

Development trend and inspiration of digital transformation of commercial banks under the rise of digital economy

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Abstract. The acceleration of digital transformation of commercial banks is an inevitable trend in response to the development of the digital economy, and an important means to integrate into the overall development of the digital economy, deepen financial supply-side reform and cultivate new value growth points in business. Especially under the influence of the new crown epidemic, the traditional economic model has been impacted, which objectively provides opportunities for the development of digital economy. Commercial banks should deeply explore the trend of digital transformation and grasp the relevant opportunities and challenges in order to achieve long-term development in the era of rising digital economy.

Keywords: Digital transformation; Commercial banks; Financial services.

1. Introduction

1.1 Related Concepts

1.1.1 Digital transformation

Scholars have elaborated on the concept and connotation of digital transformation from different perspectives. In a nutshell, the existing studies mainly discuss four aspects: subject, technical scope, transformation area and transformation effect, but the interpretation varies. This paper prefers to agree with the definition of "digital transformation" summarized in the article "Digital Transformation: Literature Review and Research Prospects" by Jae Chee Lee and Tie Lu, which means that "by combining information, computing, communication and connection technologies, the transformation subject's attributes (including but not limited to operation, product, management, business model, production process, etc.) can be transformed. management, business models, production processes, etc.) through the combination of information, computing, communication, and connectivity technologies to achieve significant changes to improve the subject."

1.1.2 Digital transformation of commercial banks

Although digital transformation has become a consensus in the banking industry, there is currently no unified definition of digital banking in the industry, and it is more often described in terms of digital banking characteristics, future shape or digital transformation means, and it is generally believed that digital transformation is a higher stage of bank informatization development. According to the research report "Current Trends and Countermeasures Suggestions of Digital Transformation of Commercial Banks" prepared by the Software Development Center of ICBC, the main views related to the definition of digital transformation of commercial banks are.

Digital transformation is a systemic project. Digital transformation is not a purely technical project, but a systematic redefinition of the bank, including changes in organizational structure, business processes, business models, IT systems, personnel capabilities, etc.

The essence of digital transformation is business transformation. Digital transformation is a means, not an end. The original intention of transformation is to help banks solve problems and create value in order to respond more quickly to market demand and better meet customer needs, and to serve the business development of banks.

Digital transformation has not changed the essence of finance. The core function and essence of finance is to realize the inter-term allocation of resources, i.e. financing and investment. The realization form and expression of investment and financing are changing with the development of time, technology and economy, but the essence of inter-period allocation of resources has not changed.

1.2 Research Background

In recent years, with the rapid development of emerging information technology, information technology and the depth of integration between the development of various industries to promote the national economy gradually produce new growth poles. According to, 2021, China's digital economy development made a new breakthrough, the digital economy scale reached 45.5 trillion yuan, a nominal growth of 16.2% year-on-year, higher than the nominal GDP growth rate of 3.4 percentage points in the same period, accounting for 39.8% of GDP, the digital economy in the national economy's status more solid, more obvious support role. With the rapid development of the digital economy, financial services are mobile, intelligent, ecological and open, and the organizational form of bank operations is being reshaped. Data has become a new factor of production compared with capital, intelligent technology has replaced manual experience as the new core financial competitiveness, and "digital finance" is being developed into an invisible and borderless service that breaks through time and space.

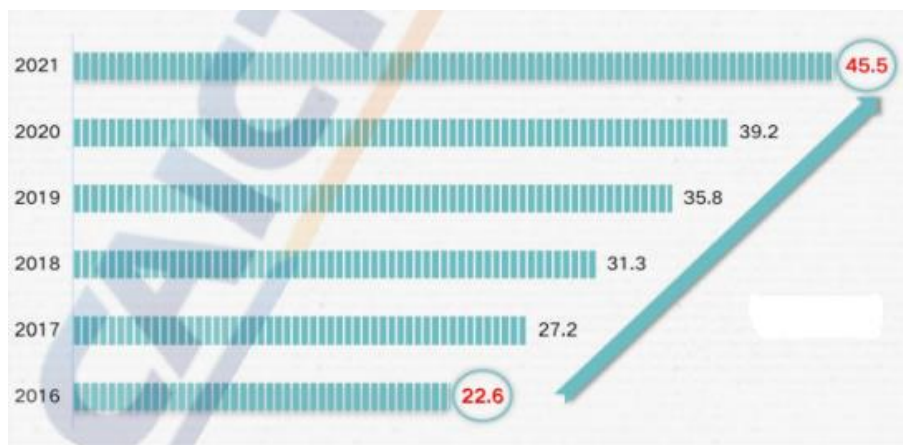


Fig. 1 Scale of China's digital economy (trillions of yuan)

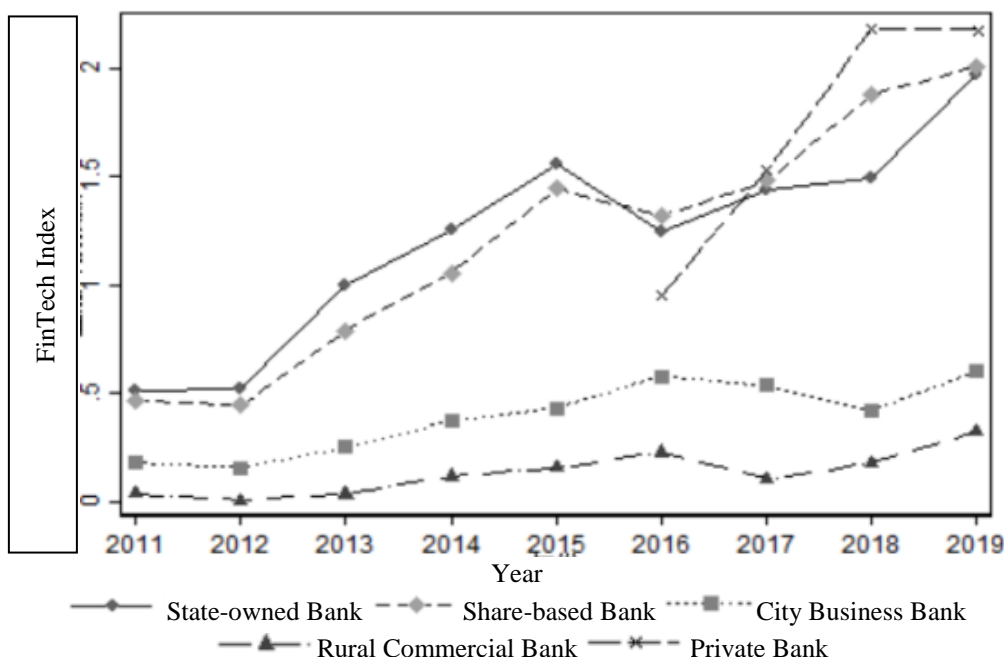


Fig. 2 Change in Fintech Index of Different Types of Banks 2011-2019

In this context, the acceleration of digital transformation of commercial banks is an inevitable trend in response to the development of the digital economy and an important means to integrate into the overall development of the digital economy, deepen financial supply-side reform and cultivate new value growth points in business. Especially under the influence of the new crown epidemic, the traditional economic model has been impacted, which objectively provides opportunities for the development of digital economy. In the post-epidemic era, digitalization has gradually become the main trend of business transformation of commercial banks, and the outline of the 14th Five-Year Plan has clearly accelerated digital transformation and the construction of digital China, of which the financial sector is an important part. How to explore the trend of digital transformation of commercial banks and deal with the opportunities and challenges in the process of transformation is a question that commercial banks need to explore at present.

2. Trends in digital transformation of commercial banks

2.1 Online integration becomes the primary feature of digital finance

The service channel is the first perspective of connecting customers and the first window of contacting customers. According to incomplete statistics, the number of transactions in online channels of banking financial institutions exceeded 300 billion in 2019, and the industry-wide off-counter rate was 89.77%, while ICBC mobile APP users have exceeded 400 million, and the volume of business handled through online channels has exceeded 95%. In recent years, commercial banks have continued to migrate online financial services, by migrating the scenes of offline services to online, using online contacts as the medium and window, and temperature services as the core and features to achieve complementary service advantages. This online and offline integration enables offline capabilities to feed online channels, creating a new digital channel that is both smart, convenient and warm and flexible. Limited by the current AI knowledge base and recognition rate, there is still a bottleneck in service understanding, which cannot fully meet the customer's demand for answering questions and communication; while the pure offline channel has affection and temperature, which is easier to maintain customer stickiness. Many commercial banks in China have created the Customer Manager Cloud Studio, a new digital service window that is deeply integrated with business outlets, online and offline, providing a 24/7, non-contact product marketing window for customer managers, relying on mobile terminals such as mobile banking or WeChat ecology, which can respond to customers' personalized needs in real time, and empowering financial services with the power of technology.

2.2 More efficient and reliable commercial banking services

Commercial banks can rely on the big data platform to build a service system of data services, model services, real-time decision-making services, visualization services, etc. to transform data resources into solid operational capabilities. By embedding data services into business processes, commercial banks can save financing costs and effectively shorten user loan application time. For example, commercial banks integrate industry chain information, connect upstream and downstream commodity flow, information flow and capital flow with each other for authentication, realize the revitalization of industry chain data assets, promote the online of the whole process of closed loop of technical consultation, material purchase, financing settlement and commodity sales, reduce the whole process of loan from 7 to 8 days to the same day release, greatly improve the service efficiency, and provide scientific and technological support for financial services to the real economy. Using big data to develop purely online mode of business or consumer loan business, the cost has been reduced to about 10% of the cost of traditional loans. Applying deep learning technology to business scenarios such as intelligent customer service, remote authorization robots and risk model laboratories, commercial banks can effectively improve their service efficiency. At present, domestic commercial banks' intelligent customer service accounts for two-thirds of the total customer service, and the accuracy rate of Q&A exceeds 95%, which greatly reduces the workload of manual customer service.

Applying blockchain technology to trade finance business scenarios such as asset escrow and forfaiting maximizes the sharing and flow of information in the whole process, solving the information asymmetry between banks and between banks and enterprises in traditional trade finance. It not only ensures the authenticity of financing or credit enhancement information provided by enterprises, but also avoids duplicate financing and reduces financial risks.

2.3 Financial services are more integrated into life scenarios

Commercial banks are responding to the diversified needs of customers, expanding the radius of services, expanding the types of services, packaging and restructuring financial services, embedding them into scenarios, providing customers with richer and more comprehensive "financial +" services, and embedding financial services into various scenarios of life operations. At present, many domestic commercial banks are actively exploring the service mode of life scenario finance, for example, by providing value-added service platform for users to enjoy the opportunity to purchase consumer goods and life services at direct supplier prices. By cooperating with leading Internet companies to build an ecology, commercial banks have realized the connection of multiple life scenarios of food, drink, fun and entertainment, providing customers with "financial + high-frequency life scenario" services.

2.4 More personalized financial services

The core of digital transformation of commercial banks lies in the change of service concept, from "product-centered" of traditional banks to "user-centered" in the digital era, deconstructing and reorganizing the inherent financial products, and on the basis of big data mining insights, carrying out Based on the insight of big data mining, the bank can accurately segment its customer base, realize precise product matching, and finally move towards personalized services for thousands of people. By building CRM platforms, enriching user tagging system, improving user portraits, and using innovative business models such as relationship mapping, virtual community banking, and private domain traffic management, commercial banks can achieve continuous customer relationship maintenance. Through digital transformation, commercial banks can realize real-time perception, analysis and prediction of user needs by focusing on the most direct and real feedback from customers on banking services, continuously mining service touch points, transforming every click, every link and every step, and injecting personalized experience into financial services.

3. Risks of digital transformation of commercial banks

3.1 New changes in traditional banking risks

Digital transformation has not changed the risk attributes of finance. Traditional banking risks still exist. For example, economic downward pressure has increased, effective credit demand is insufficient, and credit risk in some areas may continue to be exposed; the Federal Reserve has accelerated liquidity tightening, financial markets in emerging economies may be impacted, and the pressure on market risk and liquidity risk control may increase.

Digital transformation makes the situation facing commercial banks more complex and volatile. The digital transformation of commercial banks means that the new financial products and business models arising from the cooperation between commercial banks and other financial institutions and fintech companies are relatively more complex, and the market risks are more hidden and unpredictable, which may generate a chain reaction if problems arise. In addition, as network applications will penetrate into various financial scenarios, making the banking system more vulnerable to cyber threats and making data security and privacy protection more difficult.

3.2 Digital Transformation Brings New Risks

The increasing marketization, specialization and refinement of the division of labor in banks in the process of digital transformation has also brought challenges to the development of commercial banks.

First, it makes the competition of commercial banks increasingly fierce. The gap between different banks has widened and small and medium-sized banks are at a greater disadvantage. The differences in digital capabilities of different types of banks are relatively significant.

From the comparison of domestic commercial banks: the average score of self-assessment of digital capability of large state-owned commercial banks is 3.31, and the average score of self-assessment of joint-stock commercial banks is 3.45, and the six categories of areas are relatively balanced overall. The average self-assessment score of urban commercial banks is 2.83, and there is some room for improvement in technological innovation and ecological cooperation. The average self-assessment score of rural commercial banks is 2.49, and there is some room for improvement in technology innovation, data governance and ecological cooperation. The average self-assessment score of new Internet banks is 3.87, and the development of all six categories is relatively mature and balanced overall. The average self-assessment score of private banks (excluding new Internet banks) is 2.99, with room for improvement in all six categories, and weak performance in technology innovation, business process and organizational culture.

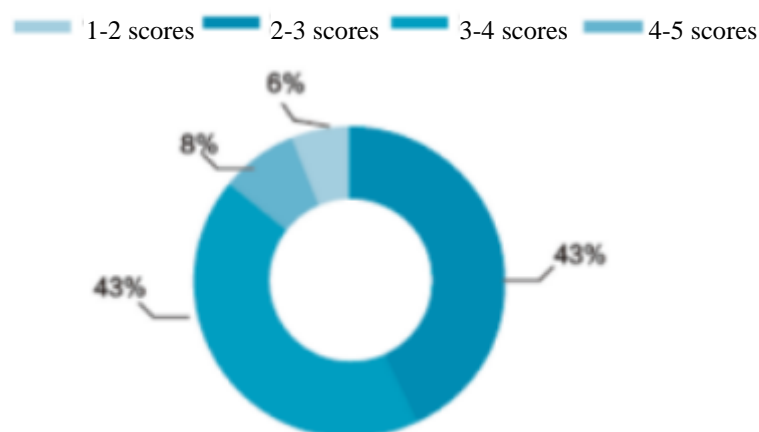


Fig. 3 Overall distribution of self-assessment scores

From the comparison of international commercial banks, the digital transformation of China's commercial banks is basically at the same starting line with the practice of international counterparts, but there are still some gaps between China's commercial banks and leading international banks in terms of financial technology layout, cooperation and opening, technology investment and talent reserve.

Secondly, it makes the boundary between financial attributes and technological attributes blurred. This also means that the legal relationship and liability determination between commercial banks and their partners are more complicated and commercial banks have reputation risks under the condition that the relevant institutional mechanism is not sound enough. In addition, the shortage of composite innovative technical talents, the difficulty of cross-departmental and cross-line collaboration, the difficulty of digital asset management and insufficient data value mining will also become constraints in the process of digital transformation of commercial banks.

Third, it makes part of the specialized division of labor model weakens the credit risk management ability of banks. The ecological cooperation model arising from the digital transformation process may lead some banks to rely excessively on cooperative institutions such as loan assistance and infusion, and banks outsource core aspects such as credit review and risk control, becoming mere providers of lending funds and weakening their own credit risk management capabilities. Take the non-performing loan rate of Chinese commercial banks as an example, in 2013-2021, although the non-performing loan rate of Chinese commercial banks has been alleviated in recent years, but the

overall rising trend is obvious, it is a good reflection of the current problem that Chinese commercial banks have their own credit risk management ability to decline. Not only that, some village banks outsource their online banking systems to third parties due to their small size and imperfect development capabilities, which also causes certain risks. Take the case of Junzheng Zhida Technology Development Co., Ltd. as an example, it used to provide internet banking system services for Henan Village Bank to carry out a series of illegal operations, which made depositors' deposits in the bank impossible to take out and caused a large amount of property loss.

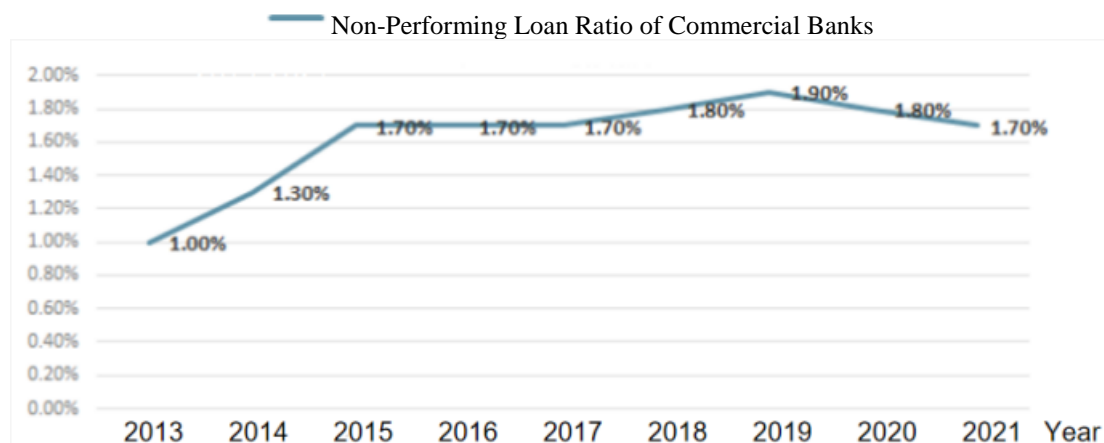


Fig. 4 Non-Performing Loan Ratio of Commercial Banks in China, 2013-2021

4. Suggested strategies for commercial banks to promote digital transformation

4.1 Accelerate the integration of digital concepts into business management

In the digital economy, the financial business model has undergone fundamental changes, with online, mobile and digitalization being very different from the offline model, which inevitably requires corresponding adjustments in the field of production relations to promote greater development of productivity. Productivity and production relations must match and adapt to each other, otherwise they will restrict the better and faster development of productivity.

Digital transformation is a systematic project that runs through financial product design, intelligent operation and value-added services, which requires not only the core support of the technology department, but also the strong transformation leadership of the board of directors and senior management of commercial banks to continuously promote and work for a long time. With the help of financial technology, commercial banks should gradually break the constraints of the traditional banking system architecture and realize the automation, informatization and intelligence of business processes from all aspects of production relations, so as to quickly respond to and adhere to the technology-enabled banking management practices. In particular, it should continue to explore the formation of organizational structure, resource investment, assessment and incentive, business processes, management tools, etc. that are compatible with the development of digital strategy, so that the digital concept and thinking can be truly integrated into the business management of enterprises, so that technology and business can be better integrated, and digital management and digital governance can be deeply cultivated and implemented.

4.2 Promote data to fully exploit the value of asset elements

To promote the real transformation of data elements into data assets, it is necessary to enable data elements to flow, exchange and share, so that data elements, like other elements such as land, manpower, capital and technology, can become productive resources to promote economic and social development. In this process, on the one hand, to strengthen data governance and data management through laws and regulations, data standards; on the other hand, commercial banks should also try to

establish cross-platform, cross-enterprise, cross-domain big data ecology through multi-party secure computing, privacy computing and other technologies to achieve data not out of the domain, available not visible. It is recommended to develop standard specifications; otherwise, without solving the flow, exchange and sharing of data, it is impossible for data to truly become a factor asset.

4.3 Improve the financial infrastructure at the national level

Data and information have become core resources in the era of digital economy, and platforms for collecting, processing, and applying data and information will constitute the core financial infrastructure of society. It is suggested that the government should study and build national and industry-level financial infrastructure such as electronic ID card, fraud blacklist, credit collection system, biometric feature database, and data index standard database, taking into account the development trend of online, mobile and digitalization. On the one hand, it can avoid duplication of investment by commercial banks; on the other hand, it is conducive to regulating the market and enhancing information security capability. At the same time, commercial banks, as financial intermediary hubs and integrators of financial data elements, should also provide adequate financial support and data support for the construction of national-level financial infrastructure.

4.4 Actively promote the layout of financial technology and the cultivation of talents

Leading international commercial banks generally set up digital factories, innovation labs, R&D centers and other organizational forms either by themselves or in cooperation with external companies, or by investing in and acquiring financial technology. While actively controlling risks, we should learn profoundly from the experience of leading international commercial banks, combine "importing" and "going out", set standards related to fintech talents, promote the smooth flow of talents across regions and institutions, and make efforts to build fintech centers in Beijing and Shanghai, where high-level fintech talents are concentrated. In addition, the company has been making efforts to build a platform to attract and gather talents in central cities such as Beijing and Shanghai where high-level financial technology talents are concentrated, and to "create a new mode of cooperation and education such as joint training between schools and enterprises, and collaborative research between industry, academia, research and application", so as to form a strategic pivot point and a pattern of geese.

4.5 Take personalized transformation initiatives

Against the backdrop of the rise of the digital economy, competition among commercial banks is becoming increasingly fierce and the gaps are coming to the fore. Due to the differences in various aspects such as the scale of investment and the situation faced by different commercial banks, different banks develop personalized initiatives according to the actual problems.

According to the 2019 annual result of the Lookout Think Tank, "China Commercial Bank Digital Transformation Development Research Report", based on cluster analysis, banks currently carrying out digital transformation can be divided into four major echelons, with commercial banks in the first echelon belonging to the starting exploration type, commercial banks in the second echelon belonging to the completing short board type, commercial banks in the third echelon belonging to the balanced development type, and commercial banks in the fourth echelon belonging to the overall leading type.

Unlike the third-tier commercial banks whose transformation initiatives focus on optimizing data lifecycle management and the fourth-tier commercial banks whose transformation initiatives focus on consolidating data production models, the first and second-tier commercial banks' transformation initiatives focus on generating data production factors and utilizing data production factors, respectively. Although the commercial banks in the first and second echelons may lack the business advantages brought about by the large investment in fintech like the commercial banks in the third and fourth echelons, they can still leverage the power of third-party fintech companies to improve the cost-effectiveness of fintech to drive the "refinement and beauty" of their business and seize the

opportunities in the rapid development of fintech earlier and faster. In the rapid development of financial technology opportunities.

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