Comprehensive Journal of Science
Volume (10), Issue (39), (March, 2026)
ISSN: 3014-6266

مجلة العلوم الشاملة
المجلد (10) ملحق العدد 39 مارس 2026
ردمد: 3014-6266

The Impact of Financial Technology (FinTech) Adoption on Customer Satisfaction in Libyan Banks

Ayoub Salem Mustafa Algreed
a.algreed@zu.edu.ly
Department of Finance and Banking, Faculty of Economics/ Al ajilat
University of Zawya, Libya

أثر تبني التكنولوجيا المالية على رضا العملاء في المصارف الليبية

أيوب سالم مصطفى القريض

a.algreed@zu.edu.ly

قسم التمويل والمصارف، كلية الاقتصاد/ العجيلات

جامعة الزاوية، ليبيا

تاريخ الاستلام:2026/02/16 –تاريخ المراجعة:2026/03/13– تاريخ القبول: 2026/03/14– تاريخ للنشر2026/04/28

Abstract

Financial Technology (FinTech) has transformed the banking industry by enhancing service efficiency, accessibility, and customer experience through digital innovations such as mobile banking, electronic payments, and online financial services. However, limited empirical research has examined whether FinTech adoption improves customer satisfaction in fragile and under-researched economies such as Libya. Therefore, this study investigates the impact of FinTech adoption on customer satisfaction in Libyan banks. FinTech adoption was conceptualized through three dimensions: ease of use, security, and convenience. A quantitative research approach was employed using a structured questionnaire distributed to customers of selected Libyan banks. A total of 384 valid responses were collected and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS software. The results indicate that FinTech adoption has a significant positive effect on customer satisfaction. Convenience was identified as the strongest predictor, followed by ease of use, both of which significantly enhanced customer satisfaction. In contrast, security did not show a significant direct effect. The model demonstrated high explanatory power, indicating that the selected factors account for a substantial proportion of customer satisfaction. This study contributes to the literature by extending FinTech research to the Libyan context and highlighting the importance of functional service benefits in emerging markets. Practically, the findings suggest that banks should prioritize convenient and user-friendly digital services while continuing to strengthen digital transformation strategies.

Keywords: FinTech Adoption; Customer Satisfaction; Digital Banking; Convenience; Libya

ملخص

أحدثت التكنولوجيا المالية (FinTech) تحولاً جذرياً في القطاع المصرفي من خلال تعزيز كفاءة الخدمات وسهولة الوصول إليها وتجربة العملاء عبر ابتكارات رقمية مثل الخدمات المصرفية عبر الهاتف المحمول والمدفوعات الإلكترونية والخدمات المالية عبر الإنترنت. ومع ذلك، لا تزال الدراسات التجريبية التي تناولت مدى تأثير تبني التكنولوجيا المالية على رضا العملاء في الاقتصادات الهشة والتي لم تحظَ بالدراسة الكافية مثل ليبيا محدودة.

لذا، تبحث هذه الدراسة في أثر تبني التكنولوجيا المالية على رضا العملاء في البنوك الليبية، وقد تم تحديد مفهوم تبني التكنولوجيا المالية من خلال ثلاثة أبعاد: سهولة الاستخدام، والأمان، والراحة. واعتمدت الدراسة على منهج بحث كمي باستخدام استبيان منظم وُزّع على عملاء بنوك ليبية مختارة. وتم جمع 384 استجابة صالحة وتحليلها باستخدام نمذجة المعادلات الهيكلية للمربعات الصغرى الجزئية (PLS-SEM) بواسطة برنامج SmartPLS. وتشير النتائج إلى أن لتبني التكنولوجيا المالية أثراً إيجابياً كبيراً على رضا العملاء. وقد تبين أن الراحة هي أقوى مؤشر، تليها سهولة الاستخدام، وكلاهما ساهم بشكل كبير في تعزيز رضا العملاء. في المقابل، لم يُظهر الأمان أثراً مباشراً ذا دلالة إحصائية. أظهر النموذج قدرة تفسيرية عالية، مما يشير إلى أن العوامل المختارة تُسهم بنسبة كبيرة في رضا العملاء. تُضيف هذه الدراسة إلى الأدبيات من خلال توسيع نطاق أبحاث التكنولوجيا المالية لتشمل السياق الليبي، وتسليط الضوء على أهمية مزايا الخدمات الوظيفية في الأسواق الناشئة عمليًا، تُشير النتائج إلى ضرورة أن تُعطي البنوك الأولوية للخدمات الرقمية المريحة وسهلة الاستخدام، مع مواصلة تعزيز استراتيجيات التحول الرقمي.

الكلمات المفتاحية: تبني التكنولوجيا المالية، رضا العملاء، الخدمات المصرفية الرقمية، الراحة، ليبيا

1. Introduction

Financial Technology (FinTech) has significantly reshaped the global financial services industry by integrating innovative digital technologies into traditional banking operations. Over the last decade, technologies such as mobile banking, digital wallets, electronic payments, blockchain, artificial intelligence, big data analytics, and peer-to-peer lending platforms have changed the way customers interact with financial institutions. These innovations have enabled banks to provide faster transactions, lower service costs, improved accessibility, and more personalized customer experiences. As competition intensifies in the financial sector, FinTech is increasingly viewed not merely as a technological upgrade, but as a strategic necessity for banks aiming to maintain competitiveness, improve efficiency, and achieve long-term sustainability (Ghosh et al., 2026).

The growing importance of FinTech is particularly evident in the banking sector, where customer expectations continue to evolve rapidly. Traditionally, customers relied on physical bank branches and face-to-face interactions for most financial transactions. However, the digital era has shifted customer preferences toward convenient, flexible, and technology-driven services that can be accessed anytime and anywhere. Customers now expect secure mobile applications, seamless online transactions, rapid service delivery, and responsive support systems. Consequently, banks that fail to adopt digital innovations risk losing customers to more agile competitors and non-bank financial service providers. In contrast, banks that successfully implement FinTech solutions can strengthen customer relationships and enhance service quality (Sharma et al., 2024).

Customer satisfaction remains one of the most critical indicators of success in the banking industry. It reflects the extent to which banking services meet or exceed customer expectations. High levels of customer satisfaction are associated with stronger customer loyalty, positive word-of-mouth recommendations, repeated usage of banking services, and increased profitability. In the digital banking environment, customer satisfaction is influenced by several factors, including ease of use, perceived usefulness, trust, security, service quality, and system reliability. When customers perceive digital banking services as efficient and trustworthy, they are more likely to report positive experiences and remain committed to their banks (Mainardes et al., 2023; Aldaarmi et al., 2024).

Although FinTech adoption has received considerable scholarly attention in developed and emerging economies, far less research has focused on fragile or transitional economies such as Libya. This gap is important because the adoption and impact of financial technologies may differ substantially across contexts depending on infrastructure readiness, regulatory frameworks, digital literacy, and socio-economic conditions. The Libyan banking sector has historically faced multiple structural challenges, including heavy dependence on cash transactions, limited electronic payment systems, outdated technological infrastructure, and service inefficiencies. These challenges have often reduced customer confidence and limited access to modern banking services.

In recent years, however, Libya has witnessed gradual efforts toward banking modernization. Several banks have introduced ATM network expansions, debit and prepaid cards, mobile banking applications, online account inquiries, and electronic fund transfer services. These developments reflect increasing recognition of the need for digital transformation within the financial sector. Nevertheless, the extent to which such FinTech initiatives have improved customer satisfaction remains unclear. Existing studies on Libya have largely focused on general banking challenges, while empirical evidence on the relationship between FinTech adoption and customer satisfaction is still limited. This represents a significant research gap in both regional and international literature (Albuainain et al., 2025).

Accordingly, this study aims to examine the impact of FinTech adoption on customer satisfaction in Libyan banks. It seeks to determine whether customers' perceptions of FinTech services positively influence their satisfaction with banking services. By focusing on the Libyan context, the study contributes to expanding the geographic scope of FinTech research beyond commonly examined markets and offers insights into digital transformation in under-researched economies.

The significance of this study is both theoretical and practical. Theoretically, it enriches the literature on FinTech adoption and customer satisfaction by providing empirical evidence from a developing and relatively underexplored context. Practically, the findings can help Libyan banks understand which aspects of digital services are most valued by customers, thereby supporting better investment decisions, improved service design, and stronger customer-centered innovation strategies. In addition, policymakers may benefit from the findings when developing regulations and strategies that encourage financial inclusion and technological advancement in the banking sector.

2. Literature Review

2.1 FinTech and Customer Satisfaction

Financial Technology (FinTech) has emerged as one of the most influential developments in the modern financial services industry. It refers to the application of advanced technologies to deliver financial products and services in more efficient, accessible, and innovative ways. FinTech includes a wide range of solutions such as mobile banking, internet banking, digital wallets, blockchain systems, robo-advisory services, peer-to-peer lending, artificial intelligence, and automated customer service tools. These innovations have significantly changed the traditional banking model by shifting many banking activities from physical branches to digital platforms (Gomber et al., 2018).

The adoption of FinTech in the banking sector has been driven largely by changing customer expectations. Today's banking customers expect speed, convenience, security, transparency, and personalized service experiences. Unlike traditional banking systems, which often involve paperwork, branch visits, and waiting times, FinTech services allow customers to access financial services instantly through smartphones and online platforms. This convenience has become a key source of competitive advantage for banks seeking to attract and retain customers.

Customer satisfaction is commonly defined as the extent to which customers perceive that a product or service has met or exceeded their expectations. In banking, customer satisfaction is especially important because it influences customer loyalty, retention, trust, and long-term profitability. Satisfied customers are more likely to continue using their bank's services, purchase additional products, and recommend the bank to others. Therefore, banks increasingly recognize customer satisfaction as a strategic outcome of digital transformation initiatives.

Several theoretical models explain why FinTech can improve customer satisfaction. The Technology Acceptance Model (TAM) suggests that perceived usefulness and perceived ease of use are major factors influencing users' acceptance of new technologies (Davis, 1989). In the banking context, when customers find mobile banking applications useful and easy to navigate, they are more likely to use them regularly and evaluate their experiences positively. Similarly, the expectation-confirmation perspective argues that satisfaction occurs when actual service performance matches or exceeds customer expectations.

Empirical studies have consistently shown a positive relationship between FinTech services and customer satisfaction. For example, digital banking platforms that offer quick transactions, accurate information, and easy navigation tend to generate higher levels of satisfaction. Mainardes et al. (2023) found that customers using fintech services reported stronger satisfaction when services were efficient, reliable, and responsive. Likewise, Aldaarmi et al. (2024) emphasized that digital service quality contributes directly to satisfaction and sustainable banking performance.

Another key determinant of satisfaction in FinTech services is trust. Because financial transactions involve personal data and monetary risk, customers must believe that digital systems are secure and dependable. Concerns about privacy breaches, fraud, or technical failures can reduce confidence and negatively affect satisfaction. Ryu (2018) found that perceived risk and trust strongly shape customers' willingness to adopt FinTech services. This indicates that security and reliability are not only technical issues, but also central elements of customer satisfaction.

Service quality also remains highly relevant in digital banking environments. Traditional dimensions of service quality such as responsiveness, assurance, reliability, and empathy are now delivered through technological interfaces. For example, rapid application response times, clear instructions, efficient complaint handling, and accurate transaction processing all contribute to positive customer evaluations. In many cases, customers compare digital banking experiences not only with other banks, but also with digital services offered by technology companies and e-commerce platforms.

FinTech can enhance satisfaction through personalization. By using customer data and analytics, banks can offer customized recommendations, spending insights, and personalized

notifications. These features improve customer engagement and create added value beyond basic transactional services. As a result, customers may perceive their bank as more responsive to their individual needs.

The relationship between FinTech and customer satisfaction is not automatically positive. Poorly designed systems, frequent downtime, complicated interfaces, or lack of customer support may create frustration and dissatisfaction. Therefore, successful FinTech implementation requires continuous investment in system quality, user experience design, cybersecurity, and customer education. The literature indicates that FinTech has strong potential to improve customer satisfaction when services are convenient, useful, secure, and reliable. For banks, this means that technology adoption should be guided not only by operational efficiency goals, but also by customer-centered service strategies

2.2 FinTech Adoption in Developing Countries and Libya

FinTech adoption has grown rapidly in developing countries over the past decade. This growth has been supported by increased smartphone ownership, wider internet access, expanding digital ecosystems, and the need for more inclusive financial services. In many emerging economies, traditional banking systems have struggled to serve all segments of society due to limited branch networks, high transaction costs, and bureaucratic procedures. FinTech solutions have helped address these limitations by offering faster, cheaper, and more accessible alternatives.

One of the most significant contributions of FinTech in developing countries is financial inclusion. Millions of individuals who previously lacked access to formal banking services can now use mobile wallets, digital payments, and branchless banking services. The World Bank (2022) highlighted the growing role of digital payments in expanding financial access, particularly after the COVID-19 pandemic accelerated the use of contactless and online transactions. In this sense, FinTech is not only a technological innovation but also a social and economic development tool.

Examples from several developing countries illustrate this transformation. In African markets, mobile money systems have enabled secure financial transactions without the need for traditional bank accounts. In Asian economies, digital lending platforms have provided faster access to credit for individuals and small businesses. In Latin America, fintech startups have introduced low-cost payment solutions and financial management applications. These examples demonstrate that FinTech can thrive in developing contexts when it addresses specific market needs.

Despite these opportunities, FinTech adoption in developing countries often faces structural and behavioral barriers. Infrastructure limitations such as unstable internet connections, electricity shortages, and weak digital systems may restrict service reliability. Low digital literacy can also prevent customers from fully understanding or trusting digital financial services. In addition, regulatory uncertainty, cybersecurity concerns, and weak consumer protection frameworks may slow adoption rates (Ozili, 2018; Sharma et al., 2024).

Trust is particularly important in developing economies where customers may have limited experience with formal banking systems. If customers are uncertain about the safety of digital transactions or fear losing their money, they may continue relying on cash-based methods. Cultural preferences and habits can therefore influence the pace of FinTech adoption. This

suggests that technology availability alone is insufficient; successful adoption also depends on education, awareness, and institutional credibility.

In the Libyan context, the banking sector has traditionally been dominated by conventional banking practices and heavy dependence on cash transactions. Customers often rely on physical branches for withdrawals, transfers, and account services. Historically, the sector has experienced several challenges, including limited technological infrastructure, long waiting times, liquidity constraints, and operational inefficiencies. These issues have often reduced customer satisfaction and limited confidence in banking services.

Recent years have witnessed gradual efforts toward modernization in Libya's financial sector. Banks have expanded ATM networks, introduced payment cards, developed mobile banking applications, and implemented electronic transfer systems. These initiatives indicate growing awareness among financial institutions that digital transformation is essential for improving service quality and meeting customer expectations.

Nevertheless, FinTech adoption in Libya remains relatively limited compared with many neighboring and international markets. Several barriers continue to affect progress, including inconsistent internet connectivity, cybersecurity concerns, lack of customer awareness, resistance to change, and regulatory challenges. Political and economic instability may also slow investment in digital infrastructure and innovation. Because of these contextual conditions, the drivers and outcomes of FinTech adoption in Libya may differ from those identified in more advanced economies.

This makes Libya a particularly valuable setting for research. Investigating FinTech adoption in Libyan banks can generate context-specific insights into how customers respond to digital banking services under challenging environmental conditions. Such evidence is important for both theory and practice, especially for countries undergoing similar transitions.

2.3 Research Gap

Although FinTech has become a major topic in banking and technology research, important gaps remain in the existing literature.

First, much of the current research has concentrated on developed countries or large emerging markets where digital infrastructure is relatively advanced and FinTech ecosystems are well established. While these studies provide useful insights, their findings may not be directly transferable to fragile or transitional economies such as Libya. Differences in infrastructure quality, regulatory maturity, economic conditions, and customer readiness may significantly alter adoption patterns and service outcomes.

Second, many previous studies have focused on customers' intention to adopt FinTech rather than the consequences of adoption. Models such as TAM and UTAUT have been widely used to explain why customers accept digital technologies. However, less attention has been given to whether the implementation of FinTech services actually improves customer satisfaction after adoption. Understanding post-adoption outcomes is critical because banks invest in technology not only to increase usage, but also to improve customer experiences and strengthen competitiveness.

Third, studies examining customer satisfaction in banking often focus on traditional service quality dimensions without fully considering the role of modern digital technologies. As

banking increasingly shifts toward mobile and online channels, it is necessary to reassess satisfaction determinants in technology-driven service environments. Factors such as usability, system quality, security, trust, and digital convenience now play a central role in shaping customer evaluations.

Fourth, the Libyan banking sector remains underrepresented in academic research despite recent efforts toward digital transformation. There is limited empirical evidence regarding how Libyan customers perceive FinTech services, whether these services enhance satisfaction, and which dimensions of digital banking matter most to users. This lack of evidence creates uncertainty for managers seeking to allocate resources effectively and for policymakers designing financial modernization strategies.

Finally, few studies have examined FinTech adoption and customer satisfaction simultaneously within one integrated framework in the Libyan context. Existing literature often investigates these concepts separately. A combined analysis can provide deeper understanding of how technology adoption translates into customer outcomes.

This study addresses these gaps by examining the impact of FinTech adoption on customer satisfaction in Libyan banks. It contributes empirical evidence from an under-researched environment, extends the literature beyond mainstream markets, and offers practical recommendations for banking institutions pursuing digital transformation.

3. Theoretical Framework and Hypotheses

This section presents the theoretical foundation of the study and develops the proposed hypotheses. The study examines the effect of FinTech adoption on customer satisfaction in Libyan banks. Based on prior literature, FinTech adoption is conceptualized as a multidimensional construct reflected through customers' perceptions of ease of use, security, and convenience. These dimensions represent key characteristics of successful digital financial services and are widely recognized in technology adoption and service quality research.

The proposed framework assumes that when customers perceive banking technologies as easy to use, secure, and convenient, they are more likely to evaluate their banking experiences positively and report higher satisfaction. This relationship is particularly relevant in the Libyan banking sector, where digital transformation is still evolving and customer experiences with financial technologies remain relatively recent.

The framework is supported by the Technology Acceptance Model (TAM) developed by Davis (1989), which argues that users are more likely to accept and value technologies that are useful and easy to use. In banking environments, ease of use reduces complexity and increases customer confidence in digital systems. In addition, trust and security theories suggest that customers' perceptions of safety and privacy are essential for technology-based financial transactions. Service convenience theory further explains that customers value systems that save time, effort, and cost. Together, these perspectives provide a strong basis for examining how FinTech adoption influences customer satisfaction.

3.1 Conceptual Model

The conceptual model of this study proposes that FinTech Adoption is the independent variable, while Customer Satisfaction is the dependent variable. The model assumes that the level of

customer satisfaction in Libyan banks is influenced by customers' perceptions of the quality and effectiveness of financial technology services provided by their banks.

In this study, FinTech adoption is conceptualized through three key dimensions: ease of use, security, and convenience. Ease of use refers to the extent to which digital banking services are perceived as simple, clear, and user-friendly. When banking applications and digital systems are easy to understand and operate, customers are more likely to use them confidently and evaluate their experiences positively. Security refers to the degree to which customers believe that digital banking systems adequately protect their personal information, privacy, and financial transactions from unauthorized access or fraud. Since financial transactions involve risk, customers' perceptions of security play a crucial role in shaping their trust and satisfaction. Convenience reflects the extent to which digital banking services save customers' time and effort by providing flexible access to banking functions anytime and anywhere. Customers value services that reduce the need for branch visits and allow fast and efficient transaction completion.

These three dimensions collectively represent customers' overall perceptions of FinTech adoption within the banking environment. The model therefore suggests that when customers perceive banking technologies as easy to use, secure, and convenient, they are more likely to report higher levels of satisfaction with their banks.

The proposed conceptual relationship can be summarized as follows:

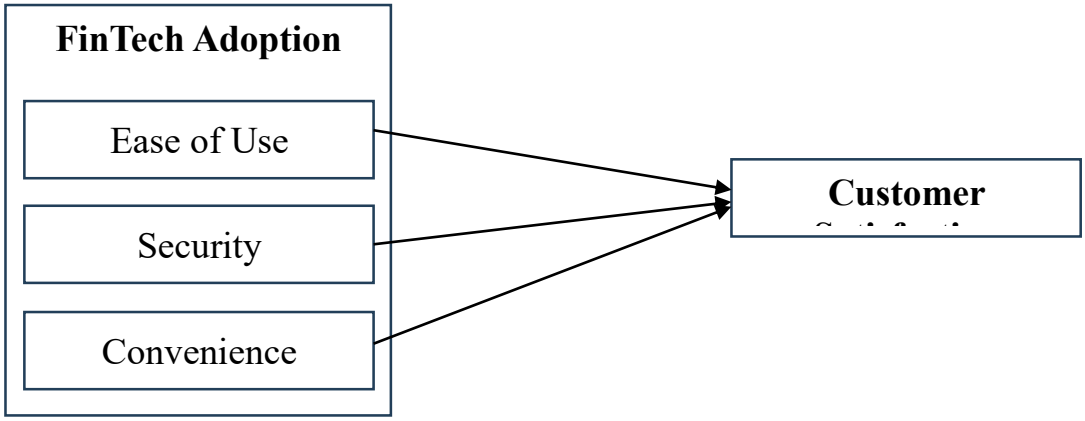

Figure 1: Conceptual Framework

3.2 Hypotheses Development

3.2.1 FinTech Adoption and Customer Satisfaction

The banking industry has undergone substantial transformation due to the rapid development of financial technologies. Traditional banking services that once depended heavily on physical branches and manual procedures are increasingly being replaced by digital platforms that offer faster, more flexible, and customer-oriented solutions (Gomber et al., 2018). Through FinTech

applications such as mobile banking, internet banking, electronic payments, automated account management, and digital customer support, banks can provide services in a more efficient and convenient manner.

From a customer perspective, the value of FinTech lies in its ability to simplify banking activities and improve the overall service experience. Customers can transfer funds, pay bills, monitor balances, apply for services, and communicate with banks instantly without visiting branches. This saves time and effort while increasing convenience and accessibility. As customer expectations continue to rise in the digital era, the ability of banks to deliver efficient technological services has become an important determinant of satisfaction (Sharma et al., 2024).

The positive effect of FinTech adoption on customer satisfaction can also be explained through service quality logic. When technology improves transaction speed, reduces errors, enhances responsiveness, and provides seamless access to services, customers are more likely to perceive greater value and develop favorable attitudes toward their banks. Several empirical studies have reported that digital banking services contribute positively to customer satisfaction because they improve convenience, service efficiency, and overall user experience (Mainardes et al., 2023; Aldaarmi et al., 2024).

In the Libyan banking context, where customers have historically experienced delays, cash dependency, and operational inefficiencies, the adoption of effective FinTech solutions may create even stronger positive reactions. If customers perceive digital banking as a meaningful improvement over traditional systems, satisfaction levels are expected to rise significantly.

Therefore, the following main hypothesis is proposed:

H1: FinTech adoption positively affects customer satisfaction in Libyan banks.

3.2.2 Ease of Use and Customer Satisfaction

Ease of use is one of the most widely recognized determinants of technology acceptance and user evaluation. According to the Technology Acceptance Model, individuals are more likely to accept and use technologies that are simple to understand and require minimal effort (Davis, 1989). In digital banking environments, customers interact directly with technological interfaces such as mobile applications, websites, ATMs, and online transaction systems. If these systems are difficult to navigate, confusing, or technically complicated, customers may become frustrated and dissatisfied.

On the other hand, when digital banking platforms are user-friendly, clear, and intuitive, customers are more likely to experience confidence and comfort during usage. Features such as simple menus, clear instructions, quick navigation, and smooth transaction processes reduce the cognitive effort required from users. This is especially important for customers with limited technological experience, as ease of use lowers psychological barriers to adoption (Venkatesh et al., 2003).

Ease of use also affects satisfaction by reducing errors and saving time. Customers prefer systems that allow them to complete transactions quickly without repeated attempts or unnecessary complexity. Positive interactions with easy-to-use systems can create favorable emotional responses and strengthen perceptions of service quality (Mainardes et al., 2023).

In the context of Libyan banks, ease of use may be particularly significant because some customers are still adapting to digital financial services. If banking technologies are designed in a simple and accessible way, customers are more likely to accept them and report higher satisfaction.

Accordingly, the following hypothesis is proposed:

H2: Ease of use positively affects customer satisfaction.

3.2.3 Security and Customer Satisfaction

Security is a fundamental issue in digital financial services because customers entrust banks with sensitive personal information and financial assets. Unlike many other online services, banking transactions involve direct monetary consequences, which means that concerns about fraud, unauthorized access, privacy breaches, and cyberattacks can strongly influence customer perceptions (Ryu, 2018).

When customers believe that digital banking systems are secure, they feel more confident in using those services. Strong authentication systems, encrypted transactions, fraud prevention mechanisms, and clear privacy protections help reduce perceived risk and build trust. Trust, in turn, is closely related to customer satisfaction because customers are more comfortable and positive when they feel their money and data are protected (Gefen et al., 2003).

Previous studies have emphasized that perceived security is a major predictor of positive attitudes toward FinTech services. If customers perceive security weaknesses or fear potential losses, they may avoid digital services or evaluate them negatively, even if those services are convenient (Aldaarmi et al., 2024).

In Libya, where trust in institutions and service systems may vary, security becomes even more important. Customers may hesitate to adopt digital banking unless they are convinced that their transactions are safe and reliable. Therefore, enhancing system security can play a critical role in improving satisfaction and encouraging continued use.

Therefore, the following hypothesis is proposed:

H3: Security positively affects customer satisfaction.

3.2.4 Convenience and Customer Satisfaction

Convenience refers to the extent to which services save customers time, effort, and physical movement while providing flexible access to needed functions. In modern banking, convenience has become one of the strongest expectations of customers. People increasingly prefer services that fit into their daily routines and allow them to complete transactions quickly without unnecessary delays (Berry et al., 2002).

FinTech significantly improves convenience by enabling customers to access banking services anytime and anywhere. Through mobile banking applications and online platforms, customers can check balances, transfer funds, pay bills, and receive notifications without visiting a branch. This flexibility is especially valuable for individuals with busy schedules, mobility limitations, or limited access to physical banking locations.

Convenience contributes to satisfaction because it reduces the costs associated with obtaining services. These costs may include travel time, waiting time, paperwork, and dependency on branch opening hours. When customers can complete tasks instantly from their homes or workplaces, they are more likely to perceive banking services as efficient and valuable (Kaura, 2013).

In addition, convenience can enhance customers' sense of control. Digital services allow users to manage their finances independently and immediately, which can create stronger feelings of empowerment and satisfaction. In competitive markets, convenience often becomes a decisive factor influencing customer evaluations and loyalty.

For Libyan banks, convenience may be especially relevant due to operational challenges such as branch congestion, limited-service hours, and transaction delays. FinTech services that remove these obstacles can significantly improve the customer experience and strengthen satisfaction levels.

Thus, the following hypothesis is proposed:

H4: Convenience positively affects customer satisfaction.

4. Methodology

This section explains the methodological procedures used to examine the impact of FinTech adoption on customer satisfaction in Libyan banks. It presents the research design, target population, sampling method, measurement instrument, data collection process, and statistical techniques employed in the study. Since the objective of this research is to test relationships among measurable variables, a quantitative methodology is considered the most appropriate approach.

4.1 Research Design and Sample

This study adopts a quantitative cross-sectional research design. A quantitative approach is appropriate because the study seeks to test the proposed hypotheses and measure the relationship between FinTech adoption and customer satisfaction using numerical data and statistical analysis. The cross-sectional design involves collecting data from respondents at one point in time and is widely used in banking and technology adoption research (Sekaran & Bougie, 2019).

The target population of this study consists of customers of selected Libyan banks who use digital banking services such as mobile banking, ATM services, payment cards, internet banking, and electronic fund transfers. To ensure better representation of the Libyan banking sector, the study focuses on customers from major commercial banks, including Jumhouria Bank, Wahda Bank, and National Commercial Bank.

According to the Central Bank of Libya Annual Report (2023), the number of commercial bank accounts in Libya exceeded 5.3 million accounts, indicating the broad customer base of the Libyan banking sector (Central Bank of Libya, 2023). Since this study specifically targets customers who use digital banking services within selected banks, it is not practical to survey the entire population. Therefore, an appropriate sample size is required.

Based on the sample size table developed by Krejcie and Morgan (1970), a minimum sample size of 384 respondents is sufficient for large populations. In addition, Hair et al. (2022)

recommend adequate sample sizes for PLS-SEM studies to ensure reliable and robust estimation. Therefore, this study aims to collect at least 384 valid responses, with a larger number preferred to compensate for incomplete questionnaires.

A convenience sampling technique will be employed due to practical limitations in obtaining complete customer databases from banks and restrictions related to data accessibility. This method allows the researcher to collect responses from accessible and willing participants who meet the study criteria. Although convenience sampling may reduce generalizability, it is widely accepted in banking and behavioral studies where access to respondents is constrained (Sekaran & Bougie, 2019).

4.2 Measurement Instrument and Data Collection

Data will be collected using a structured questionnaire adapted from previously validated studies in the fields of FinTech adoption, digital banking, and customer satisfaction. The questionnaire is designed to ensure relevance, clarity, and consistency with the Libyan banking context.

The questionnaire consists of two main sections. The first section gathers demographic information, including gender, age, education level, occupation, and frequency of using digital banking services. These variables help describe the respondent profile and support further analysis.

The second section measures the main constructs of the study. FinTech adoption is represented through three dimensions: ease of use, security, and convenience, while customer satisfaction is measured as customers' overall evaluation of their banking experiences. All items will be measured using a five-point Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree.

$$1 \leq x \leq 5$$

Before the final survey distribution, the questionnaire will be reviewed by academic experts and banking specialists to ensure content validity. A pilot study may also be conducted with a small number of respondents to identify unclear wording or technical issues.

The final questionnaire will be distributed electronically and in printed form depending on respondent accessibility. Online distribution may be conducted through email, social media platforms, and direct communication channels, while printed questionnaires may be distributed in selected bank branches. Participation will be voluntary, and respondents will be informed that their answers are confidential and used only for academic purposes.

4.3 Data Analysis (SmartPLS)

The collected data will be analyzed using SmartPLS software through the Partial Least Squares Structural Equation Modeling (PLS-SEM) technique. PLS-SEM is appropriate for this study because it allows simultaneous analysis of relationships among multiple latent variables and is suitable for prediction-oriented research models with moderate sample sizes.

The analysis will be conducted in two stages: assessment of the measurement model and assessment of the structural model.

The measurement model will evaluate construct reliability and validity. Internal consistency reliability will be examined using Cronbach's Alpha and Composite Reliability (CR). Convergent validity will be assessed through factor loadings and Average Variance Extracted (AVE). Discriminant validity will be tested using the Heterotrait-Monotrait Ratio (HTMT).

$$AVE > 0.50$$

The structural model will then test the proposed hypotheses by examining path coefficients, t-values, p-values, and significance levels. The explanatory power of the model will be assessed using the coefficient of determination (R^2), while predictive relevance may also be evaluated using Q^2 values.

$$R^2$$

A bootstrapping procedure with repeated subsamples will be performed to determine the statistical significance of the relationships among constructs. Based on these results, the study will determine whether FinTech adoption and its dimensions significantly affect customer satisfaction in Libyan banks.

5. Results

5.1 Respondent Profile

A total of 384 valid responses were collected and included in the analysis. The demographic characteristics of the respondents provide an overview of the sample composition and help in understanding the background of customers participating in the study. The profile includes gender, age, education level, occupation, and frequency of using digital banking services.

With regard to gender, the majority of respondents were male, accounting for 368 participants (95.80%), while female respondents represented 16 participants (4.20%). This indicates that the sample was predominantly male, which may reflect the characteristics of the accessible respondents or the user distribution of digital banking services within the selected context.

In terms of age, the largest group of respondents was those aged less than 20 years, representing 177 respondents (46.10%). This was followed by respondents aged 31–40 years with 128 participants (33.30%), and those aged 21–30 years with 68 participants (17.70%). Smaller proportions were recorded for the age groups 41–50 years with 6 respondents (1.60%) and above 50 years with 5 respondents (1.30%). These findings suggest that younger individuals constitute the majority of digital banking users in the sample.

Regarding education level, the highest proportion of respondents held a Diploma qualification, with 171 participants (44.50%). Respondents holding a Bachelor's degree represented 120 participants (31.20%), while 82 respondents (21.40%) had a high school qualification or below. A smaller number held advanced degrees, including 2 respondents (0.50%) with a Master's degree and 9 respondents (2.30%) with a PhD. This indicates that most respondents possessed intermediate to higher educational qualifications.

Concerning occupation, the majority of respondents were employed in the private sector, accounting for 227 participants (59.10%). This was followed by government employees with 90 respondents (23.40%). Other categories included self-employed/business owners with 29 respondents (7.60%), unemployed respondents with 18 participants (4.70%), students with 12

respondents (3.10%), and other occupations with 8 respondents (2.10%). These results show that employed individuals formed the largest share of digital banking users in the sample.

Finally, regarding the frequency of using digital banking services, most respondents indicated that they use such services sometimes, representing 228 participants (59.40%). This was followed by respondents who use digital banking rarely with 91 participants (23.70%). Smaller groups reported using digital banking often (30 respondents, 7.80%), very often (19 respondents, 4.90%), or never (16 respondents, 4.20%). This suggests that while digital banking services are widely known among respondents, regular and intensive usage remains moderate.

Overall, the respondent profile indicates that the sample mainly consists of young, educated, and economically active individuals who have at least some experiences using digital banking services. These characteristics provide a relevant basis for examining perceptions of FinTech adoption and customer satisfaction in Libyan banks.

Table 1. Profile of Respondents

Variable	Category	Frequency	Percentage (%)
Gender	Male	368	95.80%
	Female	16	4.20%
Age	Less than 20	177	46.10%
	21–30	68	17.70%
	31–40	128	33.30%
	41–50	6	1.60%
	Above 50	5	1.30%
Education Level	High school or below	82	21.40%
	Diploma	171	44.50%
	Bachelor's degree	120	31.20%
	Master's degree	2	0.50%
	PhD	9	2.30%
Occupation	Student	12	3.10%
	Government employee	90	23.40%
	Private sector employee	227	59.10%
	Self-employed / Business owner	29	7.60%
	Unemployed	18	4.70%
	Other	8	2.10%
Frequency of Using Digital Banking	Never	16	4.20%
	Rarely	91	23.70%
	Sometimes	228	59.40%
	Often	30	7.80%
	Very often	19	4.90%

5.2 Measurement Model

The measurement model was evaluated to assess the reliability and validity of the constructs included in the study, namely Convenience (CON), Customer Satisfaction (CS), Ease of Use (EOU), and Security (SEC). This step is essential in PLS-SEM analysis to ensure that the measurement items accurately represent their corresponding latent variables before proceeding to hypothesis testing and structural model evaluation.

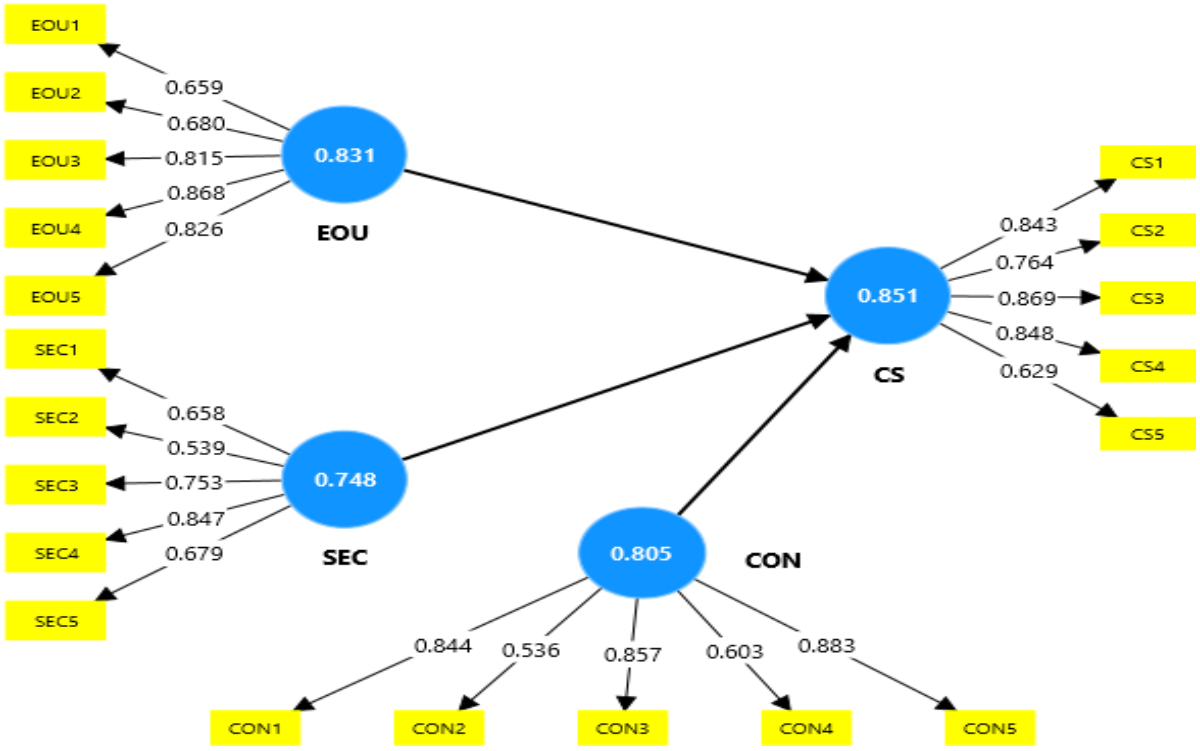

Figure 1: Evaluation of Measurement Model

The indicator loadings were first examined to determine the strength of the relationship between each item and its respective construct. The results showed that most indicator loadings exceeded the recommended threshold of 0.60, indicating acceptable item reliability (Hair et al., 2022). For the Convenience construct, item loadings ranged from 0.536 to 0.883. For Customer Satisfaction, the loadings ranged from 0.629 to 0.869. Ease of Use indicators ranged from 0.659 to 0.868, while Security indicators ranged from 0.539 to 0.847. Although a few items were slightly below the preferred threshold, they were retained because the overall construct validity and reliability remained satisfactory.

Internal consistency reliability was then assessed using Cronbach's Alpha and Composite Reliability (CR). The Cronbach's Alpha values ranged from 0.748 to 0.851, while Composite Reliability values ranged from 0.723 to 0.865. These values exceed the minimum acceptable level of 0.70, indicating that all constructs demonstrate satisfactory internal consistency reliability (Hair et al., 2019). Convergent validity was evaluated using the Average Variance Extracted (AVE). According to established guidelines, AVE values should be greater than 0.50 to confirm that a construct explains more than half of the variance of its indicators. The AVE values obtained were 0.575 for Convenience, 0.633 for Customer Satisfaction, 0.600 for Ease of Use, and 0.594 for Security. Therefore, convergent validity was established for all constructs.

Table 3: Construct Reliability and Validity

	Loading	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)
CON1	0.844	0.805	0.840	0.575
CON2	0.536			
CON3	0.857			
CON4	0.603			
CON5	0.883			
CS1	0.843	0.851	0.865	0.633
CS2	0.764			
CS3	0.869			
CS4	0.848			
CS5	0.629			
EOU1	0.659	0.831	0.846	0.600
EOU2	0.680			
EOU3	0.815			
EOU4	0.868			
EOU5	0.826			
SEC1	0.658	0.748	0.723	0.594
SEC2	0.539			
SEC3	0.753			
SEC4	0.847			
SEC5	0.679			

Discriminant validity was subsequently assessed using the Heterotrait-Monotrait Ratio (HTMT) and the Fornell-Larcker criterion. The HTMT values ranged from 0.506 to 0.795, all of which were below the recommended threshold of 0.85. This indicates that the constructs are empirically distinct from one another and that satisfactory discriminant validity was achieved (Henseler et al., 2015).

Table 4: The heterotrait-monotrait ratio of correlations (HTMT)

	CON	CS	EOU	SEC
CON				
CS	0.506			
EOU	0.630	0.694		
SEC	0.795	0.674	0.730	

The Fornell-Larcker criterion further confirmed discriminant validity. The square root of the AVE for each construct was greater than its correlations with all other constructs. For example, the square root of AVE for Convenience was 0.859, which was higher than its correlations with Customer Satisfaction (0.618), Ease of Use (0.678), and Security (0.566). Similar results were observed for the remaining constructs. The results indicate that the measurement model meets the required standards of reliability and validity. All constructs demonstrated acceptable indicator reliability, internal consistency reliability, convergent validity, and discriminant

validity. Therefore, the measurement model was considered adequate, and the study proceeded to structural model assessment and hypothesis testing.

Table 5: Latent Variable Correlations (Fronell-Lacer criteria)

	CON	CS	EOU	SEC
CON	0.859			
CS	0.618	0.896		
EOU	0.678	0.644	0.874	
SEC	0.566	0.529	0.503	0.803

5.3 Structural Model and Hypothesis Testing

The structural model was assessed after confirming the adequacy of the measurement model. This stage of PLS-SEM analysis examines the predictive relationships among the constructs and tests the proposed hypotheses of the study. The evaluation included the analysis of path coefficients, t-statistics, p-values, coefficient of determination (R^2), and effect size (f^2). These indicators provide evidence regarding the significance and strength of the relationships between FinTech adoption dimensions and customer satisfaction.

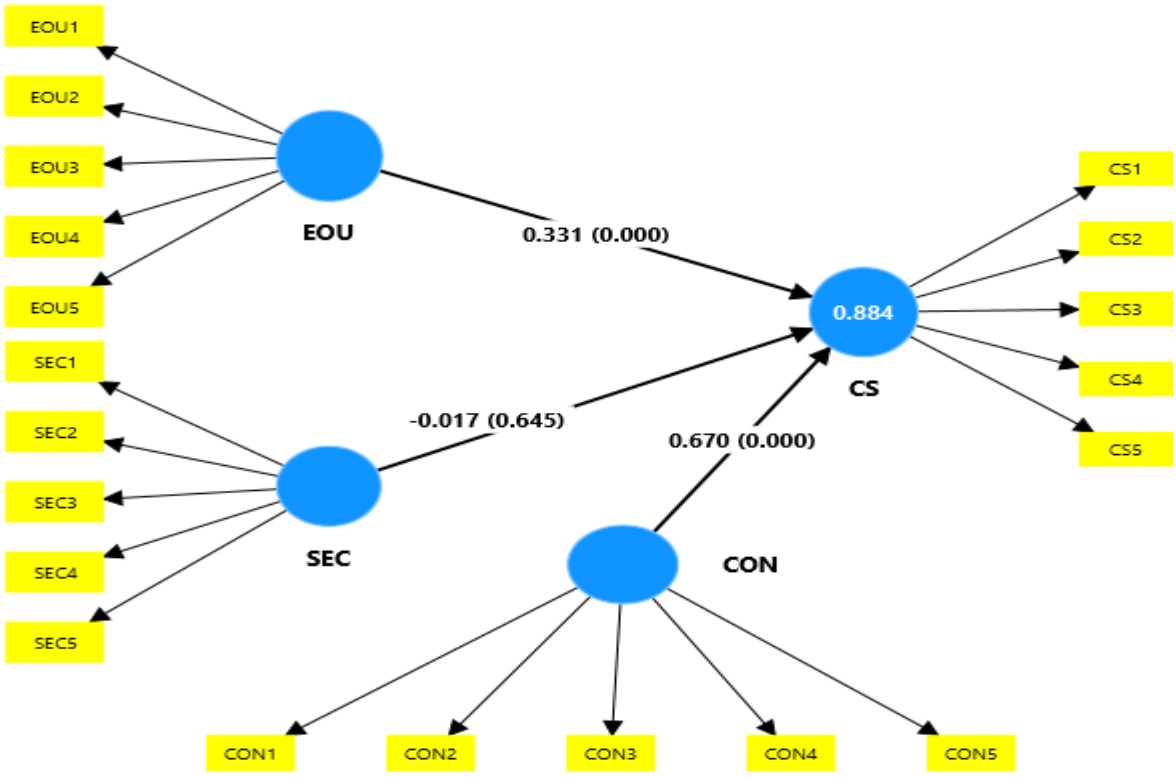

Figure 3: Direct Hypothesis

The direct effects of the independent constructs on customer satisfaction revealed several important findings. The results showed that Convenience (CON) has a strong and positive effect on customer satisfaction (β = 0.670, t = 8.178, p = 0.000). This indicates that customers highly value banking services that save time, provide easy access, and allow flexible transactions. Therefore, the hypothesis stating that convenience positively affects customer satisfaction was supported. The findings also showed that Ease of Use (EOU) has a positive and statistically significant effect on customer satisfaction (β = 0.331, t = 3.968, p = 0.000).

This suggests that customers are more satisfied when digital banking systems are simple, understandable, and easy to navigate. Accordingly, the hypothesis related to ease of use was supported. The effect of Security (SEC) on customer satisfaction was found to be negative and statistically insignificant (β = -0.017, t = 0.460, p = 0.645). This means that perceived security did not significantly influence customer satisfaction in the present sample. Therefore, the hypothesis proposing a positive relationship between security and customer satisfaction was not supported.

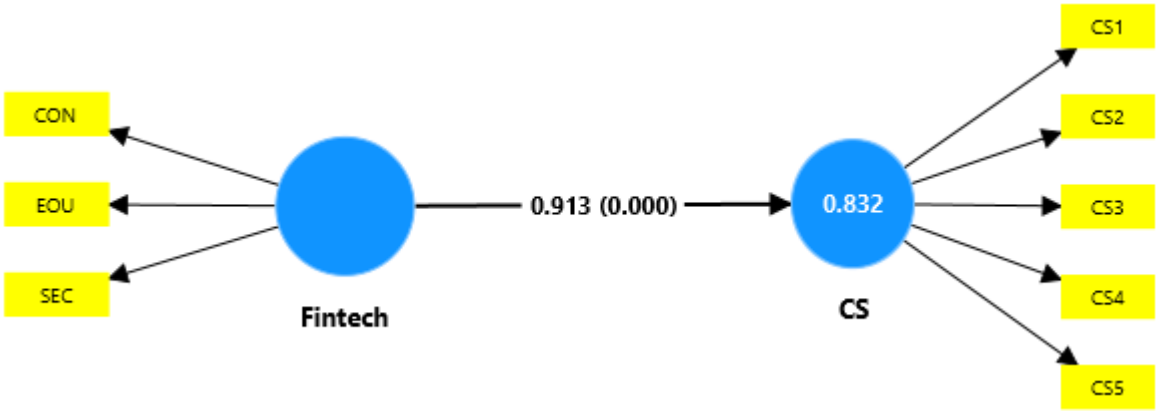

Figure 2: Overall Hypothesis

The overall relationship between FinTech adoption as a higher-order construct and customer satisfaction was also examined. The results indicated a strong and statistically significant positive effect (β = 0.913, t = 54.222, p = 0.000). This finding confirms that the overall adoption of financial technology services significantly enhances customer satisfaction in Libyan banks. Therefore, the main hypothesis of the study was supported.

Table 6: Direct Hypotheses

Hypotheses	Beta	Sample Mean (M)	SD	T statistics	P values	Decision
Fintech -> CS	0.913	0.913	0.017	54.222	0.000	Supported
CON -> CS	0.670	0.677	0.082	8.178	0.000	Supported
EOU -> CS	0.331	0.327	0.083	3.968	0.000	Supported
SEC -> CS	-0.017	-0.023	0.037	0.460	0.645	Unsupported

The explanatory power of the structural model was evaluated using the coefficient of determination (R^2). The results showed that customer satisfaction achieved an R^2 value of 0.885 and an adjusted R^2 of 0.884. This indicates that approximately 88.5% of the variance in customer satisfaction is explained by the predictors included in the model. According to common guidelines, this represents a substantial level of explanatory power.

Table 7: Coefficient of Determination (R^2)

	R-square	R-square adjusted
CS	0.885	0.884

The effect size (f^2) analysis was also conducted to determine the relative contribution of each predictor to customer satisfaction. The results showed that Convenience had the largest effect

size (f^2 = 1.373), indicating a strong practical impact on customer satisfaction. Ease of Use showed a moderate effect (f^2 = 0.369), while Security demonstrated a negligible effect (f^2 = 0.002). These findings further support the importance of convenience and ease of use in shaping customers' evaluations of digital banking services. The structural model results confirm that FinTech adoption plays a significant role in enhancing customer satisfaction in Libyan banks. Among the examined dimensions, convenience emerged as the strongest predictor, followed by ease of use, while security did not show a significant direct effect. These findings provide empirical support for the study model and offer valuable insights into the key factors influencing customer satisfaction in the digital banking environment.

Table 4.1: Effect Size (F^2) Analysis

	f-square
CON -> CS	1.373
EOU -> CS	0.369
SEC -> CS	0.002

6. Discussion

The purpose of this study was to examine the impact of FinTech adoption on customer satisfaction in Libyan banks. The findings revealed that FinTech adoption has a strong positive effect on customer satisfaction, supporting the main hypothesis of the study. This indicates that customers who perceive digital banking services as efficient, accessible, and beneficial are more likely to evaluate their banking experiences positively. This result is consistent with the findings of Mainardes et al. (2023), who reported that FinTech services enhance customer satisfaction through improved efficiency and convenience. Similarly, Aldaarmi et al. (2024) found that digital transformation contributes positively to banking service quality and customer outcomes.

Among the examined dimensions, convenience emerged as the strongest predictor of customer satisfaction. This suggests that customers highly value services that save time, reduce effort, and allow transactions to be completed anytime and anywhere. In the Libyan context, where traditional banking services may involve delays, branch congestion, and limited accessibility, convenience becomes particularly important. This finding supports Berry et al. (2002), who identified convenience as a key determinant of customer evaluations and service choice. It also indicates that customers in developing markets prioritize practical service benefits that solve everyday banking problems.

The results further showed that ease of use has a significant positive effect on customer satisfaction. This means that customers are more satisfied when banking applications and digital systems are clear, simple, and easy to navigate. Easy-to-use systems reduce frustration, improve confidence, and encourage repeated usage. This finding strongly supports the Technology Acceptance Model proposed by Davis (1989), which emphasizes the importance of perceived ease of use in shaping user attitudes and behavioral responses toward technology.

Unexpectedly, security did not have a significant direct effect on customer satisfaction. Although security is widely recognized as an important factor in digital financial services, the present findings suggest that it may function as a basic expectation rather than a satisfaction

driver. In other words, customers may only notice security when problems occur, but they do not necessarily reward banks for secure systems because they consider security a standard requirement. Another explanation is that customers may focus more on visible and immediate benefits such as convenience and usability than on technical protection mechanisms. This finding partially aligns with Ryu (2018), who noted that security perceptions may influence adoption decisions differently depending on user context and service experience.

The high explanatory power of the model ($R^2 = 0.885$) indicates that the proposed framework explains a substantial proportion of the variance in customer satisfaction. This confirms that convenience, ease of use, and overall FinTech adoption are highly relevant predictors of customer satisfaction in the Libyan banking sector.

The study contributes to the literature in several ways. First, it extends FinTech research to Libya, a context that has received limited scholarly attention. Second, it demonstrates that not all FinTech dimensions have equal influence on customer satisfaction. Third, it highlights that in emerging banking markets, customers may prioritize functional value and usability over technical concerns such as security. The discussion confirms that FinTech adoption can significantly enhance customer satisfaction in Libyan banks, particularly when digital services are convenient and easy to use. These findings offer valuable implications for researchers, bank managers, and policymakers seeking to accelerate customer-centered digital transformation in developing economies.

7. Conclusion and Practical Implications

This study examined the impact of FinTech adoption on customer satisfaction in Libyan banks. The findings provide clear evidence that the adoption of financial technology significantly enhances customer satisfaction. The results confirmed that FinTech adoption, as an overall construct, has a strong positive effect on how customers evaluate their banking experiences. This indicates that digital transformation is no longer optional for banks, but a strategic necessity for improving customer perceptions and maintaining competitiveness in the modern financial environment. Among the examined dimensions, convenience was identified as the strongest predictor of customer satisfaction. This demonstrates that customers highly value banking services that save time, reduce effort, and provide flexible access to transactions anytime and anywhere. Ease of use was also found to have a significant positive effect, suggesting that simple, clear, and user-friendly banking systems are essential for positive customer experiences. In contrast, security did not show a significant direct effect on customer satisfaction. This suggests that customers may perceive security as a basic requirement rather than a source of satisfaction, although it remains essential for trust and service continuity.

The study contributes to the literature by extending research on FinTech adoption and customer satisfaction to the Libyan context, which remains underexplored in prior studies. It also demonstrates that different dimensions of FinTech adoption do not contribute equally to customer satisfaction. Functional benefits such as convenience and usability appear to be more influential than technical concerns in shaping customer evaluations in this setting. The practical implications of this study are highly relevant for bank managers and policymakers. First, Libyan banks should prioritize the development of convenient digital services that reduce waiting times, simplify transactions, and improve service accessibility. Mobile banking applications, faster transfer systems, and user-friendly online platforms can significantly enhance customer satisfaction. Second, banks should invest in interface design and customer

experience improvement to ensure that digital systems are easy to understand and use for customers with different levels of technological literacy.

Third, although security was not a significant predictor in the current model, banks should continue strengthening cybersecurity measures, privacy protection, and fraud prevention systems. Security remains fundamental for maintaining customer trust and long-term usage of digital services. Fourth, banks should provide customer education and awareness programs that increase confidence in using digital banking services and encourage wider adoption.

From a policy perspective, regulators and financial authorities should continue supporting digital transformation through updated regulations, improved payment infrastructure, and initiatives that promote financial inclusion. A supportive institutional environment can accelerate the adoption of FinTech and improve the overall efficiency of the banking sector in Libya. The study demonstrates that FinTech adoption can substantially improve customer satisfaction in Libyan banks, particularly when digital services are convenient and easy to use. The findings highlight the importance of customer-centered digital innovation and provide practical guidance for strengthening the future of banking services in Libya.

8. Limitations and Future Research

Like any empirical study, this research has several limitations that should be acknowledged when interpreting the findings. First, the study employed a cross-sectional research design, meaning that data were collected at a single point in time. As a result, the findings reflect respondents' perceptions during the period of data collection and may not capture changes in customer attitudes or banking technology usage over time. Future studies may adopt a longitudinal design to examine how FinTech adoption and customer satisfaction evolve as digital banking services continue to develop in Libya. Second, the study used a convenience sampling technique, which may limit the generalizability of the findings to the entire population of bank customers in Libya. Although this method was appropriate due to practical constraints in accessing respondents, future research may employ probability sampling techniques such as stratified or random sampling to obtain more representative results across different customer groups and geographic regions.

Third, the study focused on customers of selected Libyan banks and therefore may not fully represent all financial institutions operating in the country. Different banks may vary in their level of technological advancement, service quality, and customer experience. Future studies could expand the scope by including a larger number of banks, Islamic banks, private banks, or comparative analyses between different types of financial institutions. Fourth, the study examined FinTech adoption through three dimensions only: convenience, ease of use, and security. Although these variables were found to be relevant, other important factors may also influence customer satisfaction. Future research may include additional variables such as trust, service quality, perceived usefulness, system quality, innovation readiness, customer loyalty, or continuance intention in order to develop a more comprehensive model.

Fifth, the study relied on self-reported questionnaire data, which may be affected by response bias, social desirability bias, or differences in respondents' understanding of the survey items. Future studies may combine survey methods with interviews, focus groups, or behavioral usage data to gain deeper insights into customer experiences with digital banking services. Finally, the present study focused exclusively on the direct effects of FinTech adoption dimensions on

customer satisfaction. Future research could examine more advanced relationships such as mediating and moderating effects. For example, trust may mediate the relationship between security and satisfaction, while age, digital literacy, or income level may moderate the relationship between FinTech adoption and customer outcomes.

Despite these limitations, the study provides valuable empirical evidence regarding the role of FinTech adoption in enhancing customer satisfaction in Libyan banks. It also offers a useful foundation for future studies seeking to understand digital transformation and customer behavior in developing banking markets.

References

Albuainain, A., Arshad, M., & others. (2025). Enablers and barriers in FinTech adoption: A systematic review. *FinTech, 4*(3), 49.

Aldaarmi, A. A., & others. (2024). Fintech service quality of Saudi banks: Digital transformation, customer satisfaction, and sustainable bank performance. *Sustainability, 16*(6), 2261.

Berry, L. L., Seiders, K., & Grewal, D. (2002). Understanding service convenience. *Journal of Marketing, 66*(3), 1–17.

Central Bank of Libya. (2023). *Annual report 2023*. Tripoli, Libya: Central Bank of Libya.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 319–340.

Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in online shopping: An integrated model. *MIS Quarterly, 27*(1), 51–90.

Ghosh, P., & others. (2026). Exploring the effects of FinTech adoption on traditional banking: A systematic literature review on opportunities and challenges. *Digital Business, 6*(1), 100163.

Gomber, P., Koch, J.-A., & Siering, M. (2018). Digital finance and FinTech: Current research and future research directions. *Journal of Business Economics, 87*(5), 537–580.

Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). *Partial least squares structural equation modeling (PLS-SEM) using R: A workbook*. Springer international publishing.

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review, 31*(1), 2–24.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science, 43*(1), 115–135.

Kaura, V. (2013). Antecedents of customer satisfaction: A study of Indian public and private sector banks. *International Journal of Bank Marketing, 31*(3), 167–186.

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement, 30*(3), 607–610.

Mainardes, E. W., Teixeira, A., & Romano, P. C. S. (2023). Customers' satisfaction with fintech services: Evidence from Brazil. *Journal of Financial Services Marketing, 28*(2), 151–168.

Ozili, P. K. (2018). Impact of digital finance on financial inclusion and stability. *Borsa Istanbul Review, 18*(4), 329–340.

Ryu, H.-S. (2018). What makes users willing or hesitant to use FinTech? The moderating effect of user type. *Industrial Management & Data Systems, 118*(3), 541–569.

Sekaran, U., & Bougie, R. (2019). *Research methods for business: A skill-building approach* (8th ed.). Wiley.

Sharma, S. K., Ilavarasan, P. V., & Karanasios, S. (2024). Small businesses and FinTech: a systematic review and future directions: SK Sharma et al. *Electronic Commerce Research*, *24*(1), 535-575.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly, 27*(3), 425–478.

World Bank. (2022). *The Global Findex Database 2021: Financial inclusion, digital payments, and resilience in the age of COVID-19*. World Bank.