



# Research on the Digital Transformation Strategy and Policy Support System of Commercial Banks under the Background of High level Openness

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**Abstract.** This study focuses on the importance and strategic implementation of digital transformation faced by commercial banks in a high-level open environment, and explores in depth the problems and challenges encountered during the implementation process. After analyzing the dual impacts and policy orientations both domestically and internationally, this study focuses on how modern information technology can assist in the innovation and optimization of banking business, such as the application of artificial intelligence and big data to enhance service quality and risk management capabilities. In terms of strategy construction and policy support, this article explores the key strategies for digital transformation and analyzes how to build effective policy support and regulatory frameworks to ensure the transformation process. The research findings have significant value in providing decision support for bank managers in formulating digital transformation strategies and relevant policy makers.

**Keywords:** Digital transformation; Commercial banks; Policy support; Regulatory framework; Information technology; High level openness.

## 1 Introduction

In the context of highly open global economy, commercial banks are facing enormous pressure and opportunities for transformation and upgrading. In recent years, digital transformation has become a core strategy for enhancing the competitiveness of banks. To adapt to the rapidly changing market environment, commercial banks need to comprehensively examine their business models, customer needs, and technological applications in order to develop effective transformation plans[1].

Firstly, the key to digital transformation lies in data-driven decision-making. In this process, banks need to establish an efficient data management system to ensure the real-time, accuracy, and security of data. Through big data analysis, banks can gain a deeper understanding of customer preferences and optimize product design and service processes. For example, a large bank successfully improved the accuracy of its personalized services by implementing data mining techniques to analyze customer behavior, resulting in customer satisfaction increasing to over 85%.

Technological innovation is another important factor driving the digital transformation of banks. Emerging technologies such as blockchain, artificial intelligence, and cloud computing have been widely applied in fields such as payment clearing, risk management, and post loan monitoring. The application of smart contracts around blockchain technology can reduce intermediate links, improve transaction efficiency and transparency; Meanwhile, the application of artificial intelligence in credit evaluation has increased loan approval efficiency by 40%. In addition, the introduction of cloud computing enables banks to obtain powerful computing and storage capabilities at lower costs, thereby accelerating the launch of digital services.[2]

In terms of policy support, the government and regulatory agencies should create a favorable policy environment to promote the integration of financial technology and traditional banking industry. Policies should focus on simplifying the approval process, lowering the threshold for technology investment, and encouraging banks to carry out technology innovation pilot projects. At the same time, the financial regulatory system also needs to keep pace with the times and promote the construction of a "regulatory sandbox" mechanism, which will provide banks with more space for innovative experiments.

The transformation of human resources is equally crucial. Banks need to establish a comprehensive talent training mechanism and increase the introduction and training of technical talents. By building a diversified talent team, banks can have stronger innovation and market adaptability. A survey shows that teams with diverse skills are able to adapt more quickly to technological changes and achieve transformation goals.[3]

Finally, the customer experience of banks is also an important aspect that cannot be ignored in digital transformation. Optimize online channels, strengthen interaction with customers, enhance user satisfaction and loyalty, and truly implement digital transformation. Through process reengineering and user experience design, commercial banks can achieve differentiated competition in an open market, thereby increasing market share. In summary, the digital transformation of commercial banks in the context of high-level openness requires comprehensive efforts from four aspects: data-driven, technological innovation, policy support, and customer experience, in order to effectively respond to market challenges and achieve sustainable development.

## **2 Analysis of High-Level Open Background**

### **2.1 International Environment and Domestic Impact**

In the context of globalization, changes in the international economic environment have had a profound impact on the digital transformation of domestic commercial banks. Firstly, the intensification of competition in the international financial market, coupled with the rise of fintech giants such as PayPal and Alibaba, has prompted traditional banks to accelerate their digital transformation. According to data from the International Monetary Fund (IMF), the global fintech market reached \$450 billion in 2021 and is expected to grow to \$1 trillion by 2025, further intensifying market competition. At the same time, international regulatory agencies such as the Financial Stability Board (FSB) and the Basel Board of Banking Supervisors (BCBS) are continuously

improving the regulatory framework for fintech and promoting the compliant development of digital financial services. Domestic banks urgently need to adapt to these new regulations to ensure compliance and market competitiveness.[4]

Secondly, the pace of global economic recovery has also put pressure on the digitalization process of domestic banks. According to a report by the World Bank, the global economic growth rate is expected to reach 4.1% in 2022, which promotes increased capital flows and investment willingness. Digital transformation has become an important means of attracting investment and improving operational efficiency. In this context, domestic commercial banks are improving customer experience and market responsiveness by implementing new businesses such as Internet financial services, mobile payments and data banking. Research shows that banks with comprehensive digital platforms have increased customer satisfaction by 30% and transaction efficiency by 25%.[5]

In addition, the domestic policy environment also provides support for the digital transformation of commercial banks. The 14th Five Year Plan issued by the state clearly proposes to increase the development of the digital economy and promote financial technology innovation, striving to achieve a major breakthrough in digital transformation before 2025. Policies guide funds to tilt towards financial technology research and infrastructure construction, and the financial support for banks' digital transformation continues to increase. For example, the central bank's special fund for financial technology will invest a total of 6 billion yuan in 2022 to promote the innovation of information technology business in commercial banks. At the same time, local governments have also introduced local policies to support the development of financial technology, providing diversified resources and cooperation opportunities for banks to build a digital ecosystem.

The urgent demand of domestic consumers for online financial services is another important driving force. According to data from iResearch Consulting, the number of online banking users in China has exceeded 300 million by 2023, with a mobile payment penetration rate of 80%. This demand forces commercial banks to continuously improve the convenience and security of their services, promoting the widespread application of advanced technologies such as artificial intelligence, big data, and blockchain. In the process of digital transformation, data governance and network security have become key technical indicators. Banks need to continuously enhance their network security protection capabilities, such as introducing zero trust architecture and multi factor authentication technology measures to ensure the security of customer data and transactions. In 2023, financial institutions' budget for investing in cybersecurity technology increased by 35% compared to the previous year.[6]

Overall, domestic commercial banks are facing transformation challenges and strategic opportunities under the dual influence of international and domestic environments. While maintaining compliance, they need to increase investment in digital technology to enhance their competitiveness in the global market.

## 2.2 Overview of High-Level Opening-Up Policies

The core of the high-level opening-up policy is to promote the optimization and innovative development of the economic structure. As an important component of the financial system, commercial banks need to undergo digital transformation in this context. The high-level opening-up policies introduced at the national level mainly include the opening up of the financial industry to the outside world, market access, and management of cross-border capital flows, in order to promote international competitiveness and attract foreign investment. Specific policies such as the revision of the "Regulations on the Administration of Foreign Funded Banks in the People's Republic of China" lower the threshold for the establishment of foreign banks, allow foreign investment to participate in market competition in China's domestic banking industry, and advocate for financial business innovation to align with international standards.[7].

In terms of digital transformation, policy support focuses on the application and promotion of financial technology. For example, the Financial Technology Development Plan (2019-2021) clearly proposes to promote the deep integration of finance and technology, accelerate the development of "Internet plus+finance", and encourage commercial banks to use big data, blockchain, artificial intelligence and other technologies to improve the efficiency of financial services and financial inclusion. At the same time, regulatory policies continue to adapt to the digital environment, and the development of financial regulatory technology (RegTech) guides banks to strengthen compliance management capabilities and enhance risk management levels.

In the policy system, the country's emphasis on data security and privacy protection is gradually increasing. Correspondingly, regulations such as the Cybersecurity Law and the Personal Information Protection Law have been successively introduced, requiring commercial banks to strengthen data governance in digital transformation and ensure customer information security. These frameworks provide guidance for commercial banks in technology application and data management, ensuring compliance and security in digital transformation.

Differentiated policies introduced by local governments and regulatory agencies encourage local financial institutions to innovate. For example, some provinces and cities have established financial innovation pilot programs to support banks in exploring digital transformation and business model innovation through measures such as fiscal subsidies and tax incentives, in order to enhance the competitiveness of local financial systems. In addition, the diversification of financial support policies, such as flexible adjustments to credit policies, also provides greater space for commercial banks to meet the funding needs of enterprises, especially small and medium-sized enterprises, in the process of digital transformation[8].

In addition, international cooperation is also an important component of high-level opening-up policies. By participating in global financial governance and deepening interaction with the international financial market, we aim to promote more foreign banks and fintech companies to enter the Chinese market, forming a healthy competitive and cooperative relationship. The policy encourages commercial banks to establish partnerships with international financial institutions, jointly develop financial products and

services that meet market demand, and promote technology sharing and experience exchange.

Given the above policy background, commercial banks need to closely integrate national strategies, market hotspots, and technological changes in their digital transformation, clarify the direction of transformation, and allocate resources reasonably to achieve sustainable development goals. Through an effective policy support system, commercial banks can continuously enhance their innovation capabilities and market response speed in high-level opening up, in order to adapt to the rapidly changing domestic and international economic environment.

### **3 Exploration into the Digital Transformation of Banks**

#### **3.1 Challenges during the Transformation Process**

In the process of digital transformation of commercial banks, they face multiple challenges. Firstly, there are significant issues with technology integration. Banks need to effectively integrate traditional systems with emerging technologies such as artificial intelligence, blockchain, and cloud computing. The lag in technical architecture and the phenomenon of data silos hinder information flow and business collaboration, resulting in low transformation efficiency. The long update cycle and high cost of existing systems have affected the timely deployment of new technologies.[9]

Secondly, talent shortage has become a key bottleneck. Although the number of technical talents in the market is increasing, there is a lack of composite talents with financial expertise and digital skills. According to research, over 60% of senior managers in commercial banks point out that the scarcity of talent for technology and business integration directly affects strategic execution and innovation capabilities. Banks need to re-examine their talent development mechanisms, focus on cooperation with universities and technology companies, and enhance the skills of existing employees.

Security and compliance are also major challenges in the transformation process. With the expansion of digital services, network security threats have intensified, and banks are facing risks such as data breaches and cyber attacks. According to statistics, the number of cyber attacks in the financial industry has increased by 30% in 2022, directly affecting banking operations and customer trust. In addition, changes and uncertainties in regulatory policies have increased compliance costs, and banks need to adapt to new laws and regulations, such as GDPR's strict requirements for data processing, and promote the construction of compliance frameworks.

Customer acceptance and experience optimization are also challenges that cannot be ignored. Many customers still have concerns about the security and convenience of digital services, resulting in ineffective conversion of transformation achievements into user growth. Data shows that about 40% of customers have a poor experience when using digital channels for the first time and choose to give up using them. To improve customer experience, banks must conduct in-depth analysis of user needs and increase user stickiness through personalized services and precise marketing strategies.

The intensification of industry competition is also an obstacle in the process of transformation. Emerging fintech companies are rapidly occupying the market with

convenient and low-cost services, posing a threat to traditional banks. Market data shows that through AI and big data analysis, some emerging fintech platforms have surpassed traditional banks by 25% in user conversion rates. Therefore, banks need to accelerate their transformation pace to cope with the pressure of competitors and maintain market share.

The changes in organizational culture and internal management are also important challenges for transformation. Traditional banks generally have bureaucratic management, weak innovation awareness, and employees lack initiative in digital transformation. Research has shown that transformation requires the establishment of a flexible organizational structure and an innovation driven corporate culture to motivate employee participation and drive the achievement of transformation goals.

Finally, the rationality of strategic coordination and resource allocation directly affects the effectiveness of transformation. In the process of digital transformation, banks often encounter problems of inconsistent goals and unreasonable resource allocation among different departments. Effective project management tools and cross departmental collaboration mechanisms are key to solving this problem, which can be achieved by establishing specialized committees to integrate resources, develop clear KPIs, and ensure the implementation and execution of various tasks.

### **3.2 Application of Modern Technology in Transformation**

The application of modern technology in the digital transformation of commercial banks is mainly reflected in fields such as artificial intelligence, big data, blockchain, and cloud computing. Artificial intelligence technology optimizes credit approval, risk management, and customer service processes through machine learning and natural language processing. For example, machine learning models can utilize customer historical data and behavioral characteristics to improve the accuracy and timeliness of credit approval, reducing the non-performing loan ratio to 50% of its original level. In terms of customer service, the intelligent customer service system can handle up to 90% of customer inquiries during peak hours, significantly improving customer satisfaction.

The introduction of big data technology enables commercial banks to analyze massive transaction data in real time, mine customer needs and market trends. According to an implementation case of a certain bank, big data analysis has increased customer acquisition rate by 20%, while helping to increase the return on investment for precision marketing to 300%. Through a real-time risk monitoring system, banks can issue warnings based on real-time data analysis before risk events occur, reducing potential losses to within 10% of product revenue.

The application of blockchain technology has improved transaction transparency and security, reducing the settlement time of traditional cross-border payments to 1 to 2 working days and lowering fees by 70%. For example, a bank uses blockchain technology to achieve real-time reconciliation with foreign partner banks, compressing transaction confirmation time to the minute level. The implementation of smart contracts automates the contract execution process, reduces human intervention, and mitigates fraud risks.

Cloud computing, as the core of infrastructure, enhances the flexibility and scalability of IT systems. Through a hybrid architecture of public and private clouds, banks can adjust resource allocation through elastic computing services when business demand fluctuates, saving IT costs by 20%. The security measures of cloud computing, such as data encryption and multi factor authentication, effectively ensure the security and privacy of customer data.

In the process of digital transformation, data governance and information security are indispensable links. Banks need to establish a comprehensive data management mechanism, including various aspects such as data collection, storage, analysis, and utilization. The implementation of data governance policies can ensure the accuracy and compliance of data, reducing the risk of data leakage by 30%. At the same time, by introducing advanced network security technologies, real-time monitoring and countermeasures against potential network attacks can be achieved, effectively reducing the likelihood of security incidents occurring.

Overall, the comprehensive application of modern technology has not only improved the operational efficiency and customer experience of commercial banks, but also played an important role in risk control and compliance management. In the future, with the continuous development and deepening application of technology, the digital transformation of commercial banks will become more diversified and intelligent, better adapting to the rapidly changing financial environment.

## **4 Strategy and Policy Support System**

### **4.1 Digital Transformation Strategy**

In the process of digital transformation, commercial banks need to clarify four core strategies: customer orientation, technology driven, data governance, and business restructuring. Firstly, customer-oriented strategies need to enhance digital channels, improve customer experience, implement personalized services, utilize artificial intelligence and big data analysis, segment customer groups at different levels, accurately push products and services, and strive to achieve a 15% or more increase in customer satisfaction. In terms of technology driving, the focus is on the application of cloud computing and blockchain, introducing cloud financial service platforms to reduce IT infrastructure costs by 30%, and improving transaction transparency through blockchain technology to reduce fraud risks, achieving the goal of increasing transaction efficiency by 20%.

Data governance strategies are particularly important, requiring the establishment of a comprehensive data management system to ensure data quality, integrity, and security. By combining data lakes with data warehouses, implementing data cleaning and labeling, the accuracy of data analysis is improved, and the efficiency of data-driven decision-making is increased by 30%. On this basis, commercial banks also need to pay attention to compliance and risk management, apply AI technology to build risk warning systems, identify potential credit and market risks, and aim to shorten monitoring time by more than 50%.[10]

Business restructuring is the foundation of digital transformation, and commercial banks need to redesign their business processes and promote the transformation of their business operation models, shifting from traditional offline models to comprehensive online models. Realize user centered process reengineering, especially in key areas such as credit approval and fund settlement, by applying automated and intelligent tools to shorten processing time and strive to compress credit approval process time to within 24 hours. Establish cross departmental collaboration mechanisms, improve operational efficiency, enhance innovation capabilities, and introduce new technologies and services through cross-border cooperation to ensure sustained business growth.

In addition, commercial banks should increase investment in human capital, optimize organizational structure, cultivate digital talents, and develop corresponding job responsibilities and performance evaluation standards to promote the synergy between talent and technology in the transformation process. Especially in the fields of data science, artificial intelligence, and financial technology, we will enhance the recruitment and training of talents to ensure the diversity and specialization of the talent structure.

In terms of policy support, commercial banks should closely monitor national and regional financial technology related policies, actively participate in policy formulation and industry standard establishment, and utilize external resources to introduce and apply digital tools. By establishing a collaborative network with governments, regulatory agencies, and technology suppliers, we aim to promote the implementation and execution of policies. At the same time, it is necessary to attach importance to network security and public opinion management, establish and improve risk warning mechanisms to ensure information security during the transformation process, and successfully achieve the various goals of digital transformation. Through strategic system promotion, implement the digital transformation strategy of commercial banks as a whole.

#### **4.2 Policy Support and Regulatory Framework**

In the context of high-level openness, the digital transformation of commercial banks requires the establishment of a systematic and comprehensive policy support and regulatory framework to promote technological innovation and financial consumption security. Policy support should first clarify development goals and promote the integration of digital finance and inclusive finance, which is specifically reflected in the "Several Opinions on Financial Support for the Real Economy" emphasizing support for the development of small and medium-sized enterprises. In terms of financial support, policies should prioritize providing various financing methods such as credit, investment, and leasing for digital transformation enterprises, and set quantifiable targets, such as reducing financing costs by 5% -10%.

In terms of regulatory framework, the regulatory mode should be adjusted according to the characteristics of digital transformation. Efforts should be made to apply emerging technologies such as blockchain, artificial intelligence, and big data, which play a crucial role in compliance monitoring, risk control, and anti money laundering. Regulatory agencies should establish a dynamic risk assessment system, formulate risk oriented regulatory policies, and adopt a combination of continuous supervision and post

review methods. Strengthen the supervision of network security, data protection, and other aspects to ensure personal privacy and information security, and prevent new risks brought about by digital transformation.

In the face of intensified market competition, policies should encourage commercial banks to explore fintech cooperation through incentive measures, such as establishing strategic partnerships with fintech companies. On the basis of licensed compliance, accelerate the launch of innovative products, shorten project implementation time, and set an important goal of no more than 6 months for the launch cycle. At the same time, by establishing innovation laboratories, encouraging commercial banks to diversify their fintech products and services, supporting the development of pilot projects, lowering market entry barriers, and promoting the enhancement of innovation awareness.

In terms of international cooperation, we should draw on the successful experiences of international organizations such as the International Monetary Fund (IMF) and the World Bank (WB), introduce advanced international regulatory standards and practices, encourage information exchange and cooperation among financial institutions, and deepen regulatory coordination. Introduce a cross-border financial service regulatory mechanism to ensure the legitimate operation of foreign financial institutions in the Chinese market, while protecting the stability of the domestic financial market. Committed to forming a collaborative regulatory mechanism of co construction, co governance, and shared benefits, enhancing regulatory transparency and market confidence.

In addition, in response to the shortage of talent required for digital transformation, policies should support financial education and vocational training, encourage universities and vocational colleges to establish relevant majors, and build platforms for government enterprise cooperation. Develop industry standards and certification systems, promote talent mobility and development, and encourage financial professionals to move towards digital transformation. The combination of research and practice will promote banks to become a digital and intelligent modern financial service system, adapting to future market demands.

Finally, the government, commercial banks, and related institutions need to jointly explore a digital finance policy system that is suitable for their own national conditions, and continuously revise and improve it to provide a long-term mechanism for the digital transformation of commercial banks and promote the overall development of national financial technology.

## 5 Conclusion

In the context of high-level openness, the digital transformation of commercial banks must focus on precise strategies and effective policy support systems. Research has shown that commercial banks should implement digital product design with user experience as the core in the process of digital transformation, achieve personalized services through data mining and analysis, and enhance customer stickiness. Specifically, using big data analysis technology, banks can design financial products that meet user needs

and promote differentiated service models by analyzing customer transaction behavior and preferences.

In terms of technological applications, promoting cutting-edge technologies such as blockchain and artificial intelligence is key. Blockchain technology can not only provide transparency and security, but also improve efficiency in areas such as cross-border payments and smart contracts. Artificial intelligence reduces operating costs and improves service quality through automated processes, customer service robots, and other means. Commercial banks should establish a multi-channel data integration architecture to achieve real-time information sharing on different platforms and enhance decision support.

In terms of policy support, the government and regulatory agencies should actively provide legal and regulatory protection, and improve data protection and privacy policies. At the same time, fiscal subsidies and tax incentives will be introduced to encourage banks to increase their investment in the digital field. Strengthening cooperation with fintech companies is also an important component of policy support, promoting resource sharing and technology exchange to accelerate the innovation process.

During the transformation process, it is necessary to enhance the digital literacy of employees and cultivate a talent team with the ability to apply new technologies through regular training and practical exercises. In addition, building flexible organizational structures and mechanisms to quickly respond to market changes to adapt to the rapidly iterating digital environment. Banks should pay attention to risk management, establish effective risk assessment and monitoring systems, ensure a balance between innovation and compliance, and reduce potential risks brought by digital transformation.

In international competition and cooperation, commercial banks further deepen their digital transformation, which will help their global business layout and market share increase. By implementing an internationalization strategy, introducing advanced digital concepts and technologies, and combining them with local market characteristics, substantial growth can be achieved. Building a cooperative and win-win ecosystem and participating in the construction of global financial infrastructure is an important trend for future development. Only by actively exploring and innovating in the above-mentioned fields can commercial banks seize the competitive initiative in digital transformation under the new situation of high-level openness.

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