



**The Impact of FinTech on Mobile Banking Experience in the Saudi
Banking Sector: Descriptive study**

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Abstract

FinTech has been a disrupting power that is revolutionizing the financial world. The present study analyzes the role of FinTech in mobile banking in Saudi Arabia, its impact on financial inclusion, convenience, and regulation. The digital transformation process has been expedited by Saudi Vision 2030, establishing a FinTech environment that enhances the efficiency of banks and customer satisfaction. The study aimed to examine the impacts of FinTech innovations regarding the adoption, user experience, and overall inclusivity of mobile banking services in Saudi Arabia in the light of digital transformation and regulatory development. A quantitative approach was followed, and online structured questionnaires were distributed to a diverse sample of 100 Saudi mobile banking customers. Stratified random sampling was used to obtain representative responses from all segments. Descriptive statistics were used in data analysis and in determining user adoption, satisfaction, and attitude towards FinTech-based mobile banking services. The study confirms that FinTech technologies such as AI-powered banking and digital wallets have made mobile banking more accessible. Convenience, security, and inclusion were seen as drivers for adoption. However, regulatory challenges and cybersecurity threats need to be resolved to create growth and user trust. Mobile banking in Saudi Arabia, transformed by FinTech in line with Vision 2030, aims to diversify and digitalize. While adoption is widespread, continued development of security and regulatory infrastructure is needed to facilitate long-term growth. The study concludes that collaboration between FinTech companies, banks, and regulators is critical to developing a safe, inclusive, and innovative Saudi banking industry.

1.1 Introduction

Digital transformation is among the most prevalent global phenomena reshaping the ancient forms of economic sectors, and the banking sector specifically. The financial technology (FinTech) seen today refers to the application of digital innovation to the financial services industry, and has altered the operating models with which banks function by way of electronic banking; payment solutions; transfer solutions; crowdfunding; peer-to-peer (P2P) lending; and, blockchain technologies (Albarrak & Alokley, 2021).

In Saudi Arabia, the fast-evolving fintech ecosystem is largely a result of Saudi Vision 2030, an initiative planned to diversify their economy away from a dependency on oil. The Financial Sector Development Programme (FSDP), primarily supports any other initiatives aimed at encouraging startups, especially in FinTech, to create innovation and elevate efficiency within Saudi Arabia's banking system by 2030. The FSDP seeks to track progress via a defined list of indicators, namely the number of fintech startups and the satisfaction index with the business environment for the sector as a whole (Albarrak & Alokley, 2021).

Studies lately show evidence that the use of financial technology tools in the banking industry helps to improve banking performance and customer satisfaction, backed by successful models in the Saudi and Malaysian scenario, particularly in Islamic banks adoption (Aldaarmi, 2024). Applications like mobile banking have positively impacted the financial inclusion of developing countries by providing users with fast, simple, and low-cost digital financial services, as shown in the case of M-Pesa in Africa.

By way of explanation, mobile banking consists of accessing banking services remotely via smart devices, such as transfers, bill payments, and accessing bank accounts. Usability and the used interface design are both central to the significant adoption potential of customers using these types of applications. Digital responsiveness, or the banking system's ability to react to a customers' needs quickly and efficiently, is a vital barometer indicator of success in modern solutions for finance, particularly in times of crisis and uncertainty faced in monthly fluctuations in the economy.

Therefore, this study will seek to examine the role of financial technology development in the use of mobile banking services in the Kingdom of Saudi Arabia using a descriptive-analytical approach that describes the relationship between the characteristics of financial technology, customer satisfaction levels and the performance of local banks in the context of the digital transformation.

1.2 Problem Statement

The introduction of financial technology (FinTech)—defined as the employment of digital and technological innovations to improve and automate finance activities—has changed the banking industry globally, making it more accessible, efficient, and user-centric. In the context of Saudi Arabia, the fast development of mobile banking, the use of smartphones and digital applications to conduct a banking activity and make banking transactions remotely, has been accelerated through national digital transformation initiatives, particularly the Vision 2030 strategy to diversify the national economy and create a prosperous financial sector based on technology .

Although there has been improvement there are still significant gaps in understanding the usage, user satisfaction, or financial inclusion of mobile banking users and what role FinTech innovations play in those areas, specifically in the context of Saudi

Arabia. While evidence globally has demonstrated that FinTech plays an improving role in the customer banking experience, there remains with studies focusing on the Saudi Arabia context questioning the impact of a number of key factors that serve as predictors, including regulatory environments, consumer behaviours, and the technology ecosystem to promote innovations (Aldaarmi, 2024).

Thus, this study will aim to explore the state of FinTech in enhancing mobile banking services in Saudi Arabia, and both the enabling factors and barriers to the efficiency, adoption and overall user experience of mobile banking. This will include the role of regulatory frameworks shaping the FinTech ecosystem, but also how these frameworks shape consumer trust, and acceptability of technology. Finally, the study will evaluate FinTech's wider implications on financial inclusion and economic participation of various segments of the Saudi public.

The targeted population is Saudi citizens using mobile banking apps. Due to the increasing diversity of Saudi citizen age demographics, income brackets, and location scenarios (urban versus rural), stratified random sampling is used to make participants as demographically representative as possible. The calculated sample size of 30 respondents is intended, through descriptive- analytical study design, to generate a statistically preliminary valid study that will enable the research team to establish analytical validity

1.3 Research Questions

Main Research Question:

How did FinTech innovations affect the adoption, user satisfaction, and financial inclusion of mobile banking services in Saudi Arabia?

Sub-Questions:

- How did FinTech innovations impact the adoption and usage of mobile banking applications by Saudi users?
- What are the principal variables, with respect to trust, convenience, confidence, and regulatory support, that affect the satisfaction, usage and overall effectiveness of FinTech -enabled mobile banking platforms?
- To what extent does FinTech help increase opportunities for financial inclusion for unbanked or underbanked consumers in Saudi Arabia?
- What are the most significant technological, regulatory, and behavioral barriers facing Saudi banks in the implementation of FinTech solutions for mobile banking?
- How do current government regulations, and policies on digital transformation, affect the adoption of FinTech mobile banking solutions in the Saudi banking sector?

1.4 Significance of Study

Scientific Importance of the study:

1. Contributing to theoretical knowledge in the field of financial technology

(FinTech): The study shows how financial innovation is changing the banking industry, with a theoretical framework for understanding financial technology and banking customer behavior in developing economies.

2. Increasing the literature on financial inclusion: The study provides clarity on the role financial technology can play in providing better financial services for excluded groups of society. It strengthens the literature on financial inclusion and the link between finance and socioeconomic development, especially as it relates to Saudi Vision 2030.

3. Ability to analyze regulation and scientific-related outcome: The study provides an analysis on the impact of a government regulation (the "Sandbox" arrangement sponsored by the Saudi Arabian Monetary Authority (SAMA)), facilitating future studies on the relationship between innovation and regulation in this financial environment.

4. Building predictive and scientific models: The findings contribute to the development of predictive models to analyze the relationship between the features of financial technology (e.g., artificial intelligence, data analytics, digital transformation) and outcomes of the banking system, for example: performance; efficiency; and financial stability.

Scientific importance of the Study:

1. Supporting decision makers in the banking sector: The findings of this study provide insightful analytics that could help Saudi banks establish more effective digital banking services that likely meet service features desired by customers, especially in mobile banking .

2. Improving customer experience and growing digital adoption: The findings provide insight into how customers gauge satisfaction and the factors that encourage retention for digital banking applications. Institutions can then potentially understand how to improve their features and service experience.

3. Supporting government policy regarding digital transformation: The findings of this study provide recommendations based on real data to assist in developing policy regarding financial technology as it relates to the Financial Sector Development Program and the goals of Vision 2030.

4. Strengthening the competitiveness of local banks: By reporting on the barriers and motivators of financial technology adoption, the study provides a picture of the

means by which financial institutions can begin with the ways in which they may adapt to the requirements of the digital market as well as approaches to mitigate the competitive challenges.

1.5 Study objectives

Main Objective:

To examine the impacts of FinTech innovations regarding the adoption, user experience, and overall inclusivity of mobile banking services in Saudi Arabia in the light of digital transformation and regulatory development.

Sub-Objectives:

- To analyze the linkage between FinTech acceptance and a rise in the use of mobile banking applications by consumers in Saudi Arabia .
- To identify critical factors (e.g., trust, convenience, regulatory environment) influencing the efficiency and user satisfaction of mobile banking platforms powered by FinTech .
- To evaluate the influence of FinTech solutions on promoting financial inclusion, particularly among financially excluded and unbanked groups, in the context of Saudi Arabia .
- To investigate the technological and regulatory factors that impede the integration of FinTech into the banking system in Saudi Arabia .
- To consider the influence of government policies and regulations on the development and success of FinTech-enabled mobile banking technologies.

1.6 Study Terminology:

FinTech (Financial Technology) is the use of technology and innovation to deliver financial services in a more efficient, accessible, and cost-effective manner. This

includes mobile payments, blockchain technology, robo-advisors, and peer-to-peer financing. FinTech seeks to disrupt established banking structures and enhance customer experience by leveraging modern digital platforms. Mobile banking is the use of a mobile device to conduct financial operations such as checking account balances, moving cash, paying bills, and applying for loans. Mobile banking is generally viewed as an extension of internet banking, allowing customers to access financial services at any time and from any location via secure and user-friendly applications.

Financial inclusion is the process of ensuring that individuals and companies, particularly those in underserved areas, have access to relevant and reasonably priced financial goods and services. These include payments, savings, credit, and insurance, all delivered in a sustainable and ethical manner. FinTech has become an important instrument for increasing financial inclusion by lowering entrance barriers and delivering services to previously unbanked groups.

Regulatory Sandbox is a framework established by regulatory organizations that allows FinTech companies to test their innovative financial products and services in a regulated setting. The Saudi Arabian Monetary Authority (SAMA) has put in place such frameworks to facilitate and regulate FinTech growth while guaranteeing financial stability and consumer safety.

Digital transformation is the integration of digital technology into all aspects of an organization or sector, significantly altering how it runs and provides value to consumers. In banking, digital transformation refers to the use of digital technologies and processes, including as cloud computing, big data analytics, and artificial intelligence, to increase operational efficiency and client engagement.

Saudi Vision 2030 is a strategy framework for reducing Saudi Arabia's reliance on oil, diversifying the economy, and expanding public service sectors such as health, education, infrastructure, and finance. Vision 2030 prioritizes digital transformation and FinTech adoption to modernize the financial system and boost economic diversification (Tarawneh et al., 2024).

2. Literature Review:

2.1 Introduction

Fintech mixes finance and technology, revolutionizing Saudi Arabia, which has witnessed an increase in Fintech innovation and adoption as digitalization becomes a part of the financial landscape, presenting both benefits and challenges. This literature study looks at Saudi Arabia's Fintech digital shift. This research aims to shed light on the various parts of this narrative by evaluating the country's financial technology ecosystem. This portion of the literature study looks at Fintech regulatory frameworks, Saudi Arabian mobile banking adoption trends, and the dramatic implications of digital transformation on the financial and mobile banking sectors.

2.2 Fintech Ecosystem

Khan & Saad (2022) review investigate scholars, researchers, and industry professionals' perspectives on how Fintech is transforming Saudi Arabia's financial services business. The research will look at how regulators such as the Saudi Arabian Monetary Authority (SAMA) encourage innovation while maintaining banking sector stability. The study looks at Fintech adoption drivers and Saudi consumer payment technologies that are becoming commonplace. The report also examines Fintech entrepreneurial hurdles and the evolving connection between traditional banks and Fintech companies. It also looks into the future and discusses Fintech's role in the Kingdom. This literature review identifies the disruptive potential of AI, blockchain, and big data analytics. As Saudi Arabia prepares for a future of technology and money, the research takes into account Fintech education and international relationships. The goal is to capture the essence of Fintech digital revolution in Saudi Arabia and provide readers with the knowledge and insights they need to navigate this

rapidly changing market. Saudi Arabia is an active participant in the global Fintech revolution, and this study aims to improve understanding of this revolutionary route.

Albarrak and Alokley (2021) defines fintech as a disruptive global phenomena with major financial sector implications. Their paper exposes key facets of the Saudi Fintech environment and ecosystem. The researchers look at Saudi Arabia's innovative financial enterprises, which provide online banking, transfer and payment services, crowdfunding platforms, peer-to-peer lending, and blockchain initiatives. Recent developments in the Saudi Fintech business have made local banks more cautious (Go-Globe, 2022). These changes have also fueled internal Fintech initiatives, pushing digital enterprises and startups to focus on financial operations rather than innovation. Fintech is significantly influenced by the government, which focuses on rules and legislation that build the foundation for financial innovation. The authors emphasize that clients choose easy, user-friendly products, underlining the need of user-centric Fintech solutions.

Albarrak and Alokley's (2021) study will help us better understand the dynamic interplay between Fintech businesses, regulatory changes, and consumer expectations as we navigate Saudi Arabia's Fintech digital transformation. Our investigation of how Fintech affects Saudi Arabia's financial future and strategic position in the global Fintech ecosystem will begin with their findings. It is critical to compare the Saudi Fintech ecosystem to the UAE's in order to discover distinct patterns and insights and offer suggestions that would benefit policymakers, entrepreneurs, and financial institutions. As a key actor in the global economic revolution, this research aims to shed light on Saudi Arabia's revolutionary Fintech route.

2.3 Regulatory Framework

Khan and Saad (2022) investigate Saudi Fintech regulation in depth. According to their findings, SAMA, the government regulatory authority, established the foundation for Fintech innovation in the country. The researchers investigate the complexities of regulatory assistance and its role in maintaining Fintech ecosystems. SAMA, which governs and oversees Saudi Arabia's financial industry, has implemented Fintech while maintaining prudential norms. Regulation determines Fintech's direction and stability in an ever-changing world. Saudi Arabia appreciates the need of promoting Fintech growth while maintaining financial stability and consumer safety. This section examines the Kingdom's regulatory system and SAMA's critical role in shaping it. The regulatory authority has set standards and procedures to assist Fintech businesses in operating securely in the Kingdom. The regulations address licensing, risk management, consumer protection, and anti-money laundering.

According to Frad and Jedidi (2023), a thorough regulatory framework assists Fintech enterprises in navigating the market and reducing risk. Regulatory assistance is required on two levels. First, it boosts the confidence of Fintech businesses and investors. Second, it safeguards consumer interests by enacting transparency, data protection, and fair practice regulations. It is critical for enabling clients to adopt Fintech goods with confidence. The legal framework is critical to Saudi Arabia's Fintech center ambitions. It attracts local talent and capital while encouraging foreign investment. SAMA tries for a balance between regulation and innovation, which Khan and Saad's (2022) study confirms. The legal framework is critical for comprehending Saudi Arabia's Fintech potential and difficulties, which will revolutionize the country's financial sector.

2.4 Mobile Banking, Digital Payment Solutions and Adoption

Nasir et al. (2021) investigated the factors that impact the adoption of these revolutionary financial technologies, offering useful insights into the digital transformation. Saudi Arabia's Fintech and digital payment usage has increased dramatically, altering financial transactions. According to Nasir et al. (2021), client acceptance of Fintech solutions in Saudi Arabia is driven by trust, security, and convenience, highlighting the importance of biometric technology. In a conservative, privacy-conscious society, these characteristics are critical for implementing digital payment technologies with confidence. The study discovered that trust boosts Fintech adoption. Fintech companies require consumer and user trust. Trust is predicated on the credibility of Fintech service providers, transaction security, and operational openness. Transparent and affordable pricing, user-friendly interfaces, and extensive customer support all help Fintech firms establish confidence. Data breaches and fraud make security, the second most essential aspect, critical in the digital age. Saudi Fintech companies must emphasize cybersecurity to safeguard customer data and transactions (Abbas & Shaheen, 2021). Clients need data protection, which is critical for fintech acceptance.

According to Hariri (2023), Fintech solutions have risen owing to the simplicity of online financial transactions that do not require cash or traditional banking services. Saudi fintech thrives on convenience. Consumers have easy access to digital payment options such as digital wallets and smartphone apps like STCPay and Mada Pay. Importantly, these three criteria are interconnected. Secure and convenient services foster confidence, and security is necessary for convenience. Saudi fintech companies understand this relationship and strive to provide a seamless, secure, and trustworthy consumer experience. Hariri's (2023) study helps us understand the drivers of

customer adoption in Saudi Arabia's digital payment market. User-centric design, data security, and transparent operations are critical to Fintech digital payment solutions' success. The convenience of digital payment applications and wallets has enabled Saudi customers to use them for regular financial transactions, paving the path for a future in which digital money is the norm.

According to a research done by (Akmal et al., 2023), FinTech primarily services clients and consumers using mobile phones and computer systems with internet-based interfaces. The usefulness of digital apps impacts a client's preference for one financial institution over another. Many financial institutions have adjusted their products to reflect FinTech advancements, claiming greater competition. The adoption of FinTech to promote financial inclusion boosts enterprises' sales growth in non-Asian markets. However, financial innovation has a detrimental impact on enterprises that provide financial inclusion in non-Asian developing nations. The survey discovered that digital apps are the primary reason clients choose one banking institution over another. According to a research done by (Akmal et al., 2023), FinTech primarily services clients and consumers using mobile phones and computer systems with internet-based interfaces. The usefulness of digital apps impacts a client's preference for one financial institution over another. Many financial institutions have adjusted their products to reflect FinTech advancements, claiming greater competition. The adoption of FinTech to promote financial inclusion boosts enterprises' sales growth in non-Asian markets. However, financial innovation has a detrimental impact on enterprises that provide financial inclusion in non-Asian developing nations. The survey discovered that digital apps are the primary reason clients choose one banking institution over another. The survey discovered that digital banking is the most preferred fintech feature across all consumer segments. It

suggests an increasing desire for digital banking products in the Middle East, which is consistent with worldwide fintech trends. The survey discovered that younger clients are more inclined to use fintech services than older customers.

2.5 Challenges and Barriers

Albarrak and Alokley (2021) investigated the problems that Fintech firms in the Kingdom face. The digital revolution of Saudi Arabia's financial industry is underway, although it confronts challenges. According to the research, key barriers include the regulatory landscape and Fintech license procurement processes. Saudi Fintech operations must follow rules to preserve financial stability and consumer protection. According to experts, the licensing procedure can be complex and time-consuming, impeding the growth of Fintech startups.

Albarrak and Alokley (2021) underline the importance of Fintech licensing efficiency. A more transparent licensing framework might attract more financial companies, increasing innovation and competition. Saudi regulators must strike a balance between compliance and fintech growth. According to the paper, major barriers to regulation include capital access and competition from established financial institutions. Fintech enterprises may require assistance in raising funds to establish and grow their products (Muzafar & Jhanjhi, 2020). Fintech has transformed financial transactions, yet conventional banks remain dominant. Traditional banks can have more resources and clients than Fintech companies, making competition tough. To be successful, fintech startups must provide novel, competitive, and consumer-friendly goods.

According to Abbas and Shaheen (2021), overcoming these challenges is necessary to preserve Saudi Arabia's Fintech sector. It proposes combining innovation with control and compliance in regulatory policy. Streamlining the licensing procedure can enable

Fintech companies join the Kingdom and develop a financial technology ecosystem. These issues and limitations will be interlaced with other Fintech digital transformation features, highlighting Saudi Arabia's path to a more technologically sophisticated financial industry.

2.6 Impacts on Traditional Banking

Sangale and Salve (2019) looked at how Fintech is transforming traditional banking in the Kingdom. Fintech is revolutionizing Saudi Arabia's financial industry and conventional banking. Strategic relationships with Fintech businesses assist conventional banks in adapting to the changing economic landscape (Sangale & Salve, 2019). This collaboration keeps them competitive and enhances customer offers.

Rahim et al. (2021) discovered that Saudi Arabia's financial environment has developed. Traditional banks are using Fintech technology to expand their offerings and satisfy client expectations. By adopting Fintech, these institutions may increase their efficiency, usability, and digital accessibility. This change has led to improvements in digital banking services. Similar to Fintech companies, traditional banks provide digital payment solutions, mobile banking apps, and online account management platforms (Rupeika-Apoga & Thalassinou, 2020). This confluence of services is threatening the traditional brick-and-mortar model. It mirrors the digital world, in which customers want financial services at their fingertips.

Muzafar and Jhanjhi's (2020) research provides insight into the Kingdom's financial landscape's future. Traditional banks and fintech firms work together to develop and compete. Conventional banks leverage Fintech businesses' technology and agility to develop innovative, customer-focused solutions. This strategy allows them to remain relevant in the face of increasing digitization and altering client preferences (Abbas

and Shaheen, 2021). Customers profit from this transformation, but it also raises concerns. Traditional banks must adapt and manage change. They must strike a balance between client trust and technologically perceptive consumer acquisition. Saudi Arabia's Fintech digital revolution offers enormous potential for expansion and innovation.

This study fills a significant need by offering empirical information and practical recommendations for improving mobile banking services in Saudi Arabia, which is critical for stakeholders such as governments, financial institutions, and FinTech startups.

2.7 Synthesis and Comparative Analysis of Previous Studies

The studies by Albarrak & Alokley (2021) and Khan & Saad (2022) offer thorough summaries of Saudi Arabia's developing FinTech ecosystem. The importance of market dynamics, new technologies, and regulatory support in forming the industry is emphasized in both works. Khan & Saad (2022) examine how SAMA's regulatory actions promote innovation while preserving financial stability, concentrating on the ecosystem's strategic orientation. They also look at the growing significance of big data analytics, blockchain, and artificial intelligence, positioning Saudi Arabia as a future FinTech hub with close international ties. On the other hand, Albarrak & Alokley (2021) highlight consumer preferences and market behavior while highlighting the operations of Saudi FinTech companies that provide peer-to-peer lending, crowdfunding, and payment systems. They observe a trend toward user-centric innovation, in which product development is influenced by accessibility and ease of use. Although they both acknowledge the revolutionary potential of FinTech, Albarrak & Alokley focus more on consumer behavior and entrepreneurial difficulties, while Khan & Saad approach the subject from a regulatory and strategic

perspective. Interestingly, both point to the regulatory power of the government as a major facilitator.

Both Khan & Saad (2022) and Frad & Jedidi (2023) underscore the importance of robust regulatory frameworks in sustaining FinTech growth. Khan & Saad highlight SAMA's proactive measures, such as the regulatory sandbox, licensing protocols, and risk mitigation systems, which aim to balance innovation with consumer protection. Frad & Jedidi extend this by asserting that effective regulation not only fosters investor confidence but also ensures market fairness, data privacy, and transparency—key factors for user trust and FinTech adoption. Both studies agree that regulation is not a constraint but a strategic facilitator. However, Frad & Jedidi offer a broader view, linking regulatory clarity to capital attraction and global competitiveness, whereas Khan & Saad focus more narrowly on SAMA's institutional role within the Saudi context.

A group of studies that look at user behavior and adoption trends of digital payments and mobile banking include Akmal et al. (2023), Hariri (2023), Abbas & Shaheen (2021), and Nasir et al. (2021). According to Nasir et al. (2021), the main factors influencing the adoption of mobile banking, particularly in privacy-sensitive cultures like Saudi Arabia, are trust, convenience, and security. By stressing the growing usage of STCPay and Mada Pay and stressing the value of user-centric design and seamless experiences, Hariri (2023) supports this. A crucial component is cybersecurity and data protection, according to Abbas & Shaheen (2021), who contend that without robust technical protections, trust is brittle. By introducing demographic segmentation, Akmal et al. (2023) broaden the conversation and discover that FinTech services are more likely to be adopted by younger and urban consumers. Additionally, they imply that institutional preference is influenced by the success of

FinTech apps, with digital convenience serving as a crucial differentiator. Every study agrees that perceived security, interface design, and user trust are crucial factors in adoption. But while Akmal et al. and Abbas & Shaheen focus on technological and demographic factors, Nasir et al. and Hariri highlight psychological and behavioral factors. Although none of the studies offer longitudinal data to evaluate consistent user engagement over time, they do complement one another.

In regard to structural and operational challenges, Albarrak & Alokley (2021), Muzafar & Jhanjhi (2020) and Abbas & Shaheen (2021) collectively provided a picture of the barriers to FinTech growth. Albarrak & Alokley noted that licensing considerations and the ability to access funds through investors provide an initial barrier for startups, and excessive regulation has the ability to stifle innovation. Muzafar & Jhanjhi also pointed out that traditional banks continue to dominate the financial landscape, and FinTechs enter the marketplace with fewer resources and significantly more competitive pressure. Abbas & Shaheen (2021) offered explanations for regulatory reforms that maintain control and governance, while still allowing innovators and entrepreneurs to thrive - including better licensing processes and better defined data governance policies. Of note, all three studies considered regulatory barriers to growth at present as well as financial barriers to growth; All of the studies recognized similar issues related to barriers to growth; Albarrak & Alokley focused mainly on entrepreneurial challenges, Muzafar & Jhanjhi focused on market factors, and Abbas & Shaheen focused on recommending policy changes that support growth. All three papers provided a multi-dimensional view of FinTech barriers, but they did not provide empirical evidence on how regulatory reforms including a sandbox model might support success rates.

The studies by Sangale & Salve (2019), Rahim et al. (2021), Rupeika-Apoga & Thalassinou (2020), and Muzafar & Jhanjhi (2020) examine the innovations that FinTech has brought to the traditional bank sector. Sangale & Salve, and Rahim et al. recognized that banks and FinTech were working together, with banks establishing partnerships and collaborations in innovation for competitiveness and better consumer experiences. Rupeika-Apoga & Thalassinou (2020) examined how banks are leveraging more similarities in the digital products and services provided by banks, such as mobile applications, electronic wallets, and online access to consumer accounts in an effort to not fall behind in the banking sector. Muzafar & Jhanjhi examined the future trends in banking, specifically how banks have started to embrace FinTech tools and services in their banking operations to remain relevant in light of changing consumer needs and expectations. The four studies generally agree that FinTech will continue to evolve the banking industry, as opposed to replacing it. All four studies indicated a paradigm shift from competition to collaboration. The key to this paradigm shift was different for the different articles: Sangale & Salve emphasized partnerships, Rahim et al. examined similarities in services, and Muzafar & Jhanjhi examined how organizations are strategically adjusting to the shifts in the industry.

3. Methodology

3.1 Study Design

This study utilizes **descriptive** approach and quantitatively examines FinTech Innovation and its impact on the use and efficiency of mobile banking services in Saudi Arabia. The approach allows us to collect data of actual or numerical data to analyze user habits, satisfaction levels, trust, and frequency of use of mobile banking applications. The aim of the study is to test the suggested relationship between independent and dependent variables using statistical tools.

3.2 Study Population and Sampling

The target population is Saudi citizens who are using mobile banking services. The study seeks to obtain responses from individuals with a variety of demographic profiles (age, income, and geographical location--both urban and rural) for embedded representation. The intention is to use stratified random sampling to ensure reliability and generalizability of the results. **100 respondents will be selected**, which has been determined to be sufficient for the initial analysis and enough to maintain statistical significance. The sampling framework will ensure that there are representative numbers of individuals from the stated demographics.

3.3 Data Collection Methods

a. Primary Data

The data will be collected using a structured self-administered questionnaire, that is going to be distributed online via email and WhatsApp. The questionnaire will consist of closed-ended questions that are measured on a Likert scale to assess the variables of Perceived usefulness, Trust in FinTech services, Ease of use, Frequency of mobile banking use and Overall user satisfaction. Survey items will be modified from

measured instruments that have been used in previous studies on FinTech and digital banking to ensure construct validity and the internal consistency of the measures.

b. Secondary Data

In addition to the primary data, the study will use secondary sources such as Saudi Arabian Monetary Authority (SAMA) reports and publications, market research studies on FinTech uptake in Saudi Arabia, and statistics databases on mobile banking usage to provide context for survey findings and an overall understanding of the macro FinTech environment.

3.4 Data Analysis

The quantitative data obtained from the questionnaire will be examined using SPSS (Statistical Package for the Social Sciences). The following analytical tools will be utilized. Descriptive statistics (frequency, percentage, mean, and standard deviation) are used to characterize demographic and use patterns.

3.5 Hypotheses of the Study

Main Hypothesis (H₀):

- H₀₁: There is no statistically significant relationship between trust in FinTech services and customer satisfaction with mobile banking in Saudi Arabia.
- H₀₂ : There is no statistically significant correlation between the perceived utility of FinTech services and the frequency of mobile banking usage.
- H₀₃: There is no statistically significant association between users' technological literacy and their adoption of mobile banking services.
- H₀₄ : There is no statistically significant relationship between confidence in financial regulations and user satisfaction with mobile banking services.
- H₀₅: There is no statistically significant correlation between perceptions of FinTech innovation and the intention to continue using mobile banking.

Sub-Hypotheses:

- **H₁1:** There is a significant relationship between trust in FinTech services and customer satisfaction with mobile banking in Saudi Arabia.
- **H₁2:** There is a significant correlation between the perceived utility of FinTech services and the frequency of mobile banking usage.
- **H₁3:** There is a significant association between users' technological literacy and their adoption of mobile banking services.
- **H₁4:** There is a significant relationship between confidence in financial regulations and user satisfaction with mobile banking services.
- **H₁5:** There is a significant correlation between perceptions of FinTech innovation and the intention to continue using mobile banking.

3.6 Ethical Considerations

Ethical standards will be observed during the research. Participants will be told about the study's aims, and informed permission will be acquired prior to data collection. Respondents will be guaranteed that their replies are secret and anonymous. All data will be treated ethically and securely.

4. Results: **Name this section as (Results)**

4.1 Introduction

In this section, the results of the study presented that explored the impact of FinTech on user experience with mobile banking within the Saudi banking industry. The analysis is mainly descriptive, providing summary statistics, distributions, and associations provided by the survey data. The results reporting considers several aspects of the mobile banking experience represented by trust in FinTech, perceived usefulness, technological literacy, regulatory trust, and perception of innovation as they evolved toward user satisfaction and usage. The study attempts to provide empirical insight into changing user experiences as it relates to the role of FinTech in mobile banking in Saudi Arabia. These results will lead to the discussion and implications of the study.

4.2 Demographics analysis

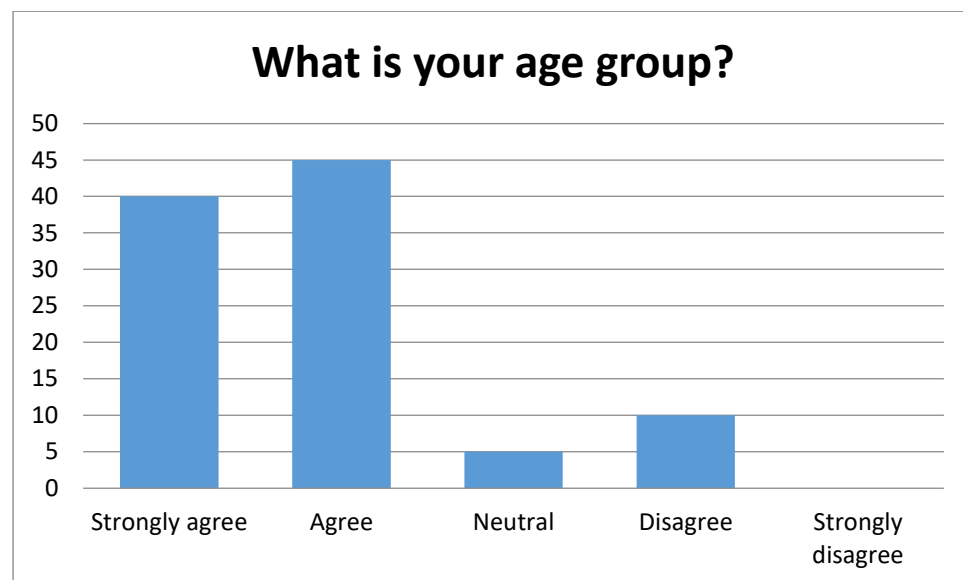


Figure 1: showing the age group of the study participants

The above chart divides respondents into four categories: 18-24, 25-34, 35-44, and 45-54. The 25-34 group has the most respondents, followed by the 18-24 group. This

shows that young adults are more engaged in mobile banking. Respondents reduce in the older groups, demonstrating less adoption in older adults.

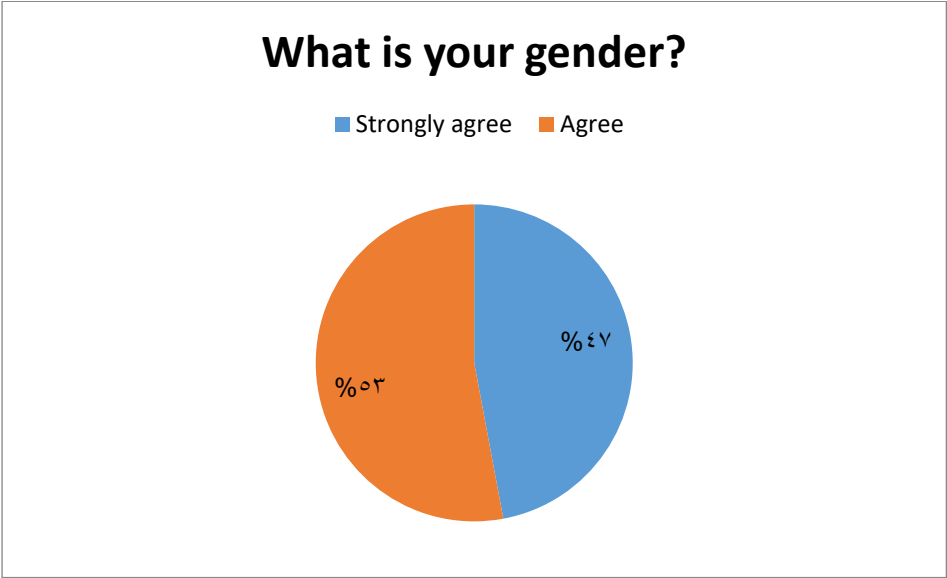


Figure 2: gender of the study participants

The figure shows that the female is more responding to the survey than male.

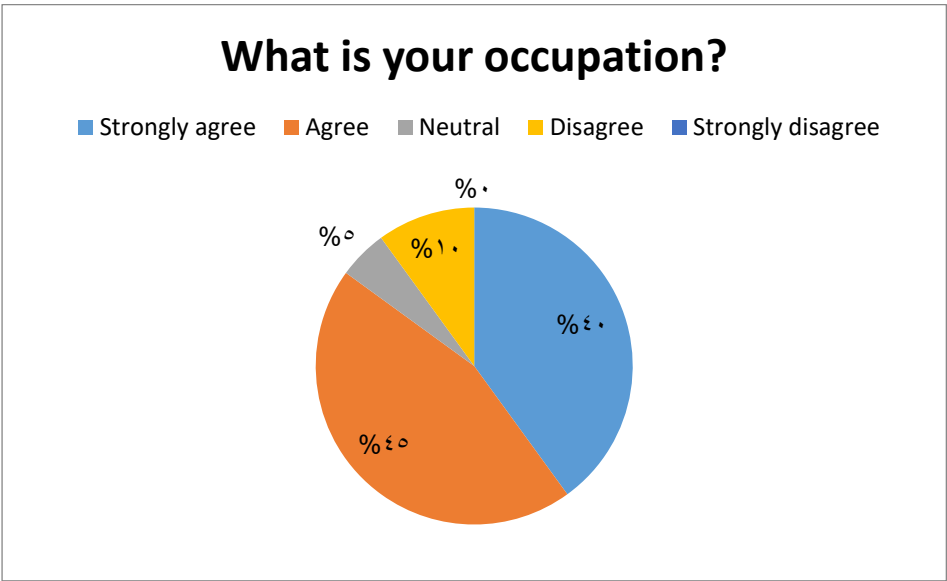


Figure 3: occupation of the study participants

Respondents are divided into four groups in the above chart: employed, self-employed, students, and unemployed. According to the data, most respondents are employed, with students coming in second. The fact that self-employed people make

up the smallest percentage of the groupings raises the possibility that job status may have an impact on how people use mobile banking.

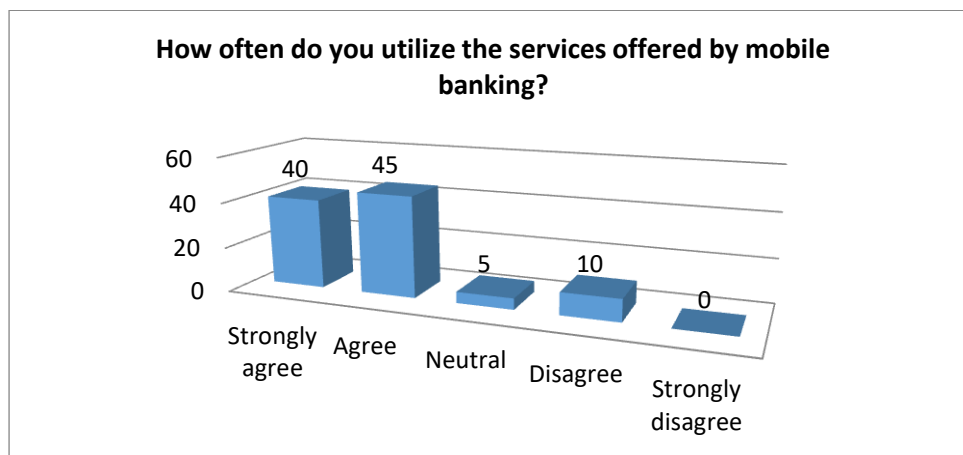


Figure 4: showing how often the study participants utilize the services offered by mobile banking

With choices for daily and weekly usage, the accompanying chart shows the frequency of respondents utilizing mobile banking services. A significant degree of utilization and dependence on these electronic platforms is demonstrated by the fact that most respondents use mobile banking services on a regular basis. Fewer respondents utilize mobile banking services on a weekly basis, which may be due to a desire for more traditional banking practices.

4.2 Perceptions of FinTech and Mobile Banking Analysis

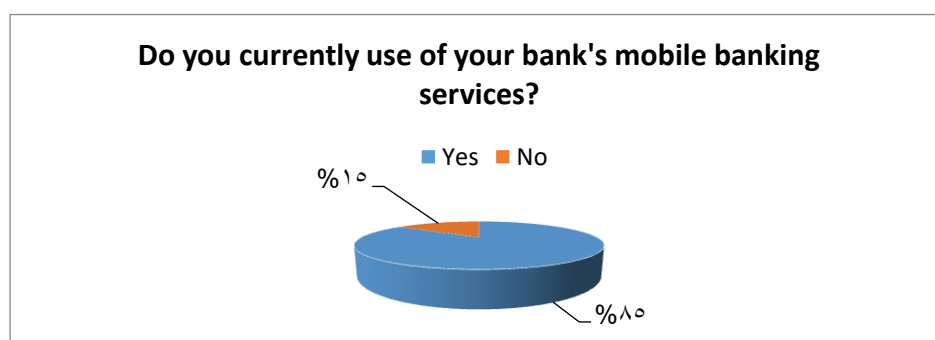


Figure 5: showing does the study participants currently use of your bank's mobile banking services?

The Current Use of Mobile Banking Services chart shows whether respondents utilize their bank's mobile banking services on a regular basis. The vast majority of respondents replied "Yes," demonstrating that mobile banking is commonly utilized and well accepted among those polled. The smaller proportion of respondents who said "No" might suggest a preference for in-person banking transactions or a lack of trust in online banking.

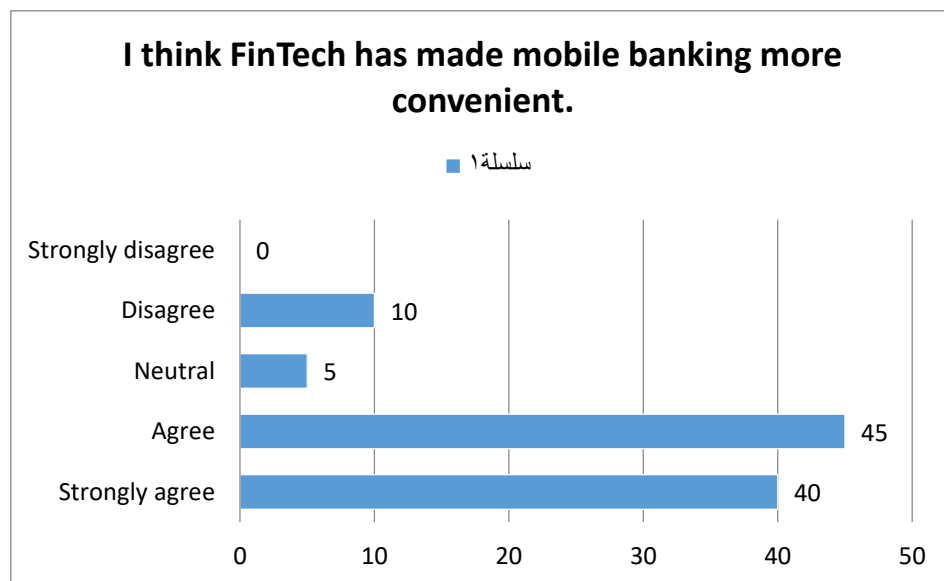


Figure 6: showing the study participants thinking about FinTech has made mobile banking more convenient.

Convenience of Online Banking The FinTech graph evaluates respondents' perception that FinTech has made mobile banking more convenient. Most respondents agreed or strongly agreed, reflecting how FinTech innovations have improved customer experience while also enhancing accessibility and efficiency in banking.

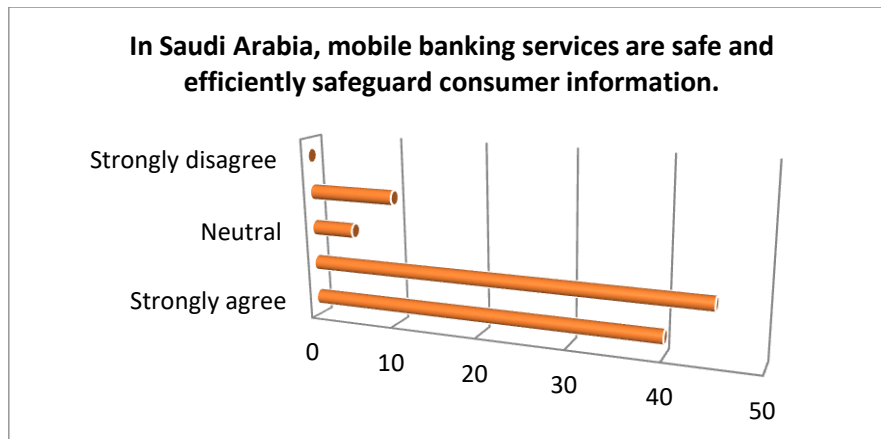


Figure 7: showing how safe mobile banking is in Saudi Arabia.

The Security of Mobile Banking in Saudi Arabia chart measures respondents' opinions of the safety and efficacy of Saudi Arabian mobile banking services in protecting client information. The majority of respondents agreed or strongly agreed that banks and other financial organizations had implemented adequate security measures. A small minority of respondents, however, stated no view or disagreement, suggesting that some customers may still be concerned about data privacy and cybersecurity.

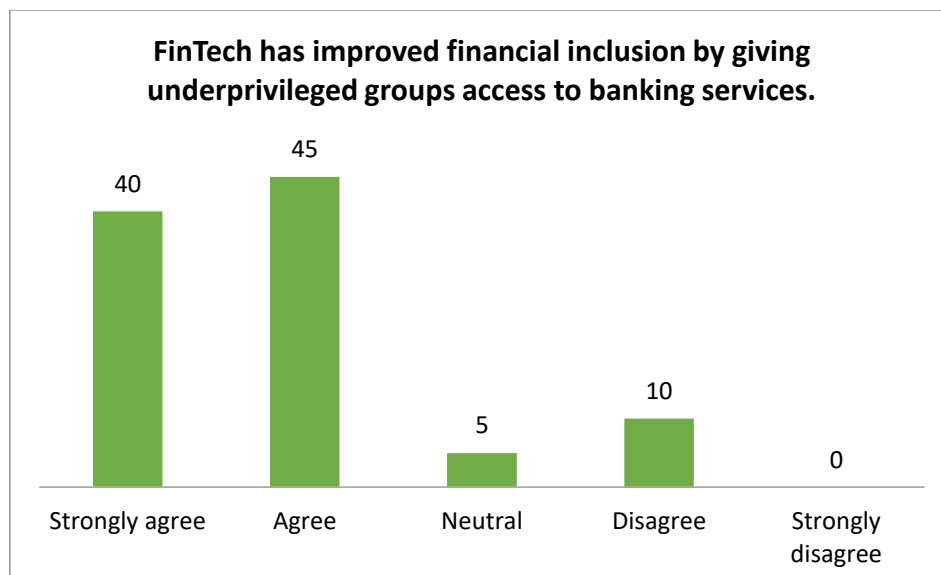


Figure 8: showing how fintech improves financial inclusion by giving underserved groups access to banking services.

The figure above show that the Financial Inclusion due to FinTech graph depicts the perception of the respondents on how FinTech has improved access to financial services for excluded groups. Majority of them agreed or strongly agreed, which reflects how FinTech is empowering poor or previously unbanked people to receive access to financial services. This implies that Saudi Arabia's financial accessibility has improved as a result of technology developments.

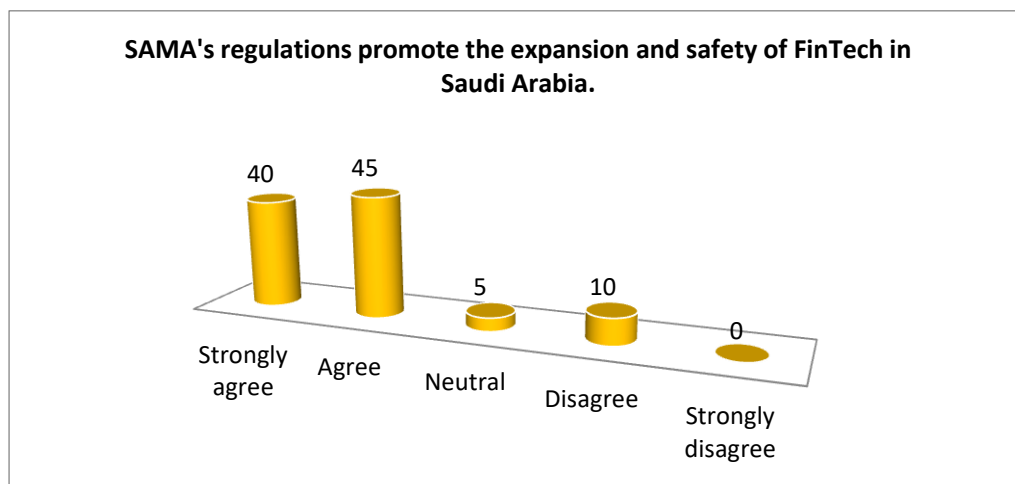


Figure 9: showing how SAMA's regulations promote the expansion and safety of FinTech in Saudi Arabia.

The Effectiveness of SAMA's regulations on FinTech chart examines views on whether the Saudi Central Bank's (SAMA) policies encourage FinTech development and security. The answer was varied, with the majority agreeing, some objecting, and some staying neutral. This implies that, while the majority of respondents appreciate SAMA's role in ensuring a secure FinTech environment, there may still be concerns or reservations regarding the legal structure.

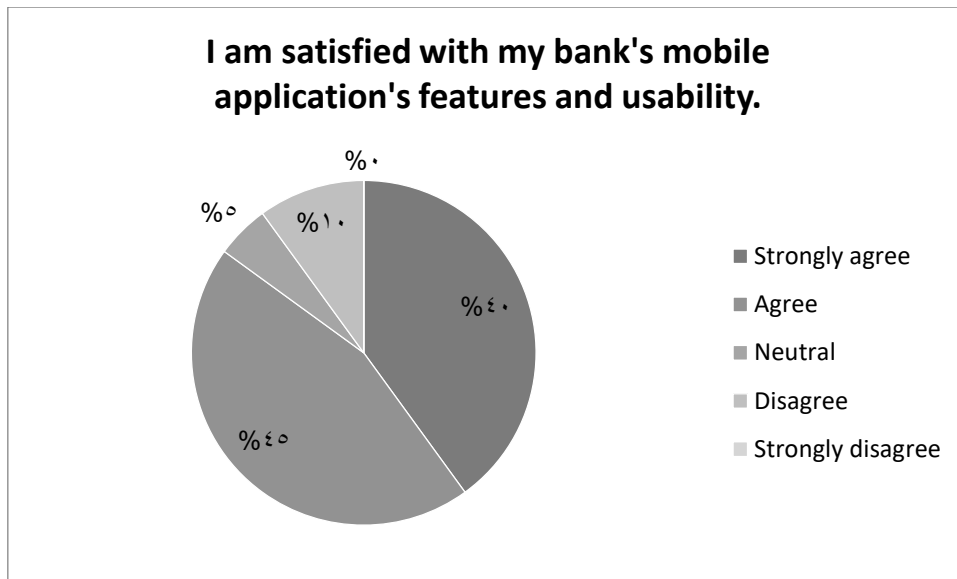


Figure 10: showing satisfaction with Bank's Mobile Application

The Satisfaction with Bank's Mobile Application chart measures respondents' satisfaction with the features and functionality of their bank's mobile app. The majority of respondents indicated overall satisfaction with the mobile banking experience by agreeing or strongly agreeing. Based on the viewpoints of those who remained neutral or disagreed, the positive responses indicate that banks have successfully established user-friendly systems, albeit there may still be potential for improvement.

5. Discussion

The study assessed FinTech's potential to increase mobile banking in Saudi Arabia, providing valuable insights on ease of use, security, government support, and user adoption. The results are consistent with past research on FinTech acceptance, the digital banking revolution, and financial inclusion.

5.1 Mobile Banking Adoption and User Engagement

It was found that the younger age category (25-34 years) is the most common users of mobile banking, and the most common usage pattern is frequent use on a daily basis. This agrees with Nasir et al. (2021), who found that the adoption of digital banking is higher with the youth because they are technology-savvy and prefer convenience. In the same vein, Akmal et al. (2023) also found that young consumers propel the trend of FinTech uptake, particularly in Middle East nations. The research uncovers that banks approach the young people with offerings like AI-based financial advice, biometric authentication, and easy-to-use digital platforms in order to survive.

5.2 FinTech Innovations and Convenience

Most of the participants agreed that FinTech made it convenient to bank on mobile, consistent with literature's convenience-providing financial services. As postulated by Albarrak & Alokley (2021), customers only care about convenience and simplicity when it comes to mobile banking, and hence FinTech firms have come up with user-friendly platforms that respond. Hariri (2023) saw Saudi consumers' use of mobile payment platforms like STCPay and Mada Pay, once again proving the research hypothesis that FinTech has made transactions more accessible and convenient. Frad & Jedidi (2023) also highlighted that FinTech firms revolutionize financial services to make them more efficient and less dependent on traditional banking systems. Banks

and FinTech companies must continue to develop mobile banking interfaces, including AI-powered customer care and user-friendly digital wallets.

5.3 Mobile Banking Security and Trust

Security is a major driver of FinTech adoption. The majority of the respondents of the research trust mobile banking services, albeit others were in contrast or had a neutral position with an enduring doubt regarding cybersecurity. Nasir et al. (2021) noted that security concerns are one of the biggest barriers to the adoption of digital banking. Abbas & Shaheen (2021) believed that cyber-attacks and fraud remain top-of-mind issues for Saudi Arabian consumers, where enhanced encryption and fraud detection are required. Saudi FinTechs and banks must heighten the security elements, invest in AI-based fraud prevention and create consumer education programs that are grounded in cybersecurity best practice to build greater levels of trust.

5.4 Financial Inclusion with FinTech

The research confirmed that FinTech has an important function in making financial inclusion possible and enabling excluded communities to use banking services. As per Aldarmi (2024), the study confirmed that FinTech offerings increase the financial reach for the erstwhile unbanked part of society. M-Pesa in Africa (Aldarmi, 2024) transformed financial inclusion, and it was the same in Saudi Arabia, where electronic wallets and mobile banking have taken roots in excluded communities. Akmal et al. (2023) maintained that FinTech-supported banking fosters financial inclusion in emerging economies such as Saudi Arabia. Policymakers and FinTech companies must make development of digital microfinance products a priority to enhance financial inclusion further.

5.5 SAMA Regulatory Effectiveness

There were differing views among the respondents regarding whether the regulatory environment by SAMA supports FinTech growth and protection. Whereas everyone agreed, others kept quiet or were not on the same line regarding potential bureaucratic lag or adherence. Khan and Saad (2022) argued that SAMA's regulatory frameworks must support innovation without compromising financial stability. Frad & Jedidi (2023) argued that lengthy licensing processes are a disadvantage to FinTech startups and this would be the reason why some of the respondents view regulation as a discourager instead of an inducer. SAMA might need to consider simplifying regulation processes without loss to security and compliance, perhaps introducing faster FinTech channels of licensing.

5.6 Customer Satisfaction with Mobile Banking Apps

Most of the respondents of the survey were content with the mobile apps of their banks, which shows that banks have managed to implement user-friendly and efficient digital facilities. Albarrak & Alokley (2021) identified the fact that banks must continually make their digital interfaces more streamlined so that users would be contented. Muzafar & Jhanjhi (2020) confirmed that banks in collaboration with FinTech players reach higher levels of customer satisfaction via innovative and tailor-made banking options. The banks should concentrate on continuous development, such as AI-driven intelligence, convenience in integration with third-party finance applications, and tailored banking services. This research again corroborates that FinTech generates revolutionary effects for Saudi Arabia's mobile banking. The findings support the literature's assertion, focusing on increased usage, increased convenience, increased inclusion, and issues of regulation. Security is an ongoing concern, but Saudi Arabia's FinTech sector keeps expanding, supported by Vision 2030's digital agenda.

6. Conclusion

This study explored the role of FinTech in enhancing mobile banking in Saudi Arabia, focusing on its impact on user adoption, convenience, security, financial inclusion, and regulatory effectiveness. The findings indicate that FinTech innovations have significantly improved mobile banking services, making them more accessible, efficient, and user-friendly. Younger demographics, particularly individuals aged 25-34, demonstrate the highest adoption rates, confirming that tech-savvy consumers are driving the shift toward digital banking. The convenience of mobile banking, supported by FinTech advancements such as digital wallets, AI-driven financial services, and seamless online transactions, has contributed to increased engagement and satisfaction among users.

Furthermore, FinTech has played a pivotal role in enhancing financial inclusion by expanding banking services to underserved populations, aligning with Saudi Vision 2030's goal of fostering digital transformation and economic diversification. However, despite these benefits, some challenges remain, particularly concerning cybersecurity and trust in digital banking platforms. While the majority of respondents perceive mobile banking as secure, a portion of users remains skeptical, highlighting the need for stronger cybersecurity measures, fraud prevention systems, and consumer education to address these concerns. Regulatory support from the Saudi Arabian Monetary Authority (SAMA) has been instrumental in facilitating FinTech growth, yet mixed responses regarding its effectiveness suggest that some users find regulatory processes complex or restrictive, indicating the need for a more streamlined, innovation-friendly regulatory framework.

Overall, the study confirms that FinTech is reshaping the banking landscape in Saudi Arabia, driving efficiency, financial accessibility, and customer satisfaction. To

sustain this progress, policymakers and financial institutions should focus on strengthening security measures, promoting financial inclusion through digital solutions, fostering collaborations between banks and FinTech startups, and refining regulatory frameworks to encourage innovation while ensuring financial stability. By addressing these areas, Saudi Arabia can further solidify its position as a global leader in FinTech innovation, fostering a secure, inclusive, and technologically advanced banking ecosystem.

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Appendix

Questionnaire

The Role of FinTech in Enhancing Mobile Banking in Saudi Arabia

Section 1: Demographic Information

What is your age group?

- ☐ 18-24
- ☐ 25-34
- ☐ 35-44
- ☐ 45-54
- ☐ 55 and above

What is your gender?

- ☐ Male
- ☐ Female

What is your occupation?

- ☐ Student
- ☐ Employed
- ☐ Self-employed
- ☐ Unemployed
- ☐ Retired

How often do you utilize the services offered by mobile banking?

- ☐ Daily
- ☐ Weekly
- ☐ Monthly
- ☐ Rarely
- ☐ Never

Section 2: Perceptions of FinTech and Mobile Banking

Do you currently use of your bank's mobile banking services?

- ☐ Yes
- ☐ No

I think FinTech has made mobile banking more convenient.

- ☐ Strongly agree
- ☐ Agree
- ☐ Neutral

- Disagree
- Strongly disagree

In Saudi Arabia, mobile banking services are safe and efficiently safeguard consumer information.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

FinTech has improved financial inclusion by giving underprivileged groups access to banking services.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

SAMA's regulations promote the expansion and safety of FinTech in Saudi Arabia.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

I am satisfied with my bank's mobile application's features and usability.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree