t enough (Hassan & Nizami, 2024).

## Conclusion

Pakistan’s banking sector has shifted from branch-based operations to digital services, driven by the advent of technologies like ATMs, mobile banking, and digital payment systems (Zahir & Imtiaz, 2019). The increase in bank accounts and mobile cellular subscriptions is thus more correlated, which further accentuates the ways that digitalization

is setting new standards when it comes to financial inclusion. (World Bank n.d.-a; World Bank n.d.-b).

This transition has improved efficiency and cost reduction benefits through streamlined operations and fewer requirements for physical branches, whilst also improving customer satisfaction (Liu, Naveed, Mustafa, & Naveed, 2024). It has also increased financial inclusion through mobile banking and branchless banking, with initiatives introduced by the State Bank of Pakistan (Noreen, Mia, Ghazali, & Ahmed, 2022).

However, there are still many challenges. Digital literacy is low and many users are not adept at using banking services digitally. Moreover, cybersecurity has a high level of risk and requires huge investment to keep systems secure while technological unemployment remains a challenge as automation and digital services continue to diminish the demand for certain pathways in banking (Ullah et al. 2022; Khalil, 2020; Liu et al. 2024).

Case studies demonstrate multiple strategies, implementation successes, and failures when transforming digitally. EasyPaisa leveraged its extensive network and innovative offerings to become a leading mobile financial service provider, HBL focused on expanding digital channels and enhancing the customer experience while Finja failed to find a business model that suited them under the regulatory system (Wittek, 2016; Dahri, Memon, & Qureshi, 2022; Hassan & Nizami, 2024). In all cases, the solution seems to be about finding a balance between innovation and regulatory compliance while still tackling adoption.

In summary, digitalization in Pakistan's banking sector presents significant opportunities for economic growth and financial inclusion. However, properly utilizing this potential will require addressing persistent challenges such as illiteracy, cybersecurity risks, and work mobility. Insights offered by early adopters can inform developing economies such as Pakistan towards instrumentalizing technology to accelerate the growth of the financial sector in the future.

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