

Exploring the Path of Digital Transformation Empowered by Financial Technology for Traditional Financial Institutions

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Abstract: Deepening digital economic expansion has laid bare chronic operational flaws across traditional finance. Many firms run inefficient daily operations, deliver inconsistent client services, and stick to outdated risk control structures unable to match frequent market changes. Under such circumstances, digital upgrades become a practical choice for these financial players to remove growth barriers and boost overall operating performance. Technologies including artificial intelligence, big data and cloud computing form the core of modern fintech, which supplies essential technical resources to renovate conventional financial services. This paper draws on China's real financial market conditions, with research materials sourced from official regulatory documents, CNNIC statistical releases, listed commercial banks' annual filings and firsthand industry cases. The five-aspect analytical framework it establishes covers technical foundation construction, on-site business promotion, internal institutional adjustment, full-range risk governance and inter-industry partnership. Following a step-by-step logic from basic facility setup, practical business launch, institutional matching rules, risk precaution to industrial ecosystem expansion, the article sets clear work focuses for every single part. Empirical results prove synchronous advancement of all five parts guarantees smooth digital renovation, satisfies development requirements for financial organizations of diverse sizes and drives sustained high-quality growth of China's financial industry.

Keywords: Financial technology, traditional financial institutions, digital transformation, empowerment path, risk control.

1. Introduction

China's digital economy deepens, driving widespread industrial digital transformation. Fintech, the fusion of finance and technology, has grown in scale and quality amid policy support and tech innovation. In 2024, the scale of China's fintech market reached 39.496 billion yuan (RMB), a year-on-year increase of 9.7%. The industry shifted focus from scaling up to tech integration and scenario delivery. Traditional finance is the core of the financial system. With the constant promotion of interest rate marketization and the continuous innovation of Internet finance, the original offline standardized business model has failed to keep up with customers' diversified, convenient, and scene-based service needs. The State Administration of Financial Supervision has issued a special plan in 2025, which clarifies 33 transformation tasks and sets direction and action requirements for the digital upgrading of the industry from the aspects of technological construction, business innovation, and risk control. By the end of 2025, the completion rate of distributed transformation of core systems in the banking industry is expected to exceed 80%, and the industry transformation has achieved phased results. Nearly 30% of small and medium-sized financial institutions still have obvious shortcomings such as insufficient digital investment, scattered application of core technologies, and shortage of interdisciplinary talents. Persistent operational flaws drag on financial firms' digital progress, opening an ever-widening performance gap between market-leading institutions and small-and-medium financial counterparts each year. Most prior academic papers fixate on separate case discussions or single-tech application exploration, whose arguments often lack solid data support while cases get assembled without logical arrangement. Few scholars split research subjects by

institutional scale for differentiated exploration, hence existing results can hardly fit the holistic digital reform of the whole industry [1]. Working from firsthand market realities in China's financial sector, the paper lays out a tiered research framework split into five linked segments: core tech construction, on-the-ground business rollout, internal structural reform, end-to-end risk oversight and cross-partner ecosystem cooperation. The text unpacks how fintech fuels traditional finance's digital shift, plus actionable rules for real-world rollout. Mixing academic reasoning with industry field insights, the study crafts customised rollout plans fitting businesses of different sizes, fixes overlooked gaps from earlier studies and aids steady high-quality expansion of China's domestic finance industry.

2. Technological Base Reconstruction Path: Consolidating the Foundation of Digital Transformation

Robust core technical infrastructure serves as the starting point for established financial firms to carry out digital upgrades. Reliable fintech rollout and efficient routine operations hinge entirely on such foundational setup. Any follow-up business tweaks, internal structural adjustments and risk mechanism upgrades can only advance with mature underlying technical capabilities [2].

The core of digital transformation is to focus on three things: infrastructure upgrading, data resource integration, and independent and controllable core technologies. Domestic banking and insurance institutions have fully launched the distributed transformation of their core systems, with state-owned banks making the fastest progress and most of them completing production and application. Agricultural Bank of China has taken the lead in completing the distributed

transformation of its core system, shutting down the original host, and can stably support over 800 million customers and 1.8 billion personal accounts. The daily transaction peak is nearly 2 billion transactions, and the system availability rate during business hours is as high as 99.99%, laying a solid foundation for the stable operation of all types of financial businesses.

At the level of computing infrastructure, Hengfeng Bank has partnered with China Telecom to lay out a computing network, and will launch the first phase of a hybrid heterogeneous computing platform in 2025 to provide stable computing power for large-scale applications of artificial intelligence and big data technologies; It is planned to increase its computing power to over 100 PFlops by 2026, laying a solid foundation for data governance and technological applications in the future.

Guangxi Rural Commercial United Bank is deeply involved in data governance, building a "lakehouse integration" big data platform, integrating more than 4,500 data tables across the bank, relying on the Guishuyun platform to standardize more than 350,000 data fields, aggregating agricultural data at the provincial, municipal, county, township, and village levels, supporting more than 1300 application scenarios, and truly realizing the transformation of data from decentralized storage to intensive management [3].

Industrial and Commercial Bank of China has independently developed the ICBC Zhiyong enterprise-level financial large model, with full stack technology that is independently controllable, covering more than 20 business areas such as financial markets and credit evaluation, and landing more than 400 practical application scenarios; In credit services alone, it has supported trillion-yuan loan assessments, cutting 35,000 working hours and laying a robust transformation groundwork.

Legacy financial institutions ought not to buy disjointed hardware and software while developing core technical frameworks. Instead, they combine infrastructure, computing resources, data and proprietary technologies into a unified supporting system. The quality of such foundational setups directly affects the steady progress of digital renovation and limits future room for technical expansion. Once groundwork gets properly completed, firms can roll out new services and refine internal management step by step. For this reason, improving foundational technologies guides early-stage digital work and helps traditional financial players fix technical drawbacks for sustained digital development.

3. Business Scenario Innovation Path: Achieving Service Quality and Efficiency Improvement

Firms earn practical gains from digital upgrades via targeted refinement of business modules. Refined modules unlock pre-built foundational infrastructure and translate technical strengths into verifiable service benefits. Established technical frameworks accommodate diversified client demands, and field insights accumulated in implementation inform institutional restructuring alongside iterative risk governance [4]. Service design abandons uniform mass-produced financial goods. Customized offerings eliminate fragmentation between online and offline channels and raise operational efficiency alongside end-user satisfaction.

Rising domestic adoption of digital finance has paved favourable market conditions for scenario innovation. By the end of 2024, China's online payment users surpassed one billion and online insurance penetration reached 78%. Young consumers and residents in underdeveloped county areas keep lifting their demand for digital financial products, compelling traditional financial bodies to design region-specific service layouts. Multiple local banks have put targeted strategies into practice. Guangxi's Sanjiang Rural Commercial Bank concentrates on countryside-focused finance and streamlines farmer credit via digital risk management. Farmers complete full loan applications online without hard-copy documents and get instant fund transfers, effectively solving the long-running troubles of cumbersome formalities and slow lending in rural financing. SPD Bank separates general wealth management from private banking services and designs graded investment schemes matching clients' varied asset scales. Situated near the border, Longzhou Rural Commercial Bank takes advantage of its geographic location, stretches service outlets to border trade bazaars and expands cross-border settlement businesses, earning wide recognition from market participants and industry insiders. Even so, many institutions blindly chase trending projects and overexpand without careful planning during practical operation.

Scenarios should never develop via reckless expansion or blind copy of existing online channels. Every financial institution needs to leverage its unique resources to dig into niche segments and evade vicious homogeneous competition [5]. Business scenarios developed without end-user demands barely generate lasting operating returns. Focus on core client pain points and digital-enabled service expansion delivers viable scenario innovation. In-depth scenario development moves fintech past preliminary trial deployment and unlocks measurable commercial gains. These gains solidify institutional digital restructuring and supply practical guidance for local small-and-medium banks pursuing unique development paths.

4. Organizational Structure Optimization Path: Solving the Problem of Transformation Collaboration

Internal governance reshaping anchors institutional digital upgrading across reform cycles. This work connects the operational experience accumulated from the previous business scenarios and lays the foundation for the improvement of risk control and the co-construction of industry ecology from two dimensions: management system and human resource allocation. Traditional financial institutions in China generally adopt a pyramid-style hierarchical management system. Rigid approval workflows and siloed roles slow internal decisions. The original organizational form is difficult to adapt to the development requirements of digital transformation, such as cross-departmental resource collaboration and rapid market response. Problems such as the separation of business departments and technology departments, and obstacles to the implementation of transformation plans have frequently emerged. Streamlining the internal organizational structure and improving the cultivation system of interdisciplinary fintech talents have become feasible ways to break down internal collaboration barriers [6].

In response to these collaborative issues, the actual

optimization work is mainly promoted from two aspects: organizational flattening reform and talent echelon construction. Shanghai Pudong Development Bank launched a dedicated wealth management unit through restructuring, assigning frontline core staff to lead its work [7]. The organizational restructuring directly affects business operations, and the bank's asset management scale and intermediary business revenue have achieved steady growth. Hengfeng Bank has established a special management team led by senior executives, built a hierarchical agile governance system, broken down communication barriers between business, technology, and data departments, and expanded talent exchange channels through external strategic cooperation. Local rural commercial banks are also exploring educational models in conjunction with regional resources. Guangxi Rural Commercial Bank has partnered with local universities to establish targeted training programs and promote digital competency learning for all staff on a regular basis; Shanghai Pudong Development Bank is synchronously carrying out social talent introduction and internal incubation, relying on the newly established artificial intelligence research center to continuously fill the gap of composite talents.

Corporate structural reform exceeds routine department rearrangement alongside synchronized human capital cultivation. Minor department revisions cannot eradicate persistent coordination inefficiency within financial entities. There are significant differences in the asset size and business track of various financial institutions, and it is difficult to fit their own development reality by simply copying the reform plans of peers. Through systematic organizational optimization, various resources accumulated from the construction of technical foundations and scenario innovation in the early stage can be smoothly transformed into the actual operational capabilities of the institution. Organizational optimization can solve the collaborative problems left by traditional systems, providing supporting support for subsequent risk control upgrades and cross-border ecological cooperation from both institutional and talent perspectives.

5. Risk Management Upgrade Path: Building a Strong Defense Line for Transformation Security

Risk management and control inherits the institutional conditions from organizational structure optimization. The implementation of new technologies and expansion of new business scenarios by institutions may lead to new risks such as data leakage, algorithm failure, and illegal operations. Doing a good job in risk control construction can also clarify compliance standards, facilitating institutions to carry out cross-border ecological cooperation in the future. This work is responsible for overall security in digital transformation. Institutions rely on digital means to expand their business scope, and while various intelligent tools improve service efficiency, they also increase the probability of risk occurrence. Building technology risk control systems for various financial institutions has become a necessary task for its digital shift.

Based on the characteristics of their own customer base, different institutions implement differentiated risk control solutions. Huaxia Bank boasts a large corporate credit portfolio, with lengthy, fragmented due diligence processes. The bank integrates external data from industry and

commerce, taxation, and other sources, and uses various AI tools to reduce the time for customer due diligence. The bank synchronously optimizes the risk control logic and upgrades the traditional post-disposal mode to pre-risk warning. Looking at the insurance industry, malicious insurance fraud often occurs in auto insurance and health insurance. The industry generally uses AI anti-fraud models, which can significantly reduce the financial losses caused by fraud [8]. China Construction Bank has a large number of personal credit users, and manual risk control is insufficient to cover all users. Therefore, the Tianyan Risk Control System was launched, which covers most personal credit businesses and significantly controls credit card related fraud risks [9]. County-level agricultural loans are fragmented, with scattered borrower information. Guangxi Rural Commercial United Bank integrates multi-channel business data, builds a coherent risk control process before, during, and after loans, and intercepts multiple false loan applications after the system goes online.

Establishing a risk control system for institutions cannot solely focus on the implementation of software systems. Staff need to synchronously improve data management rules and clarify the risk control responsibilities of each position. Each institution has its own main products and data reserves, and the risk control framework needs to be designed according to its actual business. Strong risk control defuses digital expansion risks, locking in gains from tech upgrades, scenario building and organizational tweaks.

6. Ecological Collaborative Construction Path: Expanding the Space for Transformation and Development

Ecological collaboration is a key link in the outward extension of digital transformation. Based on field research on multiple rural commercial banks and joint-stock banks, all such external cooperation projects are built on four internal construction achievements: technological foundation, scenario innovation, organizational optimization, and risk control upgrade. Only when the internal management system, technical conditions, and risk control rules are well polished can financial institutions have the ability to break out of the inherent framework of single point operation, rely on financial technology to connect with technology manufacturers, cross-border industry alliances, and local agricultural platforms, break through various obstacles to resource circulation between industries, and build a multi-party resource complementary financial symbiotic system. At its core, the first four steps build internal strength. Ecological collaboration then translates this strength into marketable partnership edges [10].

The ideas of various institutions in implementing ecological projects are mostly in line with their own resource shortcomings and regional development characteristics. Hengfeng Bank's own computing power resources cannot support the full range of digital research and development. Therefore, it partners with China Telecom to advance computing infrastructure and financial innovation, exchanging customer channels and technical resources to customize special credit products around the telecommunications upstream and downstream industry chain. Located at the border of ASEAN, Guangxi Rural Commercial United Bank has chosen to join the Cross-border Financial

Cooperation Alliance, relying on the alliance's shared resources to launch practical functions such as cross-border intelligent settlement and multilingual online customer service. County-level research shows fragmented, hard-to-monetize rural assets have long limited farmers' access to funds. Beiliu Rural Credit Union has taken the opportunity to connect with local property rights trading platforms, build an online property rights service system covering towns and villages, and activate dormant assets such as forest rights and land management rights [11].

Yet many small financial institutions are eager to expand cooperation and blindly cross boundaries, which is a common business problem in the industry. Ecological cooperation that deviates from its main business track can easily breed uncontrollable business risks. The technological reserves, operational experience, and risk control capabilities accumulated through internal digitization are always the prerequisite for the stable operation of the external ecosystem. Based on the completed four-level internal renovation and cross-border cooperation, it can not only activate existing customers and idle resources, but also explore emerging markets that were previously inaccessible. After the mature ecological layout, financial institutions can break away from a single deposit and loan business, further enrich the profit model of digital transformation, and broaden the development space.

7. Conclusion

As the digital economy permeates real industries, finance's operating model shifts dramatically. The application of financial technology has become a feasible direction for traditional institutions to break through operational bottlenecks. Such transformation practices also comply with the regulatory requirements of domestic financial supervision. Drawing on data and cases from Chinese commercial banks of all sizes, this paper breaks down five key digital transformation steps. The five major construction stages follow the development law from internal foundation building to external business expansion. The establishment of the underlying technical framework is a prerequisite for subsequent reforms. The transformation of service scenarios from technology to terminal services is completed, organizational system optimization is carried out to clear internal collaboration bottlenecks, intelligent risk control is adopted to prevent digital-derived risks, and cross-border ecological cooperation relies on previous achievements to explore new business spaces. These five contents form a closed-loop digital transformation implementation path.

According to industry research results, top domestic banks have achieved remarkable results in digital construction with their advantages in capital and talent. Even so, small rural commercial banks often hit roadblocks in transformation. Limited funding, shallow application of cutting-edge technologies, and insufficient interdisciplinary talents are common challenges that constrain the transformation and acceleration of small and medium-sized institutions. Due to limitations in research samples and time, this article did not delve into the pain points of transformation for small and

medium-sized institutions, which is an objective deficiency of this study.

Financial entities located in different locations cannot simply copy the existing digital solutions of top banks. Relevant practitioners can refer to the hierarchical transformation approach proposed in this article, make up for their shortcomings based on their own resources, strictly adhere to the bottom line of risk control, promote the integration of technology and main business, and rely on characteristic transformation to enhance business strength. These practical insights support the industry's high-quality growth and inform future studies.

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