

The Path of Breakthrough for Retail Enterprises in the Digital Wave—Reconstructive Power of Digitalization on Operational Performance from the Perspective of T Company’s Transformation

Min Jia, Zhipeng Cao

School of Economics and Management, Shaanxi University of Science & Technology, Xi’an, China

Email: 18292829649@163.com

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Abstract

With the deep integration of digital technologies such as big data, artificial intelligence, and the Internet of Things with the retail industry, the competitive landscape of the retail market has undergone profound changes. The traditional retail model relying on offline physical stores and extensive management is increasingly facing challenges such as slow market response, low operational efficiency, and difficulty in meeting consumers’ personalized needs. Focusing on the retail industry, as an important part of the national economy, it is facing unprecedented challenges and opportunities. On the one hand, e-commerce giants continue to expand their business areas and accelerate market penetration with their strong technical strength, rich operational experience, and large user base; on the other hand, emerging new retail enterprises bring consumers a brand-new shopping experience by integrating online and offline resources and innovating business models, further intensifying the fierce market competition. In addition, international retail enterprises have also laid out their strategies in the Chinese market one after another, competing with domestic enterprises with their advanced management concepts and mature operational models, making the competitive landscape of the domestic retail market more complex. Digital transformation has evolved from a strategic choice to a survival necessity for traditional retail enterprises. The research finds that the digital transformation of retail enterprises is jointly driven by three-dimensional factors: policy guidance and market competition, the demand for reconstructing the “person-goods-scene” model, and the internal motivation to pursue efficiency improvement and value creation. Digitalization exerts a comprehensive

and in-depth impact on operational performance through three interlocking core paths: precise cost control, diversified revenue growth, and agile risk response. Through literature review, case analysis, and data verification, this paper analyzes the transformation path of T Retail Company, a leading enterprise in China's retail industry with a development history of more than 30 years, and explores the driving forces, core paths, and universal strategies of digital transformation in the retail industry.

Keywords

Retail Enterprises, Digital Transformation, Operational Performance, Driving Forces, Implementation Paths

1. Introduction

In the wave of global economic digitalization, China has actively seized opportunities and elevated the development of the digital economy to a national strategic height. From the "14th Five-Year Plan" clearly proposing to accelerate digital development to the issuance of the "Overall Layout Plan for Building a Digital China", a series of policy measures have pointed out the direction for the development of the digital economy. Under the strong guidance of policies, the development of China's digital economy has shown vigorous vitality, not only nurturing many emerging industrial forms and business models, but also injecting new strong momentum into the transformation and upgrading of traditional industries.

As an outstanding enterprise in the industry, T Retail Listed Company keenly captured the trend as early as 2012 and resolutely embarked on the path of digital transformation. The company combines data assets with artificial intelligence technology to carry out refined operation and management, and has built a "APP + Mini Program + Third-Party Platform" trinity omni-channel sales network, breaking the constraints of time and space, realizing the deep integration of online and offline, and providing consumers with a seamless shopping experience. In terms of operation and management, T Company has given full play to the advantages of digital technology. Through the intelligent scheduling system, the labor cost has been effectively reduced by 15%; with the help of the flexible supply chain replenishment system, using big data analysis and prediction technology to accurately grasp market demand, the inventory turnover days have been shortened by 20%, greatly improving the operational efficiency of the supply chain. At the same time, the enterprise has realized the full-process digitalization from supplier management, procurement, inventory management to sales and distribution, enhancing the transparency and controllability of the supply chain; it has also upgraded the membership system, established a complete member portrait by collecting and analyzing members' consumption behaviors, preferences and other data, realized precise marketing and personalized services, formed a closed-

loop ecology of “data collection-demand prediction-precise reach”, and effectively improved customer satisfaction and loyalty.

Today, the digital transformation of T Retail Listed Company has entered a critical period. The performance changes brought about by its transformation practice provide a vivid example for verifying the theoretical transmission mechanism of “digital resources-capability building-performance improvement”. In-depth research on T Company not only helps to reveal the inherent laws and successful experiences of the digital transformation of retail enterprises, but also provides useful reference for other traditional retail enterprises to realize transformation and upgrading in the digital wave.

2. Inevitable Trend of the Times: Three Major Driving Forces for the Digital Transformation of Retail Enterprises

According to authoritative data from the China Academy of Information and Communications Technology, the scale of China’s digital economy exceeded 53.9 trillion yuan in 2023, accounting for nearly 40% of the total GDP ; in 2024, the development momentum of China’s digital economy was more rapid, with the total data production increasing by 25% year-on-year, demonstrating the strong vitality of digital elements as the core means of production; the added value of the core industries of the digital economy accounted for about 10% of GDP, further consolidating the pillar status of the digital economy in the national economy. Therefore, the digital transformation of the retail industry is by no means an isolated technical attempt, but an inevitable result of the joint action of multiple internal and external factors under the tide of the times, and a systematic project involving technology, management, business, and culture. For traditional retail enterprises, digital transformation is not only a “self-rescue” measure to cope with market competition, but also a strategic choice to enhance core competitiveness and achieve sustainable development.

2.1. External Environment: Policy Guidance and Market Competition

At the policy level, China’s “14th Five-Year Plan” clearly proposes to accelerate digital development, and the “Overall Layout Plan for Building a Digital China” points out the direction for the integration of digital technology and the real economy, bringing continuous policy dividends for the digital transformation of retail enterprises. Local governments have further refined supporting measures: for example, the Shaanxi Provincial Government issued the “Several Measures for Promoting the Digital Transformation of the Commercial and Circulation Industry”, providing a maximum 30% financial subsidy for retail enterprises to build intelligent logistics systems and online sales platforms, and implementing tax incentives for investment in digital technology research and development, effectively reducing the transformation cost of enterprises. At the market competition level, the

competitive landscape is becoming increasingly fierce: e-commerce giants such as Alibaba, JD.com, and Pinduoduo are accelerating channel sinking. In 2023, China's online retail sales of physical goods reached 12.4 trillion yuan, accounting for 27.6% of the total retail sales of consumer goods; new retail enterprises such as Hema Fresh and Missfresh have innovated consumption scenarios with "online ordering + offline instant delivery"; international brands such as Walmart and Carrefour have strengthened their localized layout with advanced digital management experience. The traditional "price war" model is unsustainable, and competition has shifted to "efficiency war" and "experience war". Traditional retail enterprises will face the risk of being eliminated if they do not carry out digital transformation. As a comprehensive enterprise mainly engaged in retail business, T Company covers multiple formats such as shopping malls, department stores, and supermarkets, with offline stores nationwide, focusing on the mass consumer group. As early as 2012, it keenly captured the rising trend of e-commerce, took the lead in launching the construction of official website and mobile APP, built a B-end digital supply chain, and landed the large customer business without stores in the southwest region. The physical group purchase increased by 15% year-on-year, forming an omni-channel operation model of "offline entity + online home delivery + ToB service". It not only resisted the impact of online channels, but also laid the foundation for the subsequent integration of omni-channels.

2.2. Industry Characteristics: Demand for Reconstructing the "Person-Goods-Scene" Model

"Person-goods-scene" is a classic theoretical framework in the retail industry, where "person" refers to consumers and consumer demand, "goods" refers to commodity supply and supply chain system, and "scene" refers to consumption scenarios and channel forms. This framework is the core theoretical basis for analyzing the evolution of retail formats and value creation. With the upgrading of consumption, consumers' demands show distinct personalized and fragmented characteristics: young consumers pursue unique and fashionable products, while middle-aged and elderly groups pay attention to quality and practicality. The popularization of mobile Internet has made shopping behaviors more fragmented. Consumers are easily influenced by social media, user reviews, live streaming recommendations, etc., and are no longer satisfied with single offline shopping, but pursue seamless experiences such as "online ordering + offline self-pickup" and "live streaming seeding + in-store experience". At the same time, the surge in commodity types and fluctuations in market demand have put forward higher requirements for the flexibility of the supply chain. The traditional "stockpiling" display and "experience-based" replenishment models often lead to inventory backlogs or out-of-stock problems. Digital transformation effectively solves these pain points: T Company has built a data middle platform, collected members' consumption behaviors including browsing records, purchase frequency, preference labels and other data, drawn accurate user portraits, and realized "thousands

of people, thousands of faces” personalized recommendations; its big data-driven flexible supply chain replenishment system has a market demand prediction accuracy rate of over 85%, inventory turnover days shortened by 20%, and commodity turnover efficiency significantly improved.

2.3. Internal Motivation: Pursuit of Efficiency Improvement and Value Creation

According to the dynamic capability theory, enterprises need to continuously integrate and restructure resources to adapt to environmental changes (Chen, 2023). As an effective tool for resource integration, digital technology can help retail enterprises improve operational efficiency and create more value. The 2024 financial report shows that supermarkets achieved a year-on-year increase of 48% in sales of large single products and 11% in sales of private brands through digital supply chains. At the same time, in the first three quarters of 2024, sales expenses decreased by about 150 million yuan and financial expenses decreased by about 100 million yuan. The optimization of supply chains and the improvement of marketing accuracy brought by digitalization have effectively reduced operational and financial costs. In the early days, T Company was troubled by high labor costs and serious inventory backlogs. Through digital transformation, it realized precise management of human resources and supply chains: the intelligent scheduling system reduced labor costs by 15%, and the omni-channel sales network broke the constraints of time and space, doubling sales within five years of transformation. These remarkable results of cost reduction and efficiency improvement verify that digital transformation is an important path for retail enterprises to enhance core competitiveness, and also confirm the assertion in the resource-based view that “data assets are core competitiveness” (Zhang & Xia, 2024).

3. Logical Deconstruction: Three Core Paths of Digitalization Affecting Operational Performance

The impact of digitalization on the operational performance of retail enterprises is not a simple linear relationship of “technology investment → performance improvement”, but forms an interlocking value creation cycle through three paths: cost control, revenue growth, and risk response. These three paths show a clear implementation logic in T Company’s transformation practice.

3.1. Cost Control: Achieving Precise Cost Reduction

Traditional retail cost control is mostly extensive, such as simply cutting procurement costs or reducing labor input, which may easily lead to a decline in service quality or supply chain instability. Digitalization enables retail enterprises to achieve precise cost optimization throughout the entire operation process: the intelligent scheduling system built by T Company dynamically adjusts employee scheduling and job responsibilities based on real-time collected in-store customer flow, sales data, and external variables such as weather and holidays, which not

only avoids customer loss caused by labor shortages during peak hours, but also eliminates labor waste during low periods. Behind the 15% reduction in labor costs is the in-depth excavation and refined management of “labor efficiency” through data. On the supply chain side, the Internet of Things technology is used to realize end-to-end visual tracking of commodities from procurement, warehousing to distribution. Combined with big data’s accurate prediction of consumption trends and regional demand differences, intelligent replenishment and precise marketing reduce inventory backlogs and invalid marketing expenses. The inventory turnover days are shortened by 20%, and the inventory of unsalable commodities is reduced by 30%, significantly reducing hidden costs such as warehousing rent and interest on fund occupation. In 2024, sales expenses and financial expenses decreased significantly, making the enterprise’s cash flow healthier. This “data-driven cost optimization” abandons the traditional “one-size-fits-all” cost reduction model and has both sustainability and flexibility.

3.2. Revenue Growth: Reconstructing the Growth Model

Traditional retail is highly dependent on offline store customer flow, and revenue growth is limited by geographical location and the ceiling of business district traffic. Digitalization has completely broken the spatial constraints and empowered growth: T Company has built an omni-channel sales matrix of “APP + Mini Program + Third-Party Platform”, integrated online and offline member data, transaction data, and service data, and the proportion of online traffic has jumped from less than 5% in 2012 to 42% in 2024; by analyzing user portraits such as consumption preferences, purchase frequency, and decision-making paths, it carries out targeted marketing activities, and the conversion rate of promotional activities has increased from 8% to 22%; the upgraded membership system enhances customer stickiness through personalized services such as point redemption, exclusive rights and interests, and birthday benefits, with a member repurchase rate of 65%, much higher than the industry average of 35% (Cachero-MarGínez & Vázquez-Casielles, 2021). According to the 2024 annual report, 19 key stores in the department store business contributed 10.6 billion yuan in sales, accounting for 31%; the shopping mall introduced 217 high-end brands, with sales increasing by 5.52% year-on-year; the department store format has transformed into a community life center, and the customer flow of some stores has increased significantly. The supermarket business launched 3.0 version stores, creating nine major life-themed pavilions; developed 50 people’s livelihood/quality large single products, with sales increasing by 48% year-on-year, and private brand sales increasing by 11%. The online GMV of omni-channel operations reached 5.44 billion yuan, with more than 50.99 million digital members, an increase of 8.3% year-on-year, and the number of home delivery orders increased by 2.3%. As stated in the value chain theory, digitalization runs through the entire retail link from product selection, marketing touchpoints to after-sales service, and ultimately realizes the maximization of customer lifetime value (Song, Song, & Shi, 2023).

3.3. Risk Response: Enhancing Agile Response Capability

The retail industry faces multiple complex risks such as fluctuations in raw material prices, logistics disruptions, sudden changes in consumption trends, and public health incidents. Digitalization significantly improves enterprises' risk prediction and response capabilities through data empowerment: T Company uses big data to analyze market public opinion, changes in consumer behavior, and industry policy trends, accurately predicts the growth trend of demand for healthy food three months in advance, and timely adjusts procurement plans and commodity displays, achieving contrarian growth when peers face inventory backlogs; during special periods, the intelligent supply chain system quickly completes cross-regional inventory allocation by real-time monitoring the inventory level of each region and the smoothness of logistics channels, controlling the commodity out-of-stock rate within 3%, much lower than the industry average of 10%, effectively maintaining brand reputation and customer loyalty. This "data-empowered risk resistance capability" enables enterprises to maintain operational stability in uncertainty and becomes a key support for surviving economic cycles (Billi & Bernardo, 2025).

4. Experience and Insights: Universal Strategies for the Digital Transformation of Retail Enterprises

T Company's successful practice provides valuable experience for the digital transformation of the retail industry, and its core strategies have strong universality, providing actionable guidance for peers seeking breakthroughs. It should be supplemented that according to the company's financial report, the proportion of online revenue has steadily increased year by year from 14.9% in 2018 to 46.2% in 2024. The digital service platform launched in 2021 serves more than 3,000 external merchants, and external services have opened up new profit growth points. At the same time, the total expenses decreased by 5.39% year-on-year, showing remarkable results in cost reduction and control. In the current environment of weak consumption market in the retail industry, intensified industry competition, and great pressure on online business growth, coupled with the impact of the base of non-recurring gains from closing loss-making stores last year, T Company's overall net profit declined in 2024, which also reflects the dual hedging effect of initial digital investment costs and weak market consumption. However, its long-term positive supporting effect on operational performance is significant. In addition, it is undeniable that T Company's growth achievements are not only driven by digital transformation, but also benefited from external factors such as the growth of the regional consumer market scale and the merger and integration of local small and medium-sized retail enterprises. Digital transformation has amplified the growth effect under the superposition of multiple factors.

4.1. Building a "Trinity" Data Middle Platform

Data is the core asset of digital transformation, but traditional retail enterprises

often face the problem of “data silos”, with data scattered in various departments. The “trinity” data middle platform refers to a unified data management platform integrating data collection layer, data governance layer, and data application layer: the collection layer realizes real-time access and collection of omni-channel data through online APPs and mini programs, offline store POS systems, and supply chain logistics systems; the governance layer completes data cleaning, standardization, and correlation analysis to break departmental data barriers; the application layer outputs decision support for business scenarios, such as intelligent replenishment and precise marketing. In the early days, T Company was also deeply troubled by “data silos”—online and offline sales data, member information, and supply chain records were not connected, seriously affecting decision-making efficiency. In 2020, it built the above-mentioned “trinity” data middle platform, integrating omni-channel data of more than 100 million data points per day, including consumer behavior, commodity sales, and supply chain status, providing support for accurate demand prediction, personalized marketing, and intelligent replenishment, and becoming the core engine of transformation. Retail enterprises should learn from this experience, break data barriers, unify data standards, and establish a complete data management system covering the entire life cycle (Huang & Wang, 2022).

4.2. Implementing “Agile” Organizational Transformation

Digital transformation is not only a technological upgrade, but also an organizational restructuring. The traditional hierarchical organizational structure of retail enterprises has problems such as slow decision-making and difficult inter-departmental collaboration, which seriously restrict the process of digital transformation. T Company has implemented organizational integration, streamlined the digital approval hierarchy, broken traditional departmental boundaries, and set up cross-departmental digital project teams: each team is centered on 1 digital transformation leader, and members include technical department with algorithm engineers responsible for data development, marketing department responsible for user operation and activity planning, supply chain department for procurement and logistics management, and store operation department. Each team focuses on 1 - 2 core business scenarios such as intelligent replenishment and omni-channel marketing for implementation; at the same time, it has established a formal “error tolerance” mechanism: clarifying the annual digital innovation error trial budget pool, accounting for 5% of the total operating budget, allowing a single pilot failure rate of $\leq 30\%$, only reviewing without accountability for failures, not including attempts that fail to meet expectations but have innovative value in the department’s KPI assessment, and giving the project team a special reward of 2 - 3 months’ salary per person for successfully implemented innovative projects. This not only improves the efficiency of digital transformation, but also stimulates employees’ innovation enthusiasm, making the integration of technology and business smoother (Liu & Liu, 2023).

4.3. Carrying Out “Scenario-Based” Business Innovation

Digital transformation should focus on solving practical business problems and creating customer value. T Company’s business innovation has always been based on real retail scenarios: launching the “online ordering + offline self-pickup” service to solve the time constraints of busy consumers; introducing AR fitting technology to enhance the in-store experience of fashion and beauty products; incubating community group buying business to meet the daily fresh food consumption needs of community residents. Retail enterprises should take customer demand as the core, carry out business innovation around the “person-goods-scene” model, and realize the deep integration of digital technology and business development (Zhang, 2022).

5. Conclusion and Prospects

5.1. Research Conclusions

In the digital age, the digital transformation of retail enterprises is an inevitable trend of the times and a strategic choice to achieve high-quality development. Taking T Company as a case, this study explores the driving forces, core paths, and universal strategies of digital transformation in the retail industry. The main research conclusions are as follows:

First, the digital transformation of retail enterprises is jointly driven by three-dimensional factors: external environment, industry characteristics, and internal motivation. These three factors interact and promote each other, forming a strong synergy to promote the digital transformation of retail enterprises.

Second, digitalization affects the operational performance of retail enterprises through three core paths: precise cost control, diversified revenue growth, and agile risk response. Precise cost control is the foundation for improving operational performance, which can help retail enterprises reduce operational costs and improve operational efficiency; diversified revenue growth is the core for improving operational performance, which can help retail enterprises expand sales channels and create new profit growth points; agile risk response is the guarantee for improving operational performance, which can help retail enterprises cope with various risks and ensure stable operation of enterprises.

Third, the universal strategies for the digital transformation of retail enterprises include building a “trinity” data middle platform integrating collection layer, governance layer, and application layer, implementing “agile” organizational transformation, and carrying out “scenario-based” business innovation. The “trinity” data middle platform is the core foundation of digital transformation, which can help retail enterprises realize the efficient application of data; implementing “agile” organizational transformation with cross-departmental project teams + formal error trial mechanisms is the organizational guarantee for digital transformation, which can help retail enterprises adapt to the changes brought by digital transformation; carrying out “scenario-based” business innovation is the key path for digital transformation, which can help retail enterprises realize

the deep integration of digital technology and business development (Shen, 2019).

Fourth, T Company's growth achievements are not driven solely by digital transformation. External factors such as the expansion of the consumer market in the northwest region and the merger and integration of local industries also play a catalytic role. Digital transformation has amplified the enterprise's growth effect under the superposition of multiple factors, reflecting the comprehensiveness and complexity of transformation effects (Wang, Sun, & Guo, 2024).

5.2. Research Prospects

With the continuous development of digital technologies such as big data, artificial intelligence, and the Internet of Things, the digital transformation of the retail industry will show a deeper and more diversified trend. In the future, the digital transformation of retail enterprises will face new opportunities and challenges, and there is still great room for in-depth research.

First, in terms of research objects, this study takes T Company, a regional retail enterprise, as a case, and the research conclusions may have certain limitations. Future researchers can expand the scope of research objects to include large retail enterprises, small and medium-sized retail enterprises, cross-border retail enterprises, etc., carry out comparative research, and summarize more universal digital transformation experiences and strategies (Malenkov, Irina, & Galina, 2021).

Second, in terms of research content, this study focuses on the driving forces, core paths, and universal strategies of digital transformation. Future researchers can further explore the impact mechanism of digital transformation on operational performance, such as the mediating and moderating effects of factors such as organizational capabilities and corporate culture; at the same time, they can study the risks and challenges faced by digital transformation and propose corresponding risk prevention and control strategies (Billi & Bernardo, 2025).

Third, in terms of research methods, this study mainly adopts the case study method. Future researchers can combine quantitative research methods such as questionnaire surveys and empirical analysis to carry out large-sample research, verify the research conclusions, and improve the scientificity and reliability of the research.

In summary, the digital transformation of retail enterprises is a long and complex process. Retail enterprises need to accurately grasp the trend of the times, formulate scientific and reasonable digital transformation strategies in combination with their own actual conditions, and continuously promote the deep integration of digital technology and business development; at the same time, they need to objectively view the transformation effects, taking into account multiple factors such as the external market environment and industry competitive landscape, so as to gain a competitive advantage in the fierce market competition and achieve sustainable development.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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