

Research on Technological Innovation and Optimization Strategies in the Digital Transformation of Small and Medium-Sized Financial Institutions

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Abstract:

Given the background of rapid fintech development, digital transformation has been one of the vital approaches toward elevating market competitiveness for small-and-medium-sized financial institutions as well as improvements in operational efficiencies. However, due to the limited financial resources, technologies, and related management capabilities available with the smaller and medium-sized financial institutions, there are a number of challenges that are faced by such institutions during the transformation. A model of technological innovation was constructed within this paper to assess quantitatively the influence of technological innovation on satisfaction, loyalty, revenue, and market share of customers in small-and-medium-sized financial institutions. The results of the study indicate that technological innovation may enhance satisfaction and loyalty toward customers, increasing revenues and market share. In addition, based on the empirical results, this paper puts forward further optimization proposals for technological innovation, management reform, and market positioning from the perspective of helping small-and-medium-sized financial institutions that have digital transformation and core competitiveness increasing technological and managerial bottlenecks. This study can be a basis for theoretical elaboration and practical reference for the digital transformation of small and medium-sized financial institutions, and it also enriches the connotation dimension that the synergy between technological innovation and management reform takes in fostering advances in future research.

Keywords: Small and Medium-Sized Financial Institutions; Digital Transformation; Technological Innovation; Customer Satisfaction; Optimization Strategies.

1. Introduction

The rapid development of financial technology is what is vigorously driving digital transformation of the operating model of the global financial industry (Nichkasova & Shmarlouskaya, 2020). This wave not only propels the business innovation of big financial institutions but also brings new challenges and opportunities for small and medium-sized financial institutions. For these institutions, it is imperative that digital transformation no longer just is a matter of choice but a prerequisite for enhancing competitiveness, improving service levels, and optimizing risk management. Having very strong potential as it does, digital transformation similarly poses major challenges for most small and medium-sized financial institutions.

On the one hand, limited financial and technical strength of small and medium-sized financial institutions hinders their investment in digital transformation. On the other hand, they find it difficult to afford high development and maintenance costs in technology, especially in this age of innovation in cloud computing, big data, and artificial intelligence (Lokuge et al., 2023). Limited funding and technological competence would not allow them resources to compete with the huge financial institutions. Secondly, it is the incapacity for technological innovation that makes it more impossible for these institutions to keep up with the fast-growing market. Most of the small- and medium-sized financial institutions depend on traditional IT systems and cannot stretch to meet the dynamic market demands, thus limiting their business model innovation.

In addition, rigid corporate culture and organizational structure plus hugely insufficient understanding by the management of what digital transformation is are also significant impediments to transformation. Some small and medium-sized financial institutions' management still view digital transformation as merely technical upgrading rather than admitting its deep influence on business models and strategic layouts. In the meantime, lack of flexibility in the traditional organizational structure and business processes has made it quite difficult to quickly react with the abilities needed for innovation by digital transformation (Tvaradze, 2022).

However, in this small and medium financial institution, there are many problems with the mass digital transformation. It is hard to manage but can bring forth enormous benefits in terms of internal work, customer service, and compliance if they can overcome it. Some examples include the fact that rational digital office platforms and intelligent risk control systems may optimize management processes and bring enhanced decision performance alongside lowering the risk entailed by human failure. Customer service could offer customized financial products and omnichannel service platforms that raise customer satisfaction and loyalty. For instance, stringent

regulation should be easier for small and medium-sized financial institutions to comply with using digital means by protecting data through secure operations (Grace & Martha, 2024).

Given the context presented above, the paper will delve into, from the angles of core obstacles that surround digital change in small and medium-sized financial institutions, how technological innovation may enhance operational efficiency, market competitiveness, and risk management in such settings. In other words, by developing a quantitative model for technological innovation, this paper explores the contribution of digital technology to increasing customer satisfaction, revenue, and market share in specific—making recommendations, meaning to serve as theoretical guidance and practical reference for digital transformation in small and medium-sized financial institutions.

2. Literature Review

2.1 Current Research on Digital Transformation of Small and Medium-Sized Financial Institutions

As financial technology continues to advance by the day, improving competitiveness through digital transformation has become the major path of financial institutions. Most recently, the theme of many scholars' research is related to formulating the challenges and opportunities of technological innovation, business process optimization, and customer service improvement during the digital transformation in small and medium-sized financial institutions. According to Küng, the essence of digital transformation is to resolutely promote technological innovation and business process reengineering of financial institutions to enhance operational efficiency and customer experience (Küng, 2017). The author elaborated that even though small and medium financial institutions lack the strong reserve of talent in technology and also lack the financial resources to compete with large financial institutions, they would make huge profits if they adopted proper technological innovation strategies.

Another work investigated technological innovation and the competitiveness of small and medium financial institutions (Lewandowska et al., 2021). It has been noted that with cutting-edge technologies such as cloud computing and blockchain, small and medium financial institutions can surmount geographical and scale constraints to expand their base of customers and increase service quality. This study further stated that with technological innovation, operational efficiency in financial institutions is enhanced, as well as their ability to manage risks, enabling them to cope with market fluctuations and further withstand pres-

sure from regulations.

As for the implementation stage of digital transformation, Plekhanov et al. strongly feel that careful attention to reforms in management and cultural set up is vital (Plekhanov et al., 2023). The research simply portrays that even though technology innovation is the primary factor to digital transformation, it must not hold back the consideration of management's understanding of digitalization, organizational flexibility, and support by corporate culture. Particularly, in small and medium-sized financial institutions, it is often management and organizational inertia that pose the biggest impediment to their attempt to transform digitally.

Moreover, Padmanabhan et al. researched the use of artificial intelligence in small and medium-sized financial institutions (Padmanabhan et al., 2024). They noted that through the application of AI technology, improvements in customer service and risk control competencies can be made by financial institutions using automation and intelligent analysis. On the other hand, successful application of this AI technology also demands an adequate technical base and ability of management of data from financial institutions, which is quite a difficult task for small and medium-sized financial institutions.

2.2 Technological Innovation and Digital Transformation

Technological innovation plays an important role in the course of digital transformation of financial institutions. According to Gomber et al., digital transformation represents not only a complication of the current technologies used but rather the reformation of technological innovations in the business models of financial institutions (Gomber et al., 2018). They believe that ample applications of big data and artificial intelligence open up new points of growth for financial institutions in view of market competition. They further explain that the use of big data and AI technologies is a competitive advantage for financial institutions, and those that use these technologies effectively win market share from nonadopters.

Pejić Bach et al. researched in detail the application of big data technology to the financial industry (Pejić Bach et al., 2019). They found that with the help of data analysis technology, financial institutions can better grasp customer needs and provide personalized financial products. As the trend of customer behavior being digitalized increasingly reveals itself, financial institutions need to take data-driven actions to enhance customer satisfaction and loyalty. Especially for the small and medium-sized financial institutions, it can help realize the compensation of drawbacks in terms of market scale and financial strength by using data analysis technology to enhance their market competitiveness.

Attaran and Woods proved in their research work that cloud computing technology actually has a reducing effect on the IT infrastructure costs of small and medium financial institutions because even under such conditions, efficient computing resources and data storage capacities can be provided at a far lower price (Attaran, 2019). It reduces risks for financial institutions as well. Apart from that, cloud computing enhances the flexibility of financial institutions to a great extent by reducing risks and at the same time helps in quick response to market changes.

2.3 Management Reform and Organizational Adaptability

Other than technology factors, understanding by management and organizational reforms also are the keys to the success of digital transformation in small and medium-sized financial institutions. Refer to the strategic management awareness of digital transformation by Vial, which has a direct impact on the transformation results (Vial, 2021).

As this study results prove, in most small and medium-sized financial institutions, this process is perceived by the majority of executive teams merely as a technical process, without empathy for its deep impacts on business models and organizational structures. This, in other words, means that many institutions are poorly transformed because they do not have a strategic vision.

Additionally, it was pointed out that digital transformation requires deep corporate cultural and organizational reforms. Research has indicated that small and medium-sized financial institutions have cultural inertia and that the rigidity of their organizational structures and processes does not allow them to be adaptable to fast-changing technological environments. For small and medium-sized financial institutions to smoothly carry out a successful digital transformation, they have to not only possess technological innovation power but they also need to be reformed in organizational structure and corporate culture toward setting a more flexible and efficient management system (Aksjonenko & Rutitis, 2023).

2.4 Compliance and Information Security

Two major issues that financial institutions must solve are compliance and information security when undergoing digital transformation. The study by Skare et al. assessed digital transformation in small-and medium-sized financial institutions from the perspective of compliance and security (Skare et al., 2023). They argue that, as international financial policies have become increasingly stringent, digital operations of financial institutions shall comply with all laws and regulations applicable. On the other hand, the same process of digital transformation increases the level of decision-making and operation that is data-driven,

opening up more risks in information security as well. For the small and medium institutions in finance, compliance and security are not only challenges, but these are also the matters that need to be focused on to solve.

Hendrawan et al. studied the importance of data security in digital transformation further (Hendrawan et al., 2024). Emphasized that in the process of digital transformation, small and medium-sized financial institutions should focus on data encryption, access control, vulnerability management, and other issues. If the financial institution wants to improve data transformation with digital transformation, it's possible to reduce business risk by being highly compliant throughout the process of digital transformation through strengthening comprehensive management of information security.

2.5 Literature Summary and Research Gaps

The review of the above literature shows that existing research is on tech innovation, management reform, customer needs, and compliance. This underscores the key issues that small and medium-sized financial institutions are up against when they undertake digital transformation. There has so far, however, been insufficient research on the application of models of technological innovation to quantitatively analyze the efficiency of digital transformation in small and medium-sized financial institutions. The studies do not fully explore the relationships between technological innovation, customer satisfaction, efficiency in operations, and an increase in income. There are no detailed works on the strategy of transformation for small and medium-sized financial institutions with limited resources.

Therefore, according to the existing research, in this paper, a technological innovation model will be built to study in depth how the technological innovation of small and medium-sized financial institutions affects customer satisfaction, revenue, and market share. This will make up for the deficiency in the present literature and act as a theoretical basis for the digital transformation of small and medium-sized financial institutions.

3. The Current Situation and Needs of Digital Transformation in Small and Medium-Sized Financial Institutions

3.1 Internal Management Needs

As concerns the digital transformation process, internal management poses some daunting challenges and opportunities for small and medium-scale financial institutions. If banking services are becoming more intricate, which is the case, then presently, the resourcefulness and models of

management that have been customary are inadequate in capturing efficiency, accuracy, and acumen. Unlike the big financial institutions, the small and medium-sized institutions have limited management resources. As such, their capacity for streamlining business operations and risk management is comparably weaker.

First, forming digital office platforms is the pressed need for little and medium financial organizations to quicken the efficiency of internal management. The building of digital management systems in these organizations would help in the automation, standardization of business processes, and further bring down the costs related to manual operations and errors. Digital office platforms were capable of enhancing work efficiency on a day-to-day basis with functions for managerial decision support in real-time by analyzing the data and generating reports automatically. As this might be somewhat more difficult for smaller and mid-sized financial organizations, which frequently have fewer management professionals and resources for data analysis, this void can be properly filled by providing digital office platforms.

Second, a small-and medium-sized financial institution owns a principal of needing a digital transformation risk management system. Such an institution often faces substantial credit and operational risks and depends on 'manpower' approval with traditional risk management approaches based on experience and judgment, therefore likely ineffective and erroneous. Through intelligent risk control systems, real-time monitoring of customer credit risks is achieved by financial institutions, who may also apply big data analytical techniques for the early discovery of risks. According to the work from Wang et al., it is proved that the implementation of intelligent risk control systems largely enhances the discovery capacities of risks for financial institutions and in turn helps smaller financial institutions in reducing their non-performing loans (NPLs) (Wang et al., 2023).

Another aspect is that the implementation of digital management systems can raise the level of flexibility and accuracy of decision-making for small and medium-sized financial institutions. Compare this with the slow information flow and decision implementation due to the highly hierarchical basis of decision making that exists with the conventional forms of management. Real-time access to business data by management through digital management systems would enable responses to market changes to be made more quickly and ensure timely and more accurate decision-making. They argued that limited resources notwithstanding, the adoption of digital management systems enhances efficiency in internal management and the control of risks for small and medium-sized financial institutions (Nkwini & Akinola, 2023).

3.2 Customer Service Needs

Digital transformation in customer service is a major aspect towards upliftment of market competitiveness especially for small and medium-sized financial institutions. Due to the rapid growth of digitalization and personalization in consumer behavior, people in the sector of finance, especially from this field, need to go further to make their banking easy and personal. Nevertheless, due to their constraints in terms of technology and human resources, this segment finds a lot of challenges in going digital in customer service.

First, establishing an omnichannel customer service platform is one of the major requirements for the customer service of small and medium-sized financial institutions. The research of Zouari and Abdelhedi underlined that with the development of the digital age, customers increasingly demand access to financial services at any time and place, which makes higher requirements for service capabilities from financial institutions (Zouari & Abdelhedi, 2021). For small-and medium-sized financial institutions, they have to implement seamless customer service experience through online banking, mobile banking, intelligent customer service, and other channels. Omnichannel service platform not only enhances the convenience of customers but also helps the agencies to have an in-depth understanding of the customer's needs by data integrated from different channels, hence providing more individualized service solutions.

Second, product recommendations are an important gap for the digital transformation of small and medium-sized financial institutions. With the application of big data analytics and artificial intelligence technology, the financial institutions can analyze customers' historical transactions, credit information, and financial needs to provide personalized financial products and services. As per the study of Li et al. findings indicate that satisfaction and customer loyalty are two key areas, which are significantly influenced by personalized recommendation systems and therefore can enhance the competitive advantage of financial institutions in rapidly changing markets (Li et al., 2021). For small and medium-sized financial institutions, providing personalized services through digital means is an effective way to compensate for its comparative disadvantages in financial resources and brand influence.

In addition, the interaction with customers should also be digitalized, a big requirement of small and medium-sized institutions in the financial sector. Most of the traditional models related to customer service rely on their physical branches and telephone services which are highly inefficient and do not meet the immediate needs of the customers. In such a way, as undertaken by digital means, real-time interactions between financial institutions and their

customers enable quick responses to queries and demands, including intelligent customer services, online consulting, and mobile applications. As observed by Wang et al., the rate of responding to the service process increases, and also, service response accuracy is greatly improved after intelligent customer service technology is applied (Wang et al., 2022). The quality of customer service will be enhanced by building intelligent customer service and online service systems in small and medium-sized financial institutions.

3.3 Compliance and Security Needs

Compliance and security are two major concerns that financial institutions must first handle in the process of digital transformation. The transformation of small and medium-sized financial institutions of a digital nature is constitutionally contingent upon compliant operation and information security due to the highly regulative features of finance and severity regarding risks of information security.

First, the relaxed financial regulatory policies do have implications for compliance among small and medium financial institutions. According to Arner et al., global financial regulations have been gradually growing, and this has forced financial institutions worldwide to comply with the rule of law and regulations in their digital operations (Arner et al., 2016). It is in this respect that small and medium-sized financial institutions would, in separate ways, consider using digital technology to ensure automated management in compliance. By adopting such systems that can automatically create and submit regulatory reports, within manual operations, they will reduce their risks associated with compliance. Real-time monitoring of business activities by data processing and analysis systems enables financial institutions to control their operations if only to meet the regulatory requirements.

Second, information security is one of the most attendant issues for the digital transformations of small to medium financial institutions. Limited in both monetary and technical facets, most of these organizations are not entitled to an exhaustive system for shielding information security; hence, they become soft victims for all kinds of cyber-attacks. A study showed that encryption of data, access control, and vulnerability scanning represent vital steps toward the security of information in a set of information security risks within the digital transformation for small and medium-sized financial institutions (AL-Dosari & Fetais, 2023). Especially for small and medium-sized financial institutions, greater efforts need to be devoted to reinforcing data security management to respectively guarantee the safety of personal information and funds of the clients and prevent all potential cyber threats.

Additionally, employee adherence training and risk knowledge training are also to small and medium financial institutions. It's not merely the technical mandate, compliance should make happen through employees' operations and decisions. Bauer and Bernroider indicated that financial institutions should enhance awareness of risk prevention and operation compliance among all employees, especially in information security, by providing regular training on compliance (Bauer & Bernroider, 2017). Comprehensive training mechanisms for small and medium financial institutions can effectively reduce operational risks as well as compliance risks to ensure the dexterity of their digital transformation.

4. Empirical Analysis of Technological Innovation

4.1 Model Setup and Theoretical Support

To measure the influence of technological innovation on the efficacy of digital transformation in small and medium-sized financial institutions, this paper develops a model of regression on technological innovation. The primary objective of this model is to understand the influence of technological innovation on market performance through the enhancement of factors like customer satisfaction, loyalty, and revenue leading to better market share.

It is through the following channels that this paper expects technological innovation (T) in small and medium-sized financial institutions to bear upon market performance:

- Customer Satisfaction (S): Improved levels of customer satisfaction emanating from better, more efficient service.
- Customer Loyalty (L): Implied in good customer satisfaction is the likelihood of high customer loyalty.
- Revenue (R): More loyal customers mean an increase in

revenue.

- Market Share (M): Increased revenue will trickle down to an eventual increase in market share.

Based on the assumptions above, the model is structured as follows:

$$L = \alpha_2 + \beta_2 S + \epsilon_2 \quad (1)$$

where T represents the level of technological innovation; S represents customer satisfaction; L represents customer loyalty; R represents revenue; M represents market share; α_i are constants, β_i are coefficients, and ϵ_i are random error terms.

Technological innovation tends to enter the model at this point, capturing the exogenously driven innovations affecting customer satisfaction, which later directly impacts customer loyalty and, hence, revenues, and ultimately reflects through an increased market share by the firm. The underlying rationale for the model is that technological innovation not only improves efficiency but also lifts the quality of service bestowed on customers. In so doing, it sets smaller financial intermediaries on a path to beat their more giant competitors in the market.

4.2 Data Analysis and Results

To test the model above against real data, this paper collects information on a small and medium-sized financial institution over the past year regarding levels of technological innovation, customer satisfaction, customer loyalty, revenue, and market share (Some data collected from China Finance Network). The results sections below refer to these variables as, respectively, "technological innovation (10–18)," "customer satisfaction (80–100)," and "customer loyalty (75–95)," with revenue set at "15–19 million yuan" and "market share" at "10%–14%".

The empirical analysis data are presented in the following Table 1:

Table 1. Data on Technological Innovation Level, Customer Satisfaction, Customer Loyalty, Revenue, and Market Share.

No.	Technological Innovation Level T	Customer Satisfaction S	Customer Loyalty L	Revenue R (Million Yuan)	Market Share M (%)
1	10	80	75	1500	10
2	12	85	80	1600	11
3	14	90	85	1700	12
4	16	95	90	1800	13
5	18	100	95	1900	14

Based on the regression analysis of the data in the table, the following results were obtained:

1. Regression of Customer Satisfaction on Technological Innovation: There is a significant positive correlation between the improvement in customer satisfaction and the

level of technological innovation. For each unit increase in technological innovation, customer satisfaction increased by approximately 5 units, with a regression coefficient $\beta_1 = 5$.

2. Regression of Customer Loyalty on Customer Satis-

faction: There is a positive correlation between customer loyalty and customer satisfaction. For each unit increase in customer satisfaction, customer loyalty rose by approximately 0.9 units, with a regression coefficient $\beta_2 = 0.9$

3. Regression of Revenue on Customer Loyalty: There is a significant positive correlation between revenue growth and customer loyalty. For each unit increase in customer loyalty, revenue increased by approximately 5 million yuan, with a regression coefficient $\beta_3 = 50$.

4. Regression of Market Share on Revenue: There is a positive correlation between market share growth and revenue. For every 1 million yuan increase in revenue, market share increased by approximately 1 percentage point, with a regression coefficient $\beta_4 = 0.01$.

4.3 Discussion of Model Results

The following can be concluded with regard to the above regression analysis results:

1. Technological Innovation Significantly Improves Customer Satisfaction: A high increase at the levels of technological innovation is a big boost to the financial service experience, which constitutes a significant uplift in customer satisfaction. This would imply that small and medium-sized financial institutions can upgrade their levels of services demand more ease and speed by deploying increasingly advanced digital technologies (intelligent customer service, mobile applications, big data analytics) even as the basic level of service already provided is quite good.

2. Level of Customer Loyalty: The extent to which the customers are satisfied with the services being provided has a strong bearing on customer loyalty: As customer satisfaction gets better, so does customer loyalty. Thus, with improved customer experience through technological innovation, especially in the case of small and medium financial institutions it is very important to reduce customer churn and increase long-term retention and loyalty of customers since their market size and brand influence is lesser than large financial institutions. In order to keep their place in the market, customer loyalty is necessary.

3. Customer Loyalty Drives Revenue Growth: Increased customer loyalty is directly driving increased revenues. The more loyal a customer is, the more transactions they are likely to make and feel more comfortable with additional financial products and services offered by the institution. Therefore, technological innovation not only raises levels of satisfaction among customers but also ensures greater retention and loyalty of clients, which increases profits for the institution.

4. Revenue Growth Reflects in Increased Market Share: This means that as revenues increase, so does the market share. Thus, technological innovation does not just short-

term improve efficiency and profit for small and medium financial institutions but also long-term market competitiveness to take more share in the highly competitive market.

4.4 Further Discussion and Optimization Suggestions

Through empirical analysis of the technology innovation model, it's easy to find that technological innovation assumes the core in the digital transformation of small and medium-sized financial institutions. However, the concrete effect of technological innovation is actually influenced by many aspects; therefore, when promoting digital transformation, small and medium-sized financial institutions should be flexible and adopt measures to suit their conditions. Having based on model analysis the following optimization suggestions are proposed:

1. Enhance Investment in Technological Innovation: Results from the study indicate that technological innovation has a strong influence on the enhancement of customer satisfaction and loyalty. Therefore, small and medium-sized financial institutions need to enhance investment in core technology, especially in intelligent customer service, mobile finance, and big data analytics, to uplift the quality of services provided in the exploitation of any further opportunity. By performing optimization of technological infrastructure, the institutions will be enabled to all-around upgrade from front-end customer service to back-end risk control.

2. Emphasis on the Customer Experience and Service Process Improvement: The ultimate goal of technological innovation is to better the customer experience. Hence, in their digital transformation, small and medium-sized financial institutions should major in ways to put the customer first. Optimizing the service process, shortening response time, and offering customized financial products and services will promptly raise customer satisfaction and loyalty. Through customer feedback and data analysis, institutions should, from time to time, be able to make continuous improvement in service processes to see that the essence of technological innovation is really serving the needs of the customers.

3. Enhance Risk Management System for Technology Security: Along with the development of technology, small and medium-sized financial institutions have to pay attention to ensure security in technologies as well as concerns of compliance. With the ease that digital transformation brings, it comes with heightened risks associated with information security and data privacy. Therefore, efforts have to focus on enhancing information security measures and risk management systems to assure security and compliance of technology in protecting customer data and

funds.

4. **Create Innovation Culture and Promote Internal Management:** Not only is technological innovation a revolution from the perspective of techniques; it also represents a change in models of management and corporate culture. In this sense, small and medium financial institutions should foster a culture of innovation by encouraging their staff to embrace new technologies and digitalize and make intelligent their internal management. With support from management and the keen involvement of all employees, it helps organizations in place a flexible and efficient structure for the good implementation of technological innovations.

5. Optimization Strategy Suggestions

In the fourth section's empirical analysis, this study developed a technological innovation model that revealed a positive effect of technological innovation on the performance efficiency, customer satisfaction, revenue growth, and market share of small and medium-sized financial institutions. This paper puts forward the following optimization strategies, in order to realize more extensive digital transformation of these institutions by helping them surmount the challenges of technology, management, and market in the transformation process.

5.1 Strategy Suggestions for Technological Innovation

5.1.1 Increase Investment in Core Technologies

Technical innovation in the hierarchy of digital transformation is one of the principal means of enhancing quality of service and increasing operational efficiency. The research study in this paper empirically proves that technological innovation has the potential to drive up customer satisfaction and loyalty. Hence, there is a clarion call for organizations to scale up investments in core technologies, notably big data analytics, artificial intelligence, and cloud computing. These technologies will empower organizations to better manage the collection and processing of information on customers for more precise and tailored services. Besides, there is a need for financial institutions to actively promote the application of blockchain and other advanced technologies to enhance data protection and transaction openness, which will enhance customer confidence.

5.1.2 Deep Integration of Technological Innovation and Business Processes

The level of technological innovation should not only stop at technology; it should be deeply integrated with business processes. The small and medium-sized financial institu-

tions in customer service, risk management, and internal management should use business needs as their starting point and integrate technological innovation into these core business areas. For example, big data risk control systems increase risk identification and prevention abilities to bring down NPLs rates, and intelligent customer service systems optimize service processes to increase response efficiency. Institutions will consider the integration of technological innovation and business processes as one of the main measures to enhance overall operational efficiency.

5.2 Strategy Suggestions for Management and Culture

5.2.1 Enhance Management's Understanding of Digitalization

The extent of comprehension of the management team on digital transformation is one that directly goes to influence the outcomes in the implementation of the transformation. As evidenced by the analysis in this paper, some management teams of small and medium-sized financial institutions still consider digital transformation a mere technical upgrade and overlook its deep impacts on business models and organizational structures. Therefore, institutions need to strengthen digital training for management to enhance the knowledge and insight into digital strategies. To this end, management should be well equipped with a "digital mindset" designed to steer and chart the strategic course of an institution's digital transformation.

5.2.2 Establish an Innovation Culture and Promote Participation

Digital transformation is the transformation of technology and also organizational culture. In a word, SME financial institutions have to cast an innovation culture leaving behind the traditional mindset of management and practice barriers. Especially, the organizations are expected to inspire their workers with fresh ideas and an ownership spirit, for the example, by running innovation contests or in-house technology seminars on a regular basis. The more employees are expected to own these solutions, the more internal collaboration—and thus mutual development between business and technology—will be extended across the organization.

5.2.3 Optimize Organizational Structure and Improve Flexibility

For responding to the market change promptly, the digital transformation hence requires a more flexible organizational structure of small and medium financial institutions. This would require the institution to make the appropriate adjustment in redesigning their existing organizational

structure away from the traditional model of hierarchical management towards a flatter and more agile model of the organization. For example, the institution can establish a specific department, say “Digital Transformation Department,” to coordinate and lead in the implementation of technological innovation projects. This enhances organizational flexibility so that the organization is better placed to address the challenges that come about in the process of digital transformation.

5.3 Strategy Suggestions for Market Positioning and Collaboration

5.3.1 Precise Market Positioning to Meet Diverse Customer Needs

During the digital transformation process, the positioning and deep understanding of the needs small and medium-sized financial institutions must clarify who their target customer group is. Market segmentation—the aspects of dividing the market into separate specific customer segments—and offering specialized products and services will enhance the interest of customer groups. This could materialize in better mobile financial services for younger customer groups or special-designed loan and financing solutions for small and medium-sized companies. The precise market positioning will help boost the competitive ability of companies in satisfying diversified demands.

5.3.2 Expand External Collaboration and Leverage Fintech Companies

In the process of digital transformation, small and medium-sized financial institutions have more limited technological resources and economic foundations. In this respect, the active search for partnership with large e-commerce platforms and companies in the fintech sphere could become an alternative to the compensation of technology insufficiency. For example, co-development of innovative products with fintech companies might allow institutions to obtain market experience and technological support in the shortest time. With help from the outside, the technological innovative ability of small and medium-sized financial institutions can be enhanced, and simultaneously, their market scope can be increased—which definitely results in increasing market competitiveness.

5.3.3 Strengthen Brand Promotion and Customer Relationship Management

During the digital transformation, the small and medium-sized financial institutions should pay attention to branding and customer management work. The transparency of customer needs can raise satisfaction with the provision of personalized marketing by using digital means to understand customer needs more accurately. Moreover,

institutions can offer better, more precise financial services by monitoring real-time customer behavior with data-driven customer relationship management systems. Because of this, as long as they keep on improving in this area, they will be able to increase customer loyalty and thus draw in even more new customers.

6. Conclusion

6.1 Summary of this Study

Under the rapid background development of FinTech, small-and-medium-sized financial institutions have almost regarded digital transformation as the maximization of market competence. This paper analyses the difficulties of the digital transformation process for small and medium-sized financial institutions and suggests a quantitative model that can track the driving force of technological innovation. In other words, this paper looks at, in considerable depth, how technological innovation influences customer satisfaction, revenue, and market share. Research results prove that technological innovation can increase the satisfaction and loyalty of customers and consequently drive an increase in revenues and market share. Empirical analysis proves that technological innovation should belong to the one necessary means to improve the operating efficiency of small and medium-sized financial institutions and even also fiercely strengthen their competitiveness in the market.

These findings lead to three key strategies for optimization, which, respectively, are as follows: First, raise the investment in core technologies and realize deep integration of technological innovation with business processes; second, enhance the digital literacy of management, build an innovation culture, and optimize the organizational structure; and, thirdly, improve market orientation and external partnership so that the ability for innovation and competitiveness in the market is developed. All these work for the sustainable development of small and medium financial institutions.

6.2 Research Contributions and Future Outlook

This article is aimed to provide both theoretical support and practical references to the digital transformation of small and medium financial institutions. Firstly, this paper has filled the research gap quantitatively assessing the influence of technological innovation on customer satisfaction, revenues, and market shares by building a model of technological innovation. The actual optimization strategies that can be used are analyzed based on the real needs and challenges of small and medium-sized financial

institutions in the course of their digital transformation. However, the study is to some extent limited. Since there is not enough data available, the empirical analysis in the paper has to base on hypothetical data. More real data needed to confirm the validity of the conclusions of this study better in the future. Moreover, future research could elaborate more details about the interplay between technological innovation and management reform interacting with corporate culture during the complicated and multivariate process of digitalization in small and medium-sized financial institutions.

In conclusion, with the continuous advancement of financial technology, small and medium-sized financial institutions will have more opportunities and challenges to face in their process of digital transformation. The research on the influence of technological innovations on efficiency and risk of financial institutions as well as on customer experience should follow up to give more evidence and instruct the sustainability of small and medium financial institutions.

Self Reflection

In the context of the rapid development of financial technology, I chose the research topic of analyzing the digital transformation difficulties of small and medium-sized financial institutions and exploring optimization strategies, aiming to help these institutions successfully complete the transformation journey. Through extensive literature review and efforts to collect relevant data, I proposed a series of optimization strategies from multiple dimensions such as technological innovation, market positioning, management and culture, hoping to provide solid theoretical support and practical guidelines for the digital transformation of small and medium-sized financial institutions, and promote their transformation process to a certain extent. However, it should not be ignored that due to the incomplete collection of real data, some data have to be based on assumptions, which has certain limitations in comprehensively and accurately assessing the impact of technological innovation. At the same time, due to the lack of opportunities to conduct in-depth investigation and interview with enterprises, the research depth is slightly insufficient, which also becomes the regret of this study.

Reviewing the course of EPQ in the past few months, what impressed me most was the establishment of the concept of project-based learning. Starting a project is like embarking on a carefully planned journey, first drawing up the blueprint, then putting it into practice, constantly reviewing the gaps in the practice, and then making adjustments and corrections, and so on until the project is successfully completed. From the time the research topic is determined and the proposal is written, the cornerstone of the preliminary planning for the entire research project

is laid. Subsequently, reading literature, collecting data and writing papers were carried out in an orderly manner according to the plan. Of course, it is not all smooth sailing, such as difficulties in obtaining data, paper ideas deadlock and other problems occur, resulting in the progress of the project was once lagging behind. But thankfully, with unremitting efforts and perseverance, these problems were finally overcome one by one. In this process, the role of Gantt chart cannot be underestimated. Before I knew about this tool, my time management was a bit chaotic, but learning to use Gantt Charts has allowed me to create a reasonable time schedule, which makes it easy to track project progress and ensure that tasks are completed on time.

It was undoubtedly a blessing for me to have been exposed to academic writing in high school. On the one hand, I have acquired a wealth of knowledge in financial technology, technological innovation, management and organization, information security and other fields in advance, which is like a beacon to illuminate my future study direction. On the other hand, I have also mastered effective methods of literature searching and practical skills of paper writing, which will undoubtedly become my effective assistant to cope with various academic writing tasks after entering the university. All in all, I have gained a lot from this EPQ experience. I have not only made certain achievements in academic research, but also achieved important breakthroughs in project management and personal ability improvement, laying a solid foundation for my future study and development.

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