

Challenges and Solutions in the Digital Transformation of "Specialized, Refined, Unique, and New" Small and Medium Enterprises

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Abstract: Against the backdrop of the Digital China initiative, exploring how "Specialized, Refined, Unique, and New" (SRUN) enterprises can effectively undergo digital transformation to enhance innovation capabilities is a crucial and urgent topic. For these enterprises, accelerating digital transformation is key to addressing contemporary challenges, improving efficiency, reducing costs, showcasing unique advantages, and leading the trend of intelligent manufacturing. Throughout the transformation process, these enterprises face multiple dilemmas and challenges: despite a strong willingness to transform, they lack corresponding capabilities; infrastructure is improving, but the technological environment is not yet ideal; willingness to collaborate is increasing, but effective synergy is lacking; policy support is growing, but needs to be more precise. In order to better promote the digital transformation of SRUN enterprises, appropriate strategies must be adopted to address these challenges. This includes enhancing awareness and strengthening talent development, improving infrastructure, optimizing the transformation environment, fostering a favorable digital ecosystem, enhancing collaborative cooperation, and optimizing institutional design to elevate service standards. These measures collectively provide a pathway for SRUN enterprises to drive digital transformation.

Keywords: Specialized, Refined, Unique, and New (SRUN), Digital Transformation, Small and Medium Enterprises (SMEs)

1. Introduction

In the 19th National Congress report, it was explicitly emphasized to accelerate the pace of building a manufacturing powerhouse. General Secretary Xi Jinping, in a Central Political Bureau meeting held in October 2021, stated the need to "promote the deep integration of digital technology and the real economy, enabling the transformation and upgrading of traditional industries, and fostering new industries, new formats, and new models"[1]. The 20th National Congress report of the Communist Party of China outlined the focus on the real economy, promoting new industrialization, advancing China's construction, driving the creation of a manufacturing powerhouse, a quality powerhouse, a space powerhouse, a transportation powerhouse, a network powerhouse, and a Digital China[2].

Influenced by various factors such as technology, models, and politics, enterprises must undergo continuous digital transformation to gain sustained innovation and development advantages.

Small and medium-sized enterprises (SMEs) play an irreplaceable role in building a modern economic system and promoting high-quality economic development in China. They are not only the focal point of enterprise digital transformation but also the "main battlefield" of national informatization construction, making the development of SMEs imperative[3]. However, due to various constraints and practical obstacles, Chinese SMEs are still in the early stages of development and face numerous challenges. This year, the concept of "Specialized, Refined, Unique, and New" (SRUN) appeared for the first time in the government work report, highlighting the significance of SRUN enterprises and digital transformation. The high-quality development of SRUN enterprises is currently a focal point of China's work and a key to implementing the "manufacturing powerhouse" and "technology powerhouse" strategies[4]. "Specialized, Refined, Unique, and New" SMEs are characterized by specialization, refinement, distinctiveness, and novelty[5]. In terms of specialization, they feature specialized or proprietary manufacturing technologies and unique or professional products. Regarding refinement, they involve sophisticated production technology, meticulous management, and exquisite product craftsmanship. Their distinctiveness lies in unique production processes and prominent product services. Regarding novelty, they exhibit strong technological innovation capabilities and products with high technological content. As of September 2022, the Ministry of Industry and Information Technology has released four batches of 9,119 "SRUN Little Giants" enterprises, nearing the goal of achieving 10,000 by 2025. The increasing number of SRUN "Little Giants" is receiving support in terms of policies, funds, and other aspects, providing a rare opportunity for SRUN enterprises to achieve digital transformation[6].

2. Importance of Digital Transformation for "Specialized, Refined, Unique, and New" Small and Medium Enterprises

Firstly, amidst the current economic downturn and complex market conditions, small and medium enterprises (SMEs) face numerous challenges, particularly those of the "Specialized, Refined, Unique, and New" (SRUN) type. These enterprises exhibit deficiencies in digitalization, supply chain management, and resource diversity. Given the dynamic market environment, they are susceptible to poor market adaptability and performance decline, which can escalate to cash flow disruptions and business closure. Secondly, SMEs constitute the cornerstone of the Chinese economy, contributing significantly to tax revenue, GDP, employment, and innovation outcomes. Among this group, SRUN enterprises stand out for their leadership role in smart manufacturing and innovative development. Furthermore, the advancement of digital transformation is crucial for SRUN enterprises, involving core components, essential materials, advanced processes, and technological foundations. These areas are pivotal for cost control and efficiency improvement[7]. This transformation is not only a strategy to address managerial complexity but also a crucial means to enhance operational efficiency and achieve high-quality development. Therefore, digital transformation is not merely a technological upgrade; it represents a deepening of corporate culture and management philosophy, opening a new path for SRUN enterprises to enhance intrinsic value and market competitiveness.

3. Challenges in the Digital Transformation of "Specialized, Refined, Unique, and New" Small and Medium Enterprises

Digital transformation is a comprehensive, complex, and ongoing process, requiring continuous innovation and systematic progression for any enterprise. However, "Specialized, Refined, Unique, and New" (SRUN) enterprises face various challenges and obstacles in exploring the process of digital transformation:

3.1. Insufficient Execution Capability Despite Increased Willingness for Digital Transformation

Firstly, while these enterprises recognize the importance of digital transformation, there is a lack of understanding at the operational level. Some companies believe that, due to their relatively focused business and simple organizational structure, digital transformation is not significantly relevant to them. Others have a superficial understanding, equating it to simple digitization of office tasks, lacking comprehensive planning and a long-term perspective on digital transformation. Moreover, these enterprises are often hesitant to take on excessive risks, adopting a wait-and-see attitude, leading to missed transformation opportunities.

Secondly, these enterprises face limitations in financial capabilities. Despite being potential small and medium-sized enterprises (SMEs) with a certain scale and market competitiveness, they still encounter significant survival challenges in the current market environment. In the face of already challenging day-to-day operations, these enterprises find it difficult to secure sufficient funds to support digital transformation.

Lastly, these enterprises confront a shortage of digital talent. As digital transformation becomes an industry trend, there is fierce competition across sectors for limited digital talent, resulting in a significant supply-demand imbalance in the talent market. Compared to large state-owned enterprises, SRUN enterprises appear to be insufficient in attracting and retaining high-end digital talent, making it challenging to address the shortage of digital skills in the short term.

3.2. Optimization of Digital Infrastructure, but Weak Technological Support

Firstly, China faces deficiencies in basic software technology. This is mainly evident in the insufficient originality of core foundational technologies, low compatibility between hardware and software technologies, and the relatively weak competitiveness of software technology products. These factors limit the technological support capacity for the digital transformation of SRUN enterprises.

Secondly, China's capabilities in applied research are somewhat lacking, primarily due to imperfect mechanisms for the transformation of research results and inefficient channels for such transformation. The shortcomings in applied research contribute to the difficulties faced by domestic enterprises in addressing common issues, leading to the dependence of many high-end industrial software on developed countries like Europe and the United States. This reflects the inadequate capabilities of SRUN enterprises in positioning themselves at the forefront of technological fields.

Lastly, insufficient capabilities in data management are a significant problem. Data security is crucial for a company's survival, and data leakage poses a major challenge. For SRUN enterprises with technological advantages in specific industries, issues related to data security and leakage cannot be ignored during the process of digital transformation.

3.3. High Enthusiasm for Digital Collaboration within Enterprises, but Low Efficiency in Cooperation

Firstly, within enterprises, the lack of collaboration poses a problem. Some companies, due to a lack of capital required for digital transformation, blindly push forward with digital projects that do not align with their actual needs under industry pressures. This improper allocation of resources can ultimately disrupt the normal production and operations of the enterprise.

Secondly, collaboration among different enterprises in the industry chain is insufficient. Despite variations in digital transformation among different enterprises, "Specialized, Refined, Unique, and New" (SRUN) enterprises, as key nodes in the industrial chain, may face challenges if they cannot effectively collaborate with other enterprises on the chain after completing digital transformation.

This lack of effective collaboration can hinder the interoperability of digital tools, thus increasing transaction costs and reducing business efficiency.

Lastly, insufficient collaboration between regions is also a problem. Digital transformation is an engineering project that requires comprehensive planning and systematic advancement. Despite continuous enhancement of policy support for SRUN enterprises at the national level, the uneven geographic distribution of these enterprises results in uneven distribution of policy support resources across different regions. Coupled with differences in economic development levels among regions, variations exist in aspects such as digital infrastructure construction, digital talent development, awareness of digital investment in enterprises, and the digital application environment. This may lead to an inconsistent and uncoordinated pace in the construction of the digital ecosystem in different regions.

3.4. Intensified Policy Support, Yet Inadequate Precision in Support

Firstly, the existing support policies lack differentiation. Due to differences in the progress of digital transformation, technological application levels, and industry characteristics across different regions, development stages, and sectors, enterprises have varied needs for digital transformation. Current policies often adopt uniform standards and criteria, lacking tailored support strategies for different situations.

Secondly, policy support lacks specificity. From a policy inclination perspective, the current support tends to favor state-owned and large to medium-sized enterprises. In contrast, "Specialized, Refined, Unique, and New" (SRUN) enterprises are mostly small to medium-sized private enterprises, facing challenges in obtaining the same policy benefits and resources as large state-owned enterprises. Additionally, the issue of "giant monopolies" in the digital economy persists, not only limiting the development potential of emerging enterprises but also impeding the vitality of enterprise transformation. This situation increases the difficulty of digital transformation for SRUN enterprises.

Lastly, there is a lack of dedicated financial services for SRUN enterprises. The financing challenges faced by small and medium enterprises remain severe, and specific financial services tailored for SRUN enterprises are yet to be established. Due to the lengthy and high-risk nature of the digital transformation process, these enterprises face greater challenges in accessing the necessary financial support.

4. Pathways for the Digital Transformation of "Specialized, Refined, Unique, and New" Small and Medium Enterprises

For "Specialized, Refined, Unique, and New" (SRUN) enterprises, digital transformation is not only an internal necessity but also a critical direction for their development. Therefore, SRUN enterprises must adopt a higher perspective and standards to explore the pathway of digital transformation, enabling them to seize market opportunities and achieve transformative, high-quality growth.

4.1. Awareness is the Foundation of Practical Operation, and Capability is the Key to Actual Action

(1) Strengthening Digital Knowledge Training and Awareness Enhancement

Addressing the issue of insufficient cognitive capabilities within the enterprise, efforts should be intensified in providing digital knowledge training for employees and management. This involves organizing training seminars, bringing in digital experts for lectures and consultations, and participating in industry-related forums and seminars on digital transformation. These initiatives aim to enhance the understanding of the importance of digital transformation within the enterprise and promote comprehensive and long-term planning for digital transformation.

(2) Exploring Diverse Financing Channels

In response to limited financing capabilities, enterprises can explore various avenues for financing. Apart from traditional bank loans and private investments, consideration should be given to diverse financing methods such as crowdfunding, government grants, and industry funds. Additionally, collaboration with other enterprises can lead to resource sharing, reducing the costs and risks associated with digital transformation.

(3) Establishing Mechanisms for Digital Talent Development and Recruitment

Confronting the challenge of a shortage of digital talent, enterprises should focus on both internal talent development and external talent recruitment. For internal development, efforts can include on-the-job training, providing learning opportunities, and offering career development paths to stimulate employees' interest and motivation to learn digital technologies. Regarding external recruitment, enterprises can attract digital talent by providing competitive compensation packages, a favorable working environment, and opportunities for professional development. Additionally, establishing collaborative relationships with higher education institutions and research organizations to attract top-tier talent and access the latest research findings is an effective approach.

4.2. The Essence of Digital Transformation is the Process of Innovating Business Models and Technological Applications Based on IT Technologies

(1) Strengthening Research and Innovation in Basic Software Technology

Given the deficiencies in basic software technology, enterprises should collaborate with universities and research institutions to jointly invest in the research and development of core foundational technologies. Simultaneously, the government should support such collaborations by providing necessary financial subsidies or tax incentives

(2) Improving the Mechanism for the Transformation of Research Achievements:

Insufficient applied research capabilities can be addressed by establishing a robust mechanism for the transformation of research achievements[8]. Enterprises should establish long-term collaborative relationships with research institutions to enhance the transformation and application of research outcomes[9]. Additionally, the government can introduce policies to encourage collaboration between research institutions and enterprises, providing more channels for translating research outcomes into practical applications.

(3) Enhancing Data Management and Protection Capabilities

Considering the importance of data security and management, enterprises should increase investments and introduce advanced data management and security technologies. Simultaneously, there should be a focus on enhancing employee awareness through data security training. The government should also strengthen supervision of data security, formulate relevant data protection laws and policies, and provide a secure data environment for enterprises.

4.3. The Key to the Digital Transformation of "Specialized, Refined, Unique, and New" Enterprises is for Companies to Adopt a Comprehensive and Collaborative Perspective, Balancing Internal Resources and the Demands of Digital Transformation

(1) Strengthening the Cultivation of Internal Collaboration Capability

Enterprises should establish a more flexible and adaptive internal collaboration mechanism to ensure alignment between digital transformation and the company's specific needs. This involves enhancing employees' understanding of the importance of digital transformation, improving communication and collaboration capabilities among different departments within the enterprise, and optimizing resource allocation to ensure that digital transformation projects align with strategic goals.

(2) Promoting Collaborative Cooperation Among Enterprises in the Industry Chain

"Specialized, Refined, Unique, and New" enterprises should play a leading role in the industry chain, establishing closer collaborative relationships with upstream and downstream enterprises to jointly advance digital transformation. Additionally, through the creation of shared platforms or collaborative workgroups, the overall digitalization level and collaborative efficiency of the entire industry chain can be enhanced.

(3) Driving Coordinated Development Among Regions:

Governments should consider economic development disparities among regions and formulate more precise and differentiated support policies to promote balanced development between regions. Simultaneously, efforts should be made to strengthen communication and collaboration among regions, sharing successful experiences, complementing deficiencies, and collectively advancing the construction of the digital ecosystem. Furthermore, encouraging talent mobility and technology exchange between regions will enhance the overall digital transformation capability of the entire region.

4.4. Institutional Innovation is Critically Important for the Success of Enterprise Digitalization.

(1) Formulating Differentiated Support Policies

The government needs to formulate more precise and differentiated support policies for "Specialized, Refined, Unique, and New" (SRUN) enterprises based on the characteristics of different regions, development stages, and industries. This includes providing customized tax incentives, subsidies, technical support, and facilitating market access for different types of enterprises. Additionally, addressing the issue of regional development imbalances is crucial to ensuring policies cover all areas equitably and are effectively implemented.

(2) Breaking Market Monopolies to Promote Fair Competition

The government should take active measures to break market monopolies in the digital economy, creating a more equitable market environment for SRUN enterprises. This may involve strengthening market regulation to prevent unfair competition practices while encouraging collaboration and communication within the industry to enhance overall innovation and competitiveness.

(3) Providing Targeted Financial Services

Addressing the financing challenges requires joint efforts from the government and financial institutions to develop financial products and services tailored to SRUN enterprises. This may include offering specialized loan products, supporting venture capital, and introducing government-backed loan schemes. Additionally, the government can promote friendlier practices toward small and medium enterprises by financial institutions through policy guidance, facilitating lower-cost financing channels.

5. Conclusion and Outlook

For small and medium enterprises, especially those pursuing the "Specialized, Refined, Unique, and New" (SRUN) model, there is an urgent need for digital transformation. This need arises not only from market challenges and the enhancement of competitiveness but is also crucial for achieving high-quality development. However, despite strong willingness, enterprises still face various challenges in terms of execution, technical support, and collaborative efforts, demanding careful attention and resolution of these challenges.

Simultaneously, the support from the government and financial institutions plays a crucial role in the process of enterprise digital transformation. Enterprises require more precise and differentiated policy support, along with targeted financial services, to overcome challenges during the transformation process. Additionally, enterprises should adopt comprehensive and systematic

transformation strategies, including strengthening cognitive capabilities, optimizing the transformation environment, enhancing collaborative levels, and optimizing institutional design. Digital transformation is not merely a technological upgrade; it also deepens corporate culture and management philosophy, with a lasting impact on enhancing the company's intrinsic value and market competitiveness. Through these comprehensive strategies and support, small and medium enterprises can effectively achieve digital transformation, maintaining an advantage in the fiercely competitive market.

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