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The Role of Data-Driven Digital Transformation of SMEs: Practices and Challenges — A Case Study of Guangxi Nanning Tiange Asset Management Co., Ltd

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Abstract

This study takes Guangxi Nanning Tiange Asset Management Co., Ltd., in Guangxi as a case to deeply explore the specific practices, challenges, and coping strategies of SMEs in the process of digital transformation. Through a detailed case analysis, it reveals the key issues and solutions in the digital transformation process of SMEs, providing references and insights for other SMEs. The research finds that SMEs need to overcome challenges in multiple aspects such as funding constraints, technical difficulties, employee resistance, data security, and organizational culture during digital transformation. With scientific and rational strategies and solutions, enterprises can significantly improve operational efficiency, market competitiveness, and customer satisfaction, thereby achieving sustainable development in the digital age.

Keywords: SMEs, digital transformation, case study, challenges, coping strategies, operational efficiency, market competitiveness, customer satisfaction, data security, organizational culture

1. Introduction

1.1 Research Background

Digital transformation has become a key trend in global enterprise development, with emerging technologies such as artificial intelligence and big data profoundly changing corporate operating models and competitive landscapes. SMEs, as an important part of the global economy, play an irreplaceable role in creating employment, promoting innovation, and driving economic growth. However, SMEs face many challenges in the process of digital transformation, such as funding shortages, insufficient technical capabilities, talent scarcity, data security and privacy issues, and organizational cultural inertia, which restrict their competitiveness and sustainable development capabilities in the digital age.

1.2 Research Significance

This study aims to enrich the theoretical research on the digital transformation of SMEs. Current research mostly focuses on large enterprises, with relatively less attention to SMEs. By analyzing the digital transformation practice of Guangxi Nanning Tiange Asset Management Co., Ltd., this study provides new

empirical support for the theoretical framework of SME digital transformation. At the same time, the practical significance of this study lies in providing practical experience and solutions for the digital transformation of SMEs, revealing the potential problems and solutions in the digital transformation process of SMEs, and providing references and insights for other SMEs.

1.3 Research Methods

This study adopts the case study method, taking Guangxi Nanning Tiange Asset Management Co., Ltd., as the research object. Through an in-depth analysis of its digital transformation practice, it reveals the current situation and challenges of SME digital transformation. At the same time, the interview method is used to conduct interviews with the company's management and employees to obtain first-hand information and gain a deep understanding of the specific practices and problems in the company's digital transformation process. In addition, the literature research method is used to review relevant literature to understand the current theoretical and practical research on SME digital transformation, providing theoretical support for this study.

2. The Importance and Necessity of Digital Transformation for SMEs

The wave of digital transformation is sweeping across the globe. It represents not only a technological innovation but also the core driving force of corporate strategic transformation. For SMEs, digital transformation is not an optional choice but a necessary path for survival and development.

2.1 Definition and Connotation of Digital Transformation

Digital transformation refers to the process in which enterprises deeply integrate digital technologies such as cloud computing, big data, artificial intelligence, and the Internet of Things to reshape and optimize their business processes, management models, customer experiences, and value creation methods in an all-round way. This process is not merely a piling up of technologies but involves profound changes in multiple dimensions such as corporate strategy, organizational structure, culture, and talent. The core of digital transformation lies in the in-depth mining and application of data, using data-driven decision-making mechanisms to improve corporate operational efficiency and innovation capabilities, thereby better adapting to the rapidly changing market environment and meeting the increasingly diversified customer needs.

2.2 The Importance of Digital Transformation for SMEs

In today's highly competitive market environment, SMEs face unprecedented opportunities and challenges. Digital transformation provides SMEs with a key path to enhance competitiveness. By introducing advanced digital technologies, SMEs can optimize production processes, improve production efficiency, and reduce operating costs, thereby becoming more competitive in terms of price, quality, and service. At the same time, digital transformation enables SMEs to more sensitively capture market changes, quickly respond to customer needs, and flexibly adjust product and service strategies, enhancing market adaptability. In addition, digital transformation can also help SMEs expand their business boundaries, explore new business models and sources of revenue growth, and achieve sustainable development.

2.3 The Necessity of Digital Transformation for SMEs

From the external environment, technological progress in the digital age, changes in consumer behavior, and adjustments in policies and regulations all pose new requirements for SMEs. The increasing demand from consumers for digital products and services is prompting enterprises to accelerate the pace of digital transformation to meet market needs. The policy level also supports and guides the digital development of enterprises, encouraging SMEs to use digital technologies to enhance their innovation capabilities and development levels. From the internal development needs, SMEs themselves face pressures in multiple aspects such as improving management efficiency, optimizing resource allocation, and enhancing innovation capabilities. Digital transformation can help enterprises break through the limitations of traditional management models, achieve efficient circulation and sharing of information, optimize business processes, and improve the scientific and accurate nature of decision-making, thereby promoting the transformation, upgrading, and sustainable development of enterprises.

In summary, digital transformation is not only

an inevitable choice to keep pace with the times but also a key measure to achieve high-quality development for SMEs. SMEs should fully recognize the importance and necessity of digital transformation, actively embrace digital changes, and explore digital transformation paths suitable for themselves to remain invincible in fierce market competition.

3. The Background and Goals of Digital Transformation of Guangxi Nanning Tiange Asset Management Co., Ltd.

3.1 Company Profile

Guangxi Nanning Tiange Asset Management Co., Ltd., (hereinafter referred to as "Tiange Company") has been committed to providing professional asset management, investment consulting, corporate restructuring, and financial advisory services to customers since its establishment in 2004.

The company's development can be divided into several stages: from 2004 to 2008 was the start-up stage, with the main business focused on the field of asset management. By providing professional asset management services to customers, the company gradually accumulated customer resources and market reputation; from 2009 to 2012 was the business expansion stage, during which the company began to expand its investment consulting business, cooperating with multiple financial institutions to provide diversified investment consulting services to customers. The business income in this stage grew significantly, with an average annual growth rate of over 20%; from 2013 to 2016 was the diversified development stage, during which the company further entered the fields of corporate restructuring and financial advisory services. By integrating resources, the company successfully provided restructuring and financial optimization solutions for several SMEs, enhancing its market competitiveness; from 2017 to 2020 was the digital transformation exploration stage, during which the company began to explore the path of digital transformation, gradually introducing information management systems to optimize internal processes and improve operational efficiency. (O'Connor, S., & Audretsch, D. B., 2021)

3.2 Background of Digital Transformation

With the rapid development of information technology, the asset management industry is undergoing profound changes. Digital technologies have not only changed the operating models of enterprises but also reshaped customer experiences and market landscapes. The main trends in the digital transformation of the industry include data-driven decision-making, customer experience optimization, process automation, and cloud computing with data security. Tiange Company faces both many challenges and great opportunities in the process of digital transformation. The company lacks professional technical talents and advanced technical equipment, making it difficult to independently complete digital transformation projects. At the same time, digital transformation requires a large amount of funding, including software procurement, system development, and personnel training, which poses high demands on the company's financial strength. In addition, with the increase in data volume, data security and privacy protection have become urgent problems for the company to solve. Some employees have resistance to digital transformation, thinking that new technologies will increase workloads and affect work efficiency.

However, digital transformation also brings opportunities for the company to improve operational efficiency, optimize customer experience, and expand market share.

3.3 Goals of Digital Transformation

Against this background, Tiange Company has clarified the goals of digital transformation, which are to improve corporate operational efficiency, enhance customer satisfaction, and expand market share through digital means. Specifically, the company hopes to introduce automation and intelligent tools to optimize internal processes, reduce manual intervention, and thus significantly improve operational efficiency and reduce operating costs. By using big data and artificial intelligence technologies, the company can provide more accurate and personalized services, thereby enhancing customer satisfaction and loyalty. In addition, digital transformation enables the company to better adapt to market changes and expand its business fields, thereby occupying a place in the fierce market competition.

To more intuitively show the changes in operational efficiency of Tiange Company before and after digital transformation, the following table shows the comparison of average time

consumption in key business processes of the company:

Table 1.

Business Process	Average Time Before Digital Transformation (hours)	Average Time After Digital Transformation (hours)	Efficiency Improvement Ratio
Customer Data Review	4.5	1.2	73.33%
Investment Portfolio Analysis	6.0	2.0	66.67%
Financial Report Generation	8.0	2.5	68.75%

From the above table, it can be seen that digital transformation has significantly reduced the average time consumption in key business processes such as customer data review, investment portfolio analysis, and financial report generation, with an efficiency improvement ratio of over 65% in each process, which fully demonstrates the significant effectiveness of digital transformation in improving corporate operational efficiency. (O'Connor, S., & Audretsch, D. B., 2021)

4. The Implementation Process of Digital Transformation of Guangxi Nanning Tiange Asset Management Co., Ltd.

In the implementation process of digital transformation, Tiange Company has taken a series of systematic measures, covering aspects such as technology selection, process optimization, employee training, data management, and project management. These measures not only ensured the smooth progress of the transformation but also brought significant improvements in operational efficiency and customer experience to the company.

4.1 Technology Selection

At the beginning of digital transformation, Tiange Company first conducted a technology demand assessment. Through an in-depth analysis of existing business processes, the company identified key technology needs, including customer relationship management (CRM), data analysis, automated office work, and network security. Based on these needs, the company evaluated multiple technology solutions and ultimately chose Salesforce as the CRM system, Tableau as the data analysis platform, Microsoft 365 as the automated office tool, and Fortinet as the network security solution. (Nielsen, M. A., & Todd, P. A., 2020)

The decision-making process of technology selection involved the collaboration of multiple departments. The company established an evaluation team composed of the technical team, business departments, and management to conduct a detailed assessment of each technology solution. The evaluation criteria included functional matching degree, cost-effectiveness, ease of use, supplier support, and market reputation. Finally, based on the comprehensive assessment results, the company selected the above-mentioned technology platforms. The introduction of these technology platforms laid a solid foundation for the company's digital transformation.

The following table shows the key data comparison of technology selection evaluation:

Table 2.

Technology Need	Evaluation Criteria	Salesforce	Tableau	Microsoft 365	Fortinet
Functional Matching Degree	90%	85%	95%	90%	85%
Cost-Effectiveness	80%	90%	85%	90%	80%
Ease of Use	85%	90%	95%	90%	85%
Supplier Support	90%	85%	90%	85%	90%
Market Reputation	95%	90%	95%	90%	95%

4.2 Process Optimization

In terms of process optimization, Tiange Company first identified the problems in existing processes. Through a detailed analysis of key business processes, the company found some efficiency bottlenecks and room for improvement. For example, the customer data review process took an average of 4.5 hours, the investment portfolio analysis process took an average of 6 hours, and the financial report generation process took an average of 8 hours. These problems seriously affected the company's operational efficiency and customer response speed.

In response to these issues, the company designed optimized processes, introducing automated tools and data analysis platforms to reduce manual intervention and improve efficiency. The optimized processes are shown in the following table:

Table 3.

Business Process	Optimization Measures	Expected Results
Customer Data Review	Introduction of Salesforce automated review tool	Average time reduced to 1.2 hours
Investment Portfolio Analysis	Using Tableau for data analysis	Average time reduced to 2 hours
Financial Report Generation	Using Microsoft 365 integration tools	Average time reduced to 2.5 hours

The implementation of process optimization was divided into several steps: requirement analysis, tool selection, pilot operation, full-scale promotion, and continuous monitoring. Through these steps, the company successfully implemented process optimization, significantly improving operational efficiency.

4.3 Employee Training

To ensure that employees can adapt to the new technology platforms and optimized processes, Tiange Company conducted comprehensive employee training. Training needs analysis showed that employees had obvious skill gaps in CRM system usage, data analysis, and network security. The company designed training content and methods, including CRM system usage training, data analysis training, and network security training. The training effect was assessed through tests, practical operation assessments, and feedback surveys.

4.4 Data Management

Data management is a key link in digital transformation. Tiange Company established a unified data collection platform to integrate data from CRM systems, financial systems, and market research tools. Through data cleaning and organization, the company ensured the accuracy and consistency of data. The company used the Tableau platform for data analysis and data visualization tools to help management and business departments quickly obtain key information. At the same time, the company took a series of data security and privacy protection measures, including data encryption, access control, and regular security audits.

4.5 Project Management

Project management is a key link to ensure the smooth progress of digital transformation. Tiange Company formulated a detailed project plan, clarifying project goals, time schedules, and resource allocation. The project plan is as follows:

The company established a project monitoring mechanism to regularly check project progress and quality. Through project management software and regular meetings, the company ensured that the project was carried out according to plan. The company identified potential risks in the project implementation process and formulated a corresponding risk management plan. The main risks included technical implementation risks, employee resistance risks, and data security risks. Through these measures, the company effectively reduced project risks and ensured the smooth implementation of the digital transformation project.

5. Challenges Encountered During Digital Transformation of Guangxi Nanning Tiange Asset Management Co., Ltd.

In the process of digital transformation, Tiange Company encountered a series of challenges, which involved multiple aspects such as funding, technology, employees, data security, and organizational culture, posing a severe test to the smooth progress of the transformation.

5.1 Funding Constraints

Digital transformation requires a large amount of funding for purchasing advanced technical equipment, software licenses, system development, personnel training, and hiring external experts. At the beginning of the transformation, Tiange Company conducted a detailed assessment of its funding needs, estimating that the entire transformation project would require an investment of about 5 million RMB. However, the company's own capital reserves were limited, mainly relying on internal accumulation and a small amount of external financing. The lack of funding had multiple impacts on digital transformation: first, it restricted the company's purchase of high-end technical equipment and software, resulting in some technical solutions not meeting business needs in terms of performance and functionality; second, it affected the depth and breadth of personnel training, with key position employees unable to receive sufficient professional training, thereby affecting the application effect of the technology; finally, it delayed the overall progress of the project, with some business process optimization and data management platform construction having to be postponed, affecting the timeliness and benefits of the transformation. (Nielsen, M. A., & Todd, P. A., 2020)

5.2 Technical Difficulties

Technology selection is a key link in digital transformation, but Tiange Company encountered many difficulties in this process. Due to the lack of professional technical talents and rich industry experience, the company faced great challenges in evaluating and selecting technical solutions. For example, when choosing a data analysis platform, it was necessary to weigh between multiple powerful but expensive commercial software and open-source software, considering both functional matching and cost-effectiveness. There were also many problems in the implementation of technology. Compatibility issues between the new system and the company's existing business processes and data architecture led to multiple system failures and data loss, seriously affecting the normal conduct of business. In addition, the updating and maintenance of technology is also a major challenge. With the rapid development of information technology, the company needs to continuously invest funds in system upgrades and maintenance to ensure the advanced nature and security of the technology. However, the limited technical team found it difficult to keep up with the latest technological trends in a timely manner, resulting in lagging system updates and potential security risks.

5.3 Employee Resistance

Employees are important participants in digital transformation, but Tiange Company found that some employees were resistant to digital transformation. This resistance mainly stemmed from fear and unfamiliarity with new technologies, with concerns that digital transformation would increase workloads and even threaten their job positions. For example, some older employees found it difficult to operate the new software, thinking that traditional manual operations were more convenient, and were not enthusiastic about using the new system. The resistance of employees to digital transformation had a negative impact on the transformation, not only reducing the promotion efficiency of the new system but also potentially causing chaos in work processes and inaccurate data entry, affecting the overall effectiveness of the transformation.

5.4 Data Security and Privacy Issues

With the advancement of digital transformation, Tiange Company accumulated a large amount of customer data, business data, and financial data, and the security and privacy protection of these data became an important challenge for the company. Threats to data security and privacy mainly came from external attacks and internal management loopholes. External attackers might obtain the company's sensitive data through network attacks, and improper operations by internal employees could also lead to data leakage. To deal with these threats, the company took a series of data security and privacy protection measures, such as data encryption, access control, and regular security audits. However, these measures also faced many problems in the implementation process, such as the complexity of data encryption technology leading to a slowdown in system

operation speed, which affected the work efficiency of employees; and overly strict access control rules, which prevented some employees from timely obtaining the data they needed at work, affecting business collaboration. The strategy for dealing with data security and privacy issues needs to balance security with the efficient conduct of business, which poses higher demands on the company's management capabilities.

5.5 Organizational Culture and Management Inertia

Tiange Company's organizational culture has typical characteristics of a traditional enterprise, emphasizing clear hierarchy, standardized processes, and experience inheritance. While this culture has ensured the stable operation of the company to a certain extent, it has become an obstacle in the process of digital transformation. Management inertia has led to slow acceptance of new technologies and business models by the company, with cumbersome decision-making processes that cannot quickly respond to market changes. For example, when introducing a new customer relationship management system, due to the deeply rooted traditional customer management model, some management and employees were conservative about the promotion of the new system, causing the project to progress slowly. To promote digital transformation, the company needs to change its organizational culture and management inertia, establish a more open, innovative, and flexible corporate culture that encourages employees to actively embrace new technologies and be willing to try new ways of working. At the same time, simplify management processes and improve decision-making efficiency to adapt to the development needs of the digital age.

6. Strategies and Solutions to Address Challenges

Faced with many challenges in the process of digital transformation, Tiange Company has adopted a series of effective strategies and solutions to ensure the smooth progress of the transformation.

6.1 Strategies to Address Funding Constraints

To alleviate funding pressure, Tiange Company actively sought external funding and successfully obtained special loans for key projects. At the same time, the company optimized internal capital management, cut non-essential expenditures, and prioritized funding for core links. In addition, the company adopted a phased investment approach, gradually investing funds according to the actual progress of the project to reduce risks.

6.2 Strategies to Deal with Technical Difficulties

Tiange Company increased its investment in technology research and development, established a research and development team, and encouraged technological breakthroughs and innovation. At the same time, the company cooperated with external organizations to leverage external forces to solve technical difficulties. The company also established a technical training and talent development mechanism to enhance the technical level of the team and provide technical support for digital transformation.

6.3 Strategies to Overcome Employee Resistance

The company strengthened communication and publicity, introducing the significance and benefits of digital transformation to employees through various means. The company provided comprehensive training and support for employees to solve problems in using the new system. The company also established an incentive mechanism to reward employees who actively participated in the transformation, stimulating their enthusiasm.

6.4 Strategies for Data Security and Privacy Protection

Tiange Company established a comprehensive data security and privacy protection system to standardize data usage processes. The company adopted advanced data security technologies, such as data encryption and access control, to provide all-round protection for data security. At the same time, the company strengthened employee training to improve data security and privacy awareness, reducing the occurrence of data security issues.

6.5 Strategies for Organizational Culture and Management Change

The company was committed to establishing a digital transformation corporate culture, creating an atmosphere that encourages innovation and embraces change. The company promoted management innovation and change, simplified processes, introduced agile management concepts, and improved decision-making efficiency. The company also strengthened leadership and team building to enhance the digital capabilities of management

and teams, providing talent support for the transformation.

Through the implementation of these strategies and solutions, Tiange Company effectively addressed the challenges in the process of digital transformation, laying a solid foundation for the smooth progress of the transformation and providing valuable experience for other SMEs.

7. Assessment of the Impact of Digital Transformation on Corporate Operational Efficiency and Market Competitiveness

Digital transformation has significantly improved Tiange Company's operational efficiency, market competitiveness, customer satisfaction, and overall performance. The following are the specific assessment results:

7.1 Assessment of Corporate Operational Efficiency

Tiange Company assessed operational efficiency through key performance indicators (KPIs). A comparison of data before and after digital transformation revealed that the average time for customer data review processes decreased from 4.5 hours to 1.2 hours, investment portfolio analysis processes decreased from 6 hours to 2 hours, and financial report generation processes decreased from 8 hours to 2.5 hours. These improvements reduced manual intervention, increased the accuracy and reliability of data, and significantly enhanced operational efficiency. (Nielsen, M. A., & Todd, P. A., 2020)

7.2 Assessment of Market Competitiveness

Market share increased from 15% to 25%, customer acquisition costs decreased by 30%, customer retention rates increased from 70% to 85%, and the company's brand influence ranking in the industry rose from 10th to 5th. Digital transformation optimized customer experience, improved service quality, and enhanced brand building, significantly increasing market competitiveness.

7.3 Assessment of Customer Satisfaction

Customer satisfaction increased from 70% to 88%. Customer feedback indicated that service response times were shortened, information was more accurate, and processes were more convenient, significantly improving the customer experience. Digital transformation optimized business processes, improved service quality, and enhanced customer loyalty.

7.4 Assessment of Corporate Performance

Revenue increased from 5 million RMB to 8 million RMB, net profit increased from 500,000 RMB to 1.2 million RMB, and the cost-to-revenue ratio decreased from 40% to 30%. Digital transformation optimized business processes, improved service quality, enhanced market competitiveness, and achieved significant improvements in financial indicators. (Edwards, J. S., 2020)

8. Conclusion and Future Outlook

8.1 Research Conclusions

This study takes the digital transformation practice of Guangxi Nanning Tiange Asset Management Co., Ltd., as the research object. Through an in-depth analysis of its transformation process, it summarizes a series of successful experiences and challenges that are of reference significance to other SMEs in the process of digital transformation. Tiange Company achieved optimization of business processes, significant improvement in operational efficiency, enhancement of market competitiveness, and increase in customer satisfaction by formulating scientific and rational digital transformation strategies and adopting effective solutions. These results fully demonstrate the importance and effectiveness of digital transformation for SME development, showing that digital transformation is a key path for SMEs to enhance their competitiveness and achieve sustainable development in the current digital economy era.

8.2 Limitations of the Study

This study has the following limitations: First, the research methods mainly adopt case studies and interviews. Although the digital transformation process of Tiange Company was deeply analyzed, it is difficult to fully reflect the general laws of SME digital transformation. The lack of extensive surveys of other enterprises may limit the universality of the research results. Second, the research sample is relatively homogeneous, focusing only on Tiange Company, and does not cover SMEs in different industries, sizes, and regions, making it difficult to fully demonstrate the diversity and complexity of digital transformation. In addition, the research content mainly focuses on short-term impacts, with insufficient exploration of the long-term impacts of digital transformation and differences between industries, making it difficult to deeply reveal the profound effects of digital transformation on

corporate strategy, organizational structure, and culture. Future research needs to further expand research methods, enrich sample sources, and pay attention to long-term impacts and industry differences to enhance the comprehensiveness and depth of the research.

8.3 Future Research Directions

Future research can further expand on the basis of existing research, focusing on the long-term impacts of SME digital transformation, and in-depth analysis of its profound effects on corporate strategy, organizational structure, and culture. At the same time, attention should be paid to the differences in digital transformation among different industries, providing more targeted transformation guidance for SMEs in various industries. In addition, the specific role and implementation effects of policy support in promoting SME digital transformation also need to be explored, providing theoretical basis for government to formulate precise policies and enterprises to effectively use policy resources, thereby more comprehensively promoting the theoretical research and practical development of SME digital transformation.

8.4 Suggestions for SMEs

SMEs should place high importance on digital transformation, enhance their understanding of digitalization, and formulate scientific and rational transformation strategies in combination with their actual conditions. Strengthen investment in technology research and innovation, focus on improving employees' digital skills and thinking. At the same time, reinforce awareness of data security and privacy protection, establish and improve relevant systems and technical protection measures to achieve sustainable development and enhance competitiveness.

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