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DIGITAL DISRUPTION AND DATA SECURITY: HOW FINTECH IS RESHAPING BANKING

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Abtract:

The results of the study indicate that the adoption of technology and big data has brought significant changes to the finance industry. These changes include increased efficiency, accuracy, and reduced costs. However, the study also highlights some challenges associated with the use of technology and big data, including privacy concerns, cybersecurity threats, and the need for skilled personnel. The study also found that financial institutions that adopt a proactive approach in mitigating the risks associated with technology and big data are more likely to succeed in the long run.

Keywords: *Digital, reshaping banking, Fintech*

1. Introduction

1.1 *Background*

The financial services industry has undergone a digital transformation due to the convergence of information technology and the rise of fintech companies. This transformation has disrupted traditional banking models and introduced innovative digital solutions, such as mobile banking apps, online investment platforms, and peer-to-peer lending services. As a result, there is a growing need for research to investigate the impact of these trends on the industry.

This research aims to explore the impact of technology and fintech companies on financial services. The study seeks to investigate the benefits of digital transformation, the emergence of fintech companies, and the challenges posed by regulatory compliance and data security. The main issue under investigation is how technology is driving innovation and disruption in the financial services industry, and how traditional financial institutions can remain competitive in the face of these changes.

The research is crucial as it will provide insights into the changing landscape of financial services and help financial institutions and fintech companies understand the opportunities and challenges that arise from the adoption of new technologies. The study will also highlight the importance of regulatory compliance and data security in the adoption of technology-driven solutions, providing guidance on how companies can navigate regulatory complexities and ensure robust security measures to safeguard customer data and maintain trust.

Overall, this research will contribute to a better understanding of the impact of technology and fintech companies on the financial services industry, offering insights into the strategies and best practices for staying competitive in the digital age. The study aims to provide valuable information for financial institutions, fintech startups, policymakers, and researchers seeking to understand the changing landscape of financial services and the opportunities and challenges that arise from the adoption of new technologies..

1.2 *Research questions*

The research questions are summarized as follows:

- How has the digital transformation driven by information technology affected traditional banking models and the adoption of fintech solutions?
- What are the key considerations and strategies for ensuringg data security and customer trust in the context of fintech solutions?

This study employs both quantitative and qualitative methods to examine two key questions in the context of the digital transformation of the banking industry and the adoption of fintech solutions. Specifically, it utilizes data analysis to investigate how the digital transformation driven by information technology has affected traditional banking models and the adoption of fintech solutions. Additionally, the study employs focus case studies to explore the key considerations and strategies for ensuring data security and customer trust in the context of fintech solutions. The objective of the study is to provide a well-informed understanding of these topics through both quantitative and qualitative analysis, making a significant contribution to the field.

2. Literature Review/ Theoretical Framework and Methods

2.1 *Literature Review*

2.1.1 Question 1: How has the digital transformation driven by information technology affected traditional banking models and the adoption of fintech solutions?

Digital transformation in finance

Digital transformation in finance refers to the use of technology to reorganize and streamline financial and accounting functions, creating more efficient operating systems and processes. However, despite its importance for enterprises, many financial institutions still face significant challenges during the transition to digitally-led financial transformation. For instance, a survey found that despite the belief that personalized customer experiences should be a priority for financial institutions and insurance providers, 41% of respondents cited inadequate means to integrate technology silos as a barrier preventing banks from fully utilizing data (VK Veerabhadran, 2021).

Impact on traditional banking models

Digital transformation has had a significant impact on traditional banking models, forcing banks to adapt and evolve their business models to remain competitive in the industry. The rise of fintech solutions, such as mobile banking apps, online lending platforms, and peer-to-peer payment systems, has challenged traditional banking models and disrupted the traditional brick-and-mortar banking experience.

One of the most significant impacts of digital transformation on traditional banking models is the shift towards digital banking platforms. With the widespread adoption of smartphones, customers are increasingly using mobile banking apps to manage their finances, leading to a decline in foot traffic to traditional bank branches. As a result, many banks are closing branches and investing in digital banking platforms to cater to changing customer preferences. With the widespread adoption of smartphones, customers are increasingly using mobile banking apps to manage their finances, from depositing checks to paying bills and transferring funds. This has led to a decline in foot traffic to traditional brick-and-mortar bank branches, and many banks are responding by closing branches and investing in digital banking platforms. For example, in 2019, JPMorgan Chase announced plans to close 1,000 branches and invest $11 billion in digital banking initiatives over the next five years. This shift reflects a broader trend in the banking industry towards digital transformation and the need for traditional banks to adapt to changing customer preferences for digital banking solutions. This example highlights the significant impact of digital

transformation on traditional banking models and the need for banks to embrace new technologies to remain competitive in the industry.

Drivers of digital transformation

Digital transformation in the financial services industry is driven by various factors:

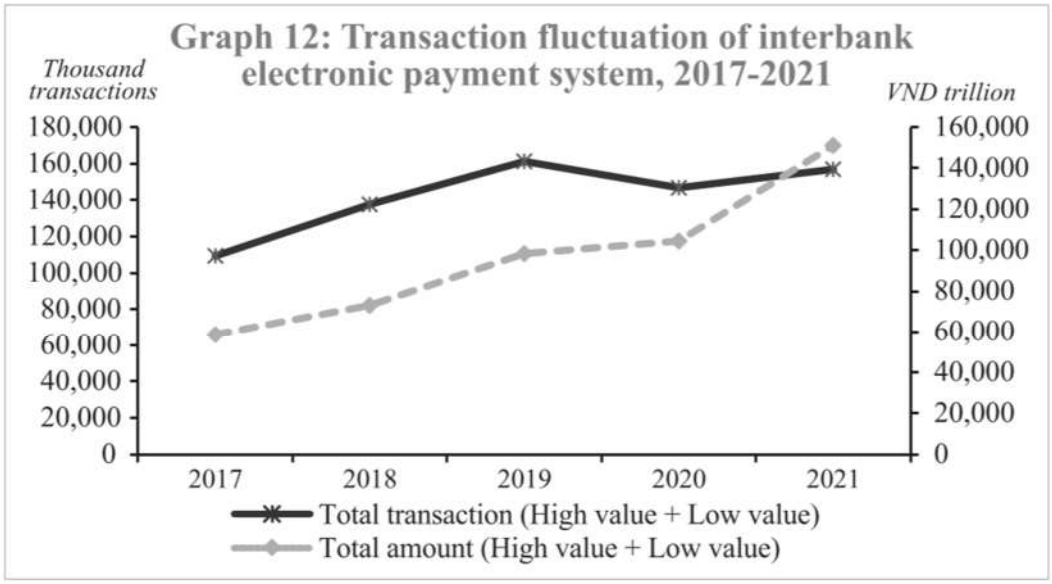
Changing customer expectations: Customers increasingly expect digital solutions that are convenient, accessible, and personalized to their needs. Banks that fail to meet these expectations risk losing customers to competitors.

Disruptive technologies: The emergence of new technologies, such as blockchain, artificial intelligence, and the Internet of Things(IoT), has created opportunities for banks to streamline operations, reduce costs, and provide innovative services to customers.

Regulatory requirements: Regulatory requirements are driving digital transformation in the financial services industry, as banks must comply with regulations related to data privacy, cybersecurity, and anti-money laundering.

Competition from fintech startups: Fintech startups are disrupting the traditional banking industry by offering innovative products and services that cater to changing customer needs.
Cost savings: Digital transformation can lead to significant cost savings for banks, as it streamlines operations, reduces manual processes, and improves efficiency.
Data analytics: Banks are increasingly using data analytics to gain insights into customer behavior, improve risk management, and make more informed business decisions.
Overview in Vietnam: According to a report by the State Bank of Vietnam, the country's banking industry has undergone significant digital transformation in recent years. In 2021, the report found that (The State Bank Of Viet Nam, 2021):
Digital banking is becoming increasingly popular

The total number of transactions reached 157 million, with a value of VND 151.2 quadrillion, which represents a 6.9% increase in volume and a 44.57% increase in value compared to the previous year.



Source: SBV

Mobile banking is the preferred channel

There were nearly 707.38 million transactions conducted via the internet, worth VND 36.77 quadrillion, representing a 48.8% increase in volume and a 32.6% increase in value compared to the previous year. Additionally, over 2.08 billion transactions were conducted via mobile phone, worth over

23.6 quadrillion, which is a substantial increase of 76% in volume and 87.5% in value compared to 2020. The QR code channel was also utilized for 23.59 million transactions, worth VND 21.69 trillion, showing a 45% increase in volume and a 125.5% increase in value compared to the end of 2020.

Fintech's role in digital transformation

Fintech has played a crucial role in the digital transformation of the financial services industry by driving innovation, improving customer experiences, and increasing accessibility and efficiency. By leveraging technologies such as blockchain, artificial intelligence, and mobile payments, fintech has enabled (Moneera Yassien, 2022).

Improving the customer experience: Fintech startups are developing new digital products and services that provide a more seamless and convenient customer experience. This includes things like mobile banking apps, robo-advisors, peer-to-peer payment apps, and crowdfunding platforms (Stephen Hedrick, 2023; FTB News Desk, 2022).

Introducing new technologies: Fintech companies are acting as innovation hubs, bringing technologies like AI, machine learning, blockchain, and APIs into the financial sector. These technologies are enabling new products, more efficient processes, and better risk management (Stephen Hedrick, 2023; FTB News Desk, 2022).

Disrupting traditional business models: Some fintech startups are directly challenging and disrupting traditional banks and financial incumbents. This disruption and competition is forcing legacy institutions to digitally transform or risk losing customers and market share (Stephen Hedrick, 2023; FTB News Desk, 2022).

Partnering with incumbents: Many fintech companies are now partnering with or being acquired by traditional financial institutions. This allows the incumbents to tap into the innovation, agility and technological capabilities of fintech startups to help in their own digital transformation efforts (Stephen Hedrick, 2023; FTB News Desk, 2022).

Creating new revenue streams: Fintech is creating entirely new revenue streams for banks by developing financial products and services that have traditionally fallen outside of their purview, like peer-to-peer lending, insurance tech, wealth management tech (Stephen Hedrick, 2023; FTB News Desk, 2022).

Enabling personalization at scale: Technologies like AI, machine learning and big data are allowing financial firms to offer hyper-personalized services and products tailored to individual customers. This level of customization was not previously possible at scale (Stephen Hedrick, 2023; FTB News Desk, 2022).

Giving rise to new business models: Entirely new business models are emerging thanks to fintech, like digital lending platforms, robo-advisors, crowdfunding, etc. These new models threaten the traditional value chains of incumbents (Stephen Hedrick, 2023; FTB News Desk, 2022).

Reducing costs and increasing efficiency: The digitization of processes and automation of tasks through fintech solutions is helping to significantly reduce costs and improve efficiency within banks and other financial institutions (Stephen Hedrick, 2023; FTB News Desk, 2022).

Providing greater accessibility: Fintech is enabling financial inclusion by bringing services to underserved segments that traditional banks have largely ignored, like the unbanked, underbanked and small businesses (Stephen Hedrick, 2023; FTB News Desk, 2022).

Facilitating open banking and APIs: Open banking and API strategies are allowing fintech companies and incumbents to connect, share data and integrate their services — spurring even more innovation (Stephen Hedrick, 2023; FTB News Desk, 2022).

Generating new types of data: The explosion of fintech solutions is generating vast amounts of new customer and transactional data that can be leveraged for insights, risk assessment and product development (Stephen Hedrick, 2023; FTB News Desk, 2022).

Driving demand for new skills: Fintech is creating demand for a new breed of talent with skills in areas like AI/ML, blockchain, cloud computing, data science, cybersecurity and UX design. Financial institutions must adapt their talent strategies accordingly (Stephen Hedrick, 2023; FTB News Desk, 2022).

Overview in Vietnam: Momo

A digital payment and e-wallet fintech in Vietnam, offers a variety of services that enable users to manage their financial needs from a single app. Momo's services, which include mobile wallet, peer-to-peer payments, bill payments, money transfers, microloans, e-commerce payments, and investment options, have provided consumers with more convenient and accessible financial services than those offered by traditional banks. This has led to a shift in consumer preferences towards digital payment solutions, which has forced traditional banks to adapt and develop their own digital payment platforms and mobile apps to remain competitive.

Moreover, Momo's microloan services have provided an alternative to traditional bank loans, which are often inaccessible to small businesses and individuals without significant collateral or credit history. This has created more competition for traditional banks in the lending market.

Overall, Momo's impact on traditional banking in Vietnam has been to drive innovation, increase competition, and force traditional banks to adapt to the changing consumer preferences and emerging technological trends in the financial services industry.

Challenges and opportunities of fintech adoption

Challenges: The financial services sector has some Big Data challenges that must be addressed before it can reach its full potential. One of the most important Big Data challenges in financial services is ensuring that all collected information is secure from unauthorized access or manipulation. Additionally, collecting high-quality datasets requires significant investment in technology infrastructure, which may not always be feasible for smaller firms without adequate capital reserves. Let's take a closer look at the Big Data challenges in financial services (VK Veerabhadran ,2021).

Regulation: Fintech is a rapidly evolving industry, and regulators are struggling to keep up with the pace of change. This has created uncertainty around the regulatory environment, which can hinder fintech adoption (VK Veerabhadran ,2021).

Security and privacy

The use of digital technologies in financial services creates new risks around security, privacy, and data protection. Fintech companies that leverage Big Data in their operations require access to large amounts of personal information, which can be vulnerable to unauthorized access or misuse if not properly secured. This can create privacy concerns for consumers and can hinder fintech adoption. Therefore, it is essential for fintech companies to develop robust security measures and comply with applicable laws and regulations to protect consumer data and prevent fraud, while also ensuring privacy and data protection (VK Veerabhadran ,2021).

Infrastructure and personnel: Adopting fintech and Big Data in financial services requires a reliable technology infrastructure, high-speed internet, and mobile networks. However, developing countries may face challenges in this area, hindering their ability to compete globally. Additionally, a shift towards data scientists and analysts mandates upskilling among employees, but a lack of skilled personnel poses a challenge. To overcome these challenges, organizations must invest in infrastructure and upskilling programs to effectively compete in the rapidly evolving fintech landscape (VK Veerabhadran ,2021).

Customer *expectation on user experience (UX):* Meeting customer expectations for user experience (UX) is a key goal of digital transformation in the financial services industry. However, traditional banks and enterprises often struggle to achieve this due to the significant investments of time, resources, research,

strategy, and marketing needed to offer customers the right choices and a consistent UX across platforms (VK Veerabhadran ,2021).

Financial inclusion: While fintech has the potential to increase financial inclusion by providing access to financial services for underserved populations, it also risks leaving behind those who lack access to digital technologies or are not tech-savvy.

Opportunities

Enhanced customer experience: Digital transformation and big data analytics offer significant benefits to financial services organizations looking to enhance customer experience. According to a survey, 76% of financial service executives believe customer experience is the top priority for digital transformation. Customers today are tech-savvy and expect brands to be ahead of them. Going digital enables banks and FIs to track, attract, and positively engage customers while offering consistent and personalized products and services. Big data analytics in financial services can be leveraged to gain insights into customer preferences and needs, enabling personalized experiences tailored to each individual user. This kind of insight allows banks to make more relevant offers to clients, leading to better customer experiences and increased loyalty. By leveraging digital transformation and big data analytics, financial institutions can meet and exceed customer expectations, ultimately driving growth and profitability (Vladyslav Kitsela, 2023)

Improved security: Big data solutions offer significant security benefits to financial services organizations. They provide increased security and compliance measures that protect customers' personal information as well as sensitive company assets from cyber threats or malicious actors. These tools help ensure regulatory compliance with applicable laws and regulations related to finance or banking activities, reducing legal risks associated with noncompliance penalties or fines imposed by government agencies such as FINRA (Financial Industry Regulatory Authority). By leveraging big data solutions, financial institutions can improve their security posture, reduce their exposure to cyber threats, and protect their customers' sensitive information. This can help build trust with customers, ultimately driving growth and success in the highly competitive financial services market (Vladyslav Kitsela, 2023)

In summary, while fintech adoption presents challenges around regulation, security, infrastructure, and financial inclusion, it also offers opportunities for innovation, cost savings, financial inclusion, and collaboration. The key to success will be to navigate these challenges while leveraging the opportunities presented by fintech.

Traditional bank's strategies for adapting: With the rise of new technologies and fintech startups, traditional banks need to adapt to the changing financial services landscape to remain competitive. Here are some strategies that traditional banks can adopt to stay relevant:

Embracing digital technologies: Many banks are investing heavily in digital technologies like mobile apps, online banking, AI tools, and blockchain to improve the customer experience and drive efficiency. This allows them to offer more convenient and personalized services (Jason M., 2019).

Partnering and acquiring fintech firms: Banks are partnering with or acquiring promising fintech startups to gain access to new technologies, skills, and customer bases. This allows banks to quickly expand their digital capabilities (Jörg Erlebach, Marc Pauly, Lucas Du Croo De Jongh, and Michael Strauß, 2020)

Refocusing on customer service: In the rapidly-evolving landscape of the banking industry, banks are redefining roles and retraining employees to reflect the technology-driven, customer-centric business model of the future. Roles focused on data analytics, digital skills, and customer experience are growing, and traditional banks need to adapt to remain competitive. To do so, banks should invest in training programs to develop the necessary skills and capabilities for employees to compete in the digital age. This

includes upskilling employees in areas such as big data analytics, AI, machine learning, and digital marketing. By upskilling employees, banks can improve their operations, enhance customer experience, and reduce costs. Employees with the necessary skills and capabilities can drive innovation and help banks to remain competitive in the rapidly-evolving digital landscape. In summary, upskilling employees is a crucial strategy for traditional banks to adapt to the changing technological landscape and remain competitive in the long run (Forbes Finance Council, 2022).

Build a digital presence: Traditional banks should build a strong digital presence to attract and retain customers. This includes developing mobile apps, improving their website, and offering online banking services (Jason M., 2019).

Successful/ unsuccessful digital transformation case studies

Digital transformation projects can succeed or fail for a variety of reasons. Here are some examples of successful and unsuccessful digital transformation case studies in the banking industry:

Successful

Wechat Pay and AliPay: These two payments platforms dominated by Tencent and Alibaba respectively have revolutionized mobile payments in China. They allow users to pay for virtually anything using just their smartphones, and have hundreds of millions of users.

Ally Financial: Ally Financial leveraged digital transformation to improve its customer experience and streamline its operations. By investing in digital technologies, Ally Financial was able to offer innovative services such as mobile check deposit, real-time account updates, and personalized financial advice.

Emirates NBD: Emirates NBD underwent a digital transformation to enhance its customer experience and improve its operational efficiency. By leveraging AI and automation, Emirates NBD was able to offer personalized services to its customers and reduce its operational costs.

Unsuccessful

HSBC: HSBC is a bank that has been slow to adopt digital transformation. The company has been plagued by scandals, and it has been criticized for its poor customer service.

Bank of Scotland: Bank of Scotland was one of the first banks to launch a mobile banking app. However, the app was not well-received by customers, and it was eventually discontinued.

Ocean Bank: Ocean Bank in Vietnam attempted a digital transformation project to modernize its operations and improve its customer experience. However, the project was ultimately unsuccessful due to a lack of investment in technology infrastructure and a failure to prioritize customer experience.

2.1.2 Question 2: What are the key considerations and strategies for ensuring data security and customer trust in the context of fintech solutions?

Fintech's evolution

The evolution of Fintech can be traced back to the early days of the internet and has gone through three major phases (Ross Buckley, Douglas W. Arner, Janos Barberis, 2016):

Early Phase (1990s): The emergence of online banking and investing: In the 1990s, the internet opened up new possibilities for delivering financial services digitally. This led to the launch of the first generation of Fintech companies focusing on online banking and investing platforms. Consumers could now manage their money and invest from the convenience of their homes. However, access was still largely through desktop computers.

Middle Phase (2000s): The rise of mobile and peer-to-peer lending: In the 2000s, the spread of smartphones and mobile applications enabled a new wave of Fintech innovation. Mobile banking apps allowed consumers to manage their finances on the go. Meanwhile, peer-to-peer lending platforms leveraged the internet to connect individual borrowers and lenders directly. This expanded access to credit for many underbanked consumers.

Current Phase (2010s to today): Explosion of Fintech startups and products: In the last decade, there has been an explosion of Fintech startups utilizing advanced technologies like AI, blockchain, and APIs. These companies offer a diverse range of financial products and services, disrupting traditional financial institutions. Examples include robo-advisors, digital payment platforms, crowdfunding sites, InsurTech solutions, and more. Traditional banks have had to adapt by partnering with or acquiring Fintech startups.

Overall, we have seen the interlinkage between finance and technology evolve from early online banking platforms to today's dynamic Fintech ecosystem empowered by innovative technologies. This evolution is poised to continue, promising even greater opportunities to reimagine and reshape financial services.

Date	**1990s**	**2000s**	**2010s - Today**	
Era	Fintech 1.0	Fintech 2.0	Fintech 3.0	Fintech 3.5
Geography	Global/ Developed	Global/ Developed	Developed	Emerging/ Developing
Key element	Infrastructure/ Computerisation	Traditional/ Internet	Mobile/ Start-ups/ New entrants	
Shift Origin	Linkages	Digitalization	2008 financial crisis/ Smartphone	Last mover advantage

Source: Douglas W. Arner, 2016.

Security benefits and risks of fintech solutions for building customer trust

Financial innovation offers commercial banks an opportunity to reconsider their service distribution channels and leverage the benefits of fintech solutions, including the various security benefits that can help to build customer trust in financial institutions. Despite these benefits, it is important to acknowledge that fintech solutions also come with security risks that can undermine customer trust. Therefore, financial institutions must prioritize the implementation of robust security measures to protect customer data and prevent fraud to ensure the safe and secure use of fintech solutions.

Security benefits of fintech solutions for building customer trust

Improved authentication and verification methods to prevent fraud and unauthorized access: Fintech solutions leverage advanced technologies, such as artificial intelligence, machine learning, and biometric authentication, to enhance security and protect customers from financial crimes like identity theft. By utilizing these technologies, fintech solutions can identify and prevent fraudulent transactions, which builds customer confidence in the financial institution. Additionally, strong encryption is often employed by fintech solutions to ensure the secure storage and transmission of sensitive financial data, further enhancing customer trust in the financial service.

Enhanced monitoring and reporting capabilities to detect and prevent suspicious activity: Fintech solutions offer enhanced monitoring and reporting capabilities, including real-time transaction monitoring, to detect and prevent suspicious activity. Many fintech applications provide 24/7 monitoring of transactions and accounts, which reassures customers that their funds are safe. By utilizing these capabilities, fintech

solutions can quickly detect and respond to potential fraudulent activity, building customer trust in the financial service.

Encryption of sensitive data to protect against data breaches: Fintech solutions utilize various security measures, such as encryption of sensitive data and blockchain technology, to create a more secure and transparent way to record and transfer financial data. These measures help protect customers from fraud and data breaches by ensuring that their sensitive financial data is securely stored and transmitted. With these security measures in place, fintech solutions can provide customers with a higher level of security and build trust in the financial service.

Transparency around data usage: Some fintech startups aim for transparency, clearly explaining what data they collect and how it is used. This helps build trust with customers.

Reduction in human errors: By automating manual processes, fintech solutions can minimize security risks that stem from human mistakes. This improves reliability for customers.

Secure data storage and backups to prevent data loss: Secure data storage and backups are critical components of fintech solutions that help prevent data loss and ensure uninterrupted financial services. Fintech solutions store sensitive financial data in secure data centers and use redundant systems to ensure uninterrupted service. They also create regular data backups that are stored in multiple locations to mitigate the risk of loss. By utilizing secure data storage and backups, fintech solutions can enhance customer trust in the financial service and establish a positive reputation for the fintech company.

However, there are also some security risks associated with fintech solutions

Data privacy issues: Unclear or improper data collection and sharing practices by some fintech companies have raised customer concerns about how their data is used and protected.

Potential for security breaches: Fintech solutions face potential security breaches and fraudulent transactions, which can undermine customer trust in the financial service. Despite their advanced security measures, fintech startups remain targets for hackers, ransomware attacks, and other threats. Any incidents could compromise sensitive financial data and erode customer trust in the fintech company. Additionally, fintech solutions can be used to commit fraud, such as creating fake identities and stealing money from customers using AI and machine learning.

Technological failures that can disrupt financial services: Fintech solutions rely heavily on technology, and any system failures or technical glitches could result in service disruptions, delays, or errors. These failures could lead to financial losses for customers and damage the reputation of the fintech company.

Importance of data security and customer trust in fintech

In the fintech industry, data security and customer trust are of paramount importance. Fintech solutions often deal with sensitive financial data, and any breaches or mishandling of this data can have severe consequences for both the financial institution and its customers. Therefore, fintech companies must prioritize data security by implementing robust security measures, such as encryption, multi-factor authentication, and real-time transaction monitoring, to protect customer data and prevent fraud.

Moreover, customer trust is essential for the success of fintech companies. Customers must have confidence in the security and reliability of the financial service to use it regularly. Fintech companies must prioritize customer trust by providing transparent information about their data privacy and security practices and complying with regulatory requirements. By doing so, fintech companies can build a positive reputation and attract and retain customers.

In summary, data security and customer trust are critical components of fintech solutions. Fintech companies must prioritize these aspects to ensure the safe and secure use of their services and build a positive reputation in the industry..

Strategies for ensuring data security and customer trust in fintech solutions

To ensure that their security protocols comply with regulatory requirements, fintech companies must stay up-to-date with the latest regulations and standards in the industry. This includes understanding the regulatory requirements in the jurisdictions where they operate and obtaining the necessary licenses and certifications (Yulia Borusiuk, 2023; Hassan H. H. Aldboush and Marah Ferdous, 2023; Surendra Reddy Challapalli, 2023):

Implement strong encryption: Using the latest encryption standards for data at rest, in transit and in use is essential. Encrypt customer data, authentication tokens and other sensitive information.

Require multi-factor authentication: Require customers to authenticate through multiple factors like passwords, biometrics and one-time codes to verify identities. This strengthens security.

Continuously monitor for threats: Employ technologies like AI, machine learning and behavioral analytics to detect threats and suspicious activity in real time. Respond quickly to potential issues.

Conduct risk assessments and audits: Regularly assess security risks and potential vulnerabilities through threat modeling, penetration testing and third-party audits. Identify and close gaps promptly.

Build security into the product design: Incorporate security best practices from the start when designing products and features, not as an afterthought. Implement defense in depth.

Limit data collection and handling: Only collect and retain customer data that is essential. Limit data access to those who need it. This reduces security risks and assuages privacy concerns.

Be transparent about security practices: Clearly disclose what data is collected, how it is used and protected, and what security measures are in place. Be responsive to customer questions.

Secure APIs and third-party integrations: Protect APIs and connections to third parties with proper authentication, encryption and monitoring to reduce exposure of customer data.

Respond quickly to incidents: Have an incident response plan and well-practiced protocols to quickly resolve issues that could impact customer data or trust. Communicate transparency to customers.

Earn certifications: Obtain security certifications and attestations where possible to demonstrate compliance with recognized security standards. This helps reassure customers.

2.2 *Theoretical Framework and Methods*

This chapter on methodology presents a framework for conducting the research, which includes a discussion of the research philosophy, data collection methods, research strategies, research design, and ethical considerations. The research aims to explore how the digital transformation driven by information technology has affected traditional banking models and the adoption of fintech solutions. Specifically, the study investigates the factors underlying the choice of external partners to collaborate, design, develop, and implement fintech capability for transaction banking. Drawing upon the strands of fintech adoption in transaction banking, the research aims to determine the impact of fintech solutions on revenue generation. Furthermore, the study considers the key considerations and strategies for ensuring data security and customer trust in the context of fintech solutions.

2.2.1 Research Philosophy

Uche Mbanaso, Lucienne Abrahams and Kennedy Chinedu Okafor (2023), The research philosophy adopted for this study is ontological, which is concerned with the existence of facts and reality. This

approach is appropriate for the highly regulated banking industry that operates on existing reality. Additionally, subjectivism was applied when conducting interviews to understand individual perspectives on fintech adoption. This approach recognizes that social actors' perceptions and subsequent actions give rise to social phenomena influenced by interpretive processes.

The research methodology also incorporates a multidimensional set of continua, which involves a back-and-forth movement of the researcher to study available theories. Theories were used to justify findings and to find the reality quotient of the research. Pragmatism was experienced in studying phenomena such as artificial intelligence and blockchain, aligning with the argument that knowledge is impacted by social reality.

2.2.2 Research Approach

This study used a small sample size and an inductive approach to understand the process of acquiring knowledge from external partners, specifically consulting and IT firms. The aim was to develop a richer theoretical perspective and generate new insights and theories. The inductive approach allowed for a flexible and open-ended exploration of the phenomenon, and the small sample size facilitated in-depth interviews and detailed data analysis. The study aimed to contribute to the development of a more nuanced understanding of the process of acquiring knowledge from external partners in a natural, interactive, and analytical manner (Muhammad Hassan ,2022).

2.2.3 Case Study

The case study method allowed for a detailed analysis of the specific context and situation, providing insights into the challenges and opportunities of adopting fintech in transaction banking. This approach also enabled the researchers to explore the perspectives and experiences of middle and senior management in relation to the adoption of fintech, as they are responsible for setting this adoption to work for the achievement of goals like service excellence and revenue generation.

However, it is important to note that the case study method has its limitations, such as the potential for bias due to the researcher's interpretation and the difficulty in generalizing the findings to other contexts. Despite these limitations, the case study method was deemed appropriate for this study as it provided an in-depth and detailed analysis of the phenomenon under investigation.

3. Results and Discussion

The results of the study indicate that the adoption of technology and big data has brought significant changes to the finance industry. These changes include increased efficiency, accuracy, and reduced costs. However, the study also highlights some challenges associated with the use of technology and big data, including privacy concerns, cybersecurity threats, and the need for skilled personnel. The study also found that financial institutions that adopt a proactive approach in mitigating the risks associated with technology and big data are more likely to succeed in the long run.

4. Conclusions

Based on the findings, the study concludes that the adoption of technology and big data has brought significant benefits to the finance industry. However, financial institutions need to be mindful of the risks associated with these technologies and take proactive measures to mitigate them. In addition, financial institutions should invest in training their personnel to ensure that they have the necessary skills to effectively use technology and big data.

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