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Transforming to Digitalization of Financial Management in Selected Banking Industry in Jinan, Shandong Province, China

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Abstract: This study aims to explore the relationship between the driving factors, implementation measures, and effects of financial management digital transformation in the banking industry in Jinan, Shandong Province, China. Faced with intense competition driven by advancements in financial technology, evolving customer demands, and policy support, digital transformation has become a critical strategy for enhancing operational efficiency and market competitiveness. Leveraging the researcher's extensive professional experience and employing scientific research methods and tools, the study conducted an online survey across multiple banking institutions in Jinan, collecting 305 valid responses from senior management, financial department heads, IT personnel, middle management, and financial and audit staff. The questionnaire was designed around key dimensions of financial management digital transformation, including driving factors, implementation measures, and effect evaluation, covering variables such as technology adoption, process optimization, employee training, data security, and organizational adjustments. Quantitative analysis methods, including reliability analysis, validity analysis, descriptive analysis, regression analysis, and chi-square independence tests, were used to ensure data quality and uncover inherent patterns. The findings reveal significant relationships between driving factors (e.g., financial technology advancements, market demand, and policy support) and transformation effects (e.g., operational efficiency, resource allocation, and customer experience), with notable differences in implementation outcomes across different types of banks. Based on these insights, the study provides strategic recommendations for optimizing digital transformation in Jinan's banking industry, aiming to enhance operational efficiency, improve financial service quality, and support sustainable industry development.

Keywords: Jinan banking industry; Financial management digital transformation; Driving factors; Implementation measures; Transformation effects

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1. Introduction

1.1. Research background

The rapid growth of the global digital economy has driven unprecedented transformation in the field of financial management in the banking sector, particularly in Jinan, a key hub of China's digital economy. Faced with increasing market complexity and efficiency demands, traditional financial management models can no longer meet current needs, prompting banks to adopt advanced technologies such as artificial intelligence, big data, and blockchain to enhance operational efficiency, optimize processes, and improve customer experience. Despite strong policy support and market demand, challenges such as outdated systems, skill gaps, integration issues, and data security concerns hinder progress [1]. This study explores the digital transformation of financial management in Jinan's banking sector, analyzing its current status, challenges, and strategies, aiming to provide valuable insights for banking institutions, policymakers, fintech companies, and researchers to promote sustainable development in the financial industry.

1.2. Research purpose

This study aims to explore the relationship between the driving factors, implementation measures, and effects of digital transformation in the financial management of the banking sector in Jinan, Shandong Province, China, and to propose strategic recommendations for optimizing digital transformation. By deeply analyzing the key factors of digital transformation, this study provides specific implementation paths and strategies for banks to maintain a leading position in the fiercely competitive market [2].

1.3. Research significance

By thoroughly analyzing the current status and challenges of digital transformation in Jinan's banking sector, this study not only provides strategic guidance for banking institutions but also offers rich case data and empirical analysis for policymakers, fintech companies, and academia, promoting the industry's shift toward digitalization and intelligence [3]. Additionally, this study serves as a reference for digital transformation in banking sectors in other regions, offering broad practical and theoretical value.

2. Literature review

2.1. Theoretical foundation

This study is based on transaction cost theory, strategic management theory, and synergy theory to explore the driving factors, implementation measures, and effects of digital transformation. The transaction cost theory explains how digital transformation reduces transaction and internal regulatory costs, the strategic management theory emphasizes the importance of market positioning, resource allocation, and technological innovation in digital transformation, and the synergy theory further analyzes the interactions and synergistic effects among different factors [4].

2.2. Conceptual framework

Guided by the theories and concepts stated above, the study was guided by the research paradigm below. The core of this study is to explore the driving factors, implementation measures, and the relationship between the digital transformation of financial management in the banking industry and the transformation effects [5]. The research aims to comprehensively analyze and empirically verify these factors, reveal their interrelationships and overall impact on the transformation of the banking industry, and provide an optimized digital transformation strategic framework for the banking industry.

The input information includes: Respondents' age, sex, job position, years of experience, and educational attainment; Evaluation variables for digital transformation (e.g., driving factors, implementation measures,

impacts); Challenge factors for digital transformation (e.g., technology integration, data security risks, employee adaptability), etc.

Process analysis involves collecting data from respondents, analyzing the evaluation of digital transformation and its relationship with demographic information, assessing the challenges faced in digital transformation, testing the significance of the relationship between digital transformation and its challenge factors, and building an optimization model based on findings.

The output includes: Demographic profile report; Digital transformation evaluation and significance difference report; Strategic model for optimizing the digital transformation of financial management in Jinan Bank (**Figure 1**.)

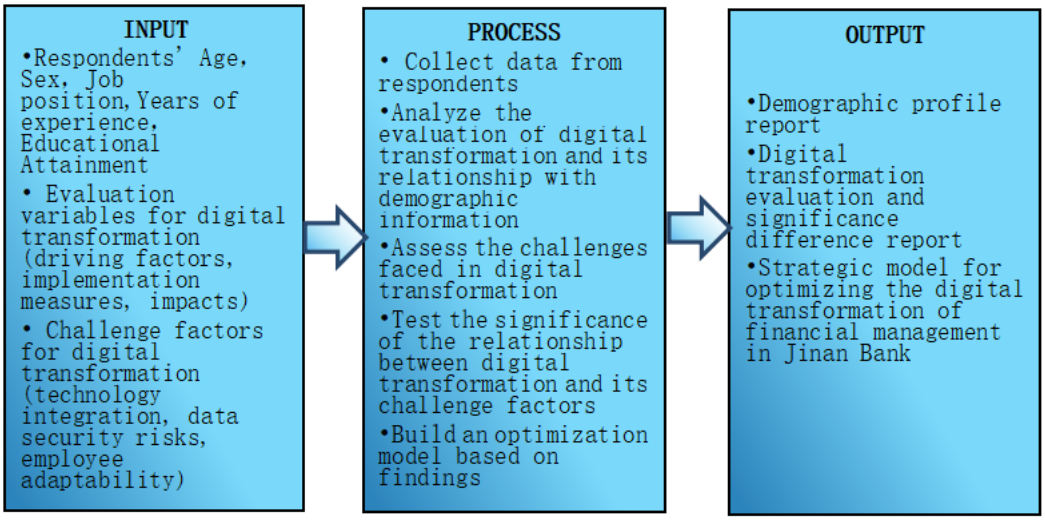

Figure 1. Framework for evaluating and optimizing digital transformation in financial management

2.3. Driving factors

The main driving factors for digital transformation in the banking sector include advancements in financial technology, customer demands, policy support, market competition pressure, and technological progress [6]. The application of technologies such as artificial intelligence, big data, and blockchain has enhanced efficiency and risk management in banking, while customer demands for convenience and personalized services, government policy support, and the rise of fintech companies have accelerated this process [7]. Specifically, advancements in fintech enable banks to improve operational efficiency through automated tools and intelligent systems, diversified customer demands drive banks to offer more personalized and convenient services, policy support provides banks with funding and innovation momentum, market competition pressure forces banks to continuously optimize their business processes and service models, and technological progress offers more opportunities for innovation [8].

2.4. Implementation measures

Implementation measures for digital transformation include technology adoption (e.g., deep integration of artificial intelligence, big data analytics, and blockchain), process optimization (e.g., improving business process efficiency through automation tools), employee training (e.g., enhancing employees' digital skills and technical application capabilities), data security (e.g., establishing robust data encryption mechanisms and cybersecurity protection systems), and organizational adjustments (e.g., optimizing organizational structures to meet digital demands) [9]. Technology adoption is the core of digital transformation, as banks need to introduce advanced technologies to enhance their business capabilities and competitiveness. Process optimization reduces manual operations

and improves the speed and accuracy of business processing through automation tools and intelligent systems. Employee training is crucial for the success of digital transformation, as banks need to systematically enhance employees' digital literacy and technical application capabilities [10]. Data security is the foundation of digital transformation, requiring banks to establish comprehensive data protection mechanisms to ensure the security of customer information and transaction data. Organizational adjustments are necessary to meet the demands of digital transformation, enabling banks to improve overall operational efficiency by optimizing organizational structures and business processes [11].

2.5. Transformation effects

Digital transformation has significantly improved operational efficiency and resource allocation rationality, enhanced customer experience and service quality, and reduced operational costs, achieving refined management. Through digital transformation, banks can process business more efficiently, reduce human errors, and shorten processing times, thereby improving overall operational efficiency [12]. Optimizing resource allocation allows banks to more accurately identify high-value customers and potential risk points, offering more personalized financial products and services. Enhanced customer experience is achieved through digital channels and personalized services, enabling customers to conduct transactions and manage accounts anytime, anywhere via mobile and online platforms [13]. Cost control is optimized through automated systems and intelligent tools, reducing labor costs and operational risks, thereby achieving refined management.

3. Research methodology

3.1. Research design

This study adopts a quantitative research method, collecting data through questionnaires. The research subjects are 305 employees from major banks in Jinan, including senior managers, financial department heads, IT personnel, and middle managers. Through the questionnaire survey, this study comprehensively understands the current status, challenges, and effects of digital transformation in the banking sector, providing data support for subsequent analysis [14].

3.2. Data collection and analysis

Data were collected through online questionnaires and analyzed using SPSS software. Descriptive statistics, correlation analysis, and regression analysis were used to verify the relationships between driving factors, implementation measures, and transformation effects [15]. Descriptive statistics summarized respondents' basic information and evaluations of digital transformation, correlation analysis explored the relationships between different variables, and regression analysis verified the impact of driving factors and implementation measures on transformation effects [16].

4. Results and discussion

4.1. Demographic profile of respondents

Most respondents were aged 35–44 (28.85%), with females accounting for 54.75%. Senior managers made up 27.87%, and most respondents had over 10 years of work experience (25.25%) and a financial management background (61.31%). These results indicate that the employee structure in Jinan's banking sector is relatively young and experienced, providing a solid foundation for digital transformation.

4.2. Evaluation of digital transformation

Technological advancements and market competition were the main driving factors, with an overall weighted average of 3.94 (high). Data security received the highest score (4.21), with an overall weighted average of 4.16 (high). Resource allocation and cost control scored the highest (4.17), with an overall weighted average of 4.13 (high). These results indicate that technological advancements and market competition are the primary drivers of digital transformation, while data security and cost control are key focus areas for banks.

4.3. Challenges of digital transformation

The high cost of technology integration was the main obstacle, with an overall weighted average of 4.21 (very high). Transparency and minimizing errors in data security risks were major issues, with an overall weighted average of 4.32 (very high). Employee adaptability, participation, and transparency were critical, with an overall weighted average of 4.16 (high). These results indicate that technology integration and data security are the main challenges in digital transformation, while employee adaptability is a key factor affecting transformation outcomes.

4.4. Demographic differences

Respondents aged 25–34 had higher evaluations of transformation effects, male respondents' evaluations were higher than females', senior managers' evaluations were higher than other groups, respondents with 1–3 years of work experience had higher evaluations, and respondents with IT-related backgrounds had higher evaluations. These results indicate significant differences in evaluations of digital transformation among employees of different ages, genders, positions, and work experiences, suggesting that banks need to develop differentiated transformation strategies based on employee characteristics.

4.5. Relationship between digital transformation and challenges

Technology integration, data security risks, and employee adaptability showed significant positive correlations with digital transformation, which are 0.89, 0.78, and 0.52, respectively. These results indicate that technology integration and data security are key factors affecting digital transformation outcomes, while employee adaptability is crucial for ensuring successful transformation.

5. Strategic plan for digital transformation

5.1. Strategic goals

The strategic goals of digital transformation include ensuring continuous updates and optimization of digital systems, improving operational efficiency through technology integration and process optimization, and enhancing customer experience through personalized services and digital channels [12]. Banks need to continuously innovate and optimize processes to enhance their business capabilities and competitiveness while improving customer experience through personalized services and digital channels to maintain a leading position in the competitive market [17].

5.2. Key measures

Key measures include adopting advanced technologies such as artificial intelligence, big data, and blockchain, optimizing business processes through automation tools, strengthening employee training in digital skills, establishing robust data encryption and cybersecurity protection systems, and optimizing organizational structures to meet digital transformation demands [18]. Banks need to adopt advanced technologies and optimize business

processes to enhance their operational capabilities and efficiency while ensuring successful digital transformation through employee training and organizational optimization.

6. Conclusion and recommendations

6.1. Research conclusion

Advancements in financial technology, customer demands, policy support, and market competition are the main driving factors of digital transformation. Technology adoption, process optimization, employee training, and data security are key to successful transformation. Digital transformation has significantly improved operational efficiency, customer experience, and cost control, but technology integration, data security risks, and employee adaptability remain major challenges [19].

6.2. Recommendations

To ensure the success of digital transformation, banks should maintain gender balance, value feedback from frontline employees, strengthen data security, optimize organizational structures, and maintain industry leadership through technological and business model innovation [20]. Banks need to continuously innovate and optimize processes to enhance their business capabilities and competitiveness while ensuring successful digital transformation through employee training and organizational optimization.

Disclosure statement

The author declares no conflict of interest.

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