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The Development Path and Challenges of Digital Transformation of Small and Medium Sized-Enterprises

-Taking Fat East and FAW-Volkswagen as Examples

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Abstract: In recent years, the digital economy and artificial intelligence have relied on some digital technologies to develop rapidly. The world is also in the post-pandemic era of gradual economic recovery, and many companies want to achieve their own transformation through unique pathways. Being a significant driver of China's employment and economy, small and medium-sized enterprises should take the lead in completing digital transformation. This paper analyzes in detail from the three dimensions of development status, development path, obstacles and challenges, and selects some examples and real data queried from China Metrology and Testing Network for investigation. The survey results show that small and medium-sized businesses are still in the first half of the digital transformation road. In the meantime, they will encounter many problems in the process of transformation, such as weak digital technology foundation, talent shortage, capital chain obstacles, and low general awareness. In addition, the study finds that the government's collaboration with enterprises is an important measure to encourage the digital transformation of small and medium-sized companies. With the goal to encourage the digital transformation of small and medium-sized enterprises, the government and relevant departments should issue and implement corresponding policies to pave the way further effectively for enterprises. Enterprises should also actively exert their subjective initiative and take every step down-to-earth.

Keywords: Small and medium-sized enterprises, Digital transformation, Development path, Challenge

1. Introduction

1.1. Research Background

Digitization began around 1960 and has been explored for more than half a century. It has brought mobile phones, computes, the Internet, and turned our lives upside down in the world. It is also gradually using big data in industry to improve production efficiency, improve service quality and reduce costs in medical treatment. Meanwhile, Xiaheng Zhang, More than 30 million small and

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medium-sized firms operated in China as of the end of 2018, and there were more than 70 million individual industrial and commercial firms, shown by the Ministry of Industry and Information Technology's data. More than 50% of China's tax revenue, more than 60% of its GDP, more than 70% of its technological innovation successes, and more than 80% of its employment came from the country's small and medium-sized businesses [1]. The digital economy helped SMEs get out of the epidemic. Therefore, in the era of surging development of the digital economy, the digital transformation of SMEs is a key point that must be paid attention to in the post-epidemic period.

1.2. Literature Review

1.2.1. Most Small And Medium-sized Enterprises Have Completed Their Digital Transformation Only Superficially

There have been some research results on the digital transformation of small and medium-sized enterprises at home and abroad, and in recent years, domestic scholars have also begun to pay close attention to this issue. Schallmo defines digital transformation as the deployment of new technology and the connection of players throughout the value chain. In Goerzig's and Bauernhansl's paper, the digital transformation. Lee and other researchers regarded practical digital technology in some business links of enterprises as digital transformation. Mengpei Yang, Zhang Wei and Huang Lin, three staff members of the China Electronics Standardization Institute, say that the digital transformation development of enterprises can be divided into three stages: exploration stage, practice stage and in-depth application stage. At the same time, they concluded that 89% of SMEs are in the discovery stage of the digital transformation, while only 8% are in the practice stage. Only 3% of SMEs are implementing digital transformation in depth [2]. Junyan Liu believes that most enterprises have a low level of on-site management and are still in the growth stage. In addition, enterprise information software has become a work burden, and the upgrading of population intelligence dividend has a great impact on the transformation of labor-intensive enterprises [3]. Liu Tao and Xiaheng Zhang agree that in terms of difficulties in operation and management, 55.12% of small and medium-sized enterprises believe that the pressure of market competition is high, which is the biggest difficulty that small and medium-sized organizations currently have. In terms of whether digital transformation can solve business pressure, more than half of SMEs believe that the effect of digital transformation in solving business pressure is not obvious. When it comes to digital transformation, more than half of companies have not yet done so [4].

1.2.2. Problems With The Digital Transformation Of Small And Medium-Sized Enterprises

Jieni Sun applies that China's small and medium-sized businesses have issues such as difficult policies and information asymmetry in the digital transformation [5]. Liu Ran finds that SMEs have the following problems: lack of transformation funds, shortage of digital talents, low level of original digitalization, and uncertainty about the degree of digital understanding and fit [6]. Hurvitz, Noa and Ilan, Yaron clarifies that reevaluating some of the difficulties encountered is necessary given that digital health has fallen short of expectations. We go over some of the most important issues that patients, doctors, payers, drug manufacturers, and healthcare systems confront today. Healthcare systems strive to get better results. A "nice to have" tool is one that can help with diagnosis, data collection, and process simplification but it is not required. Many of these systems still need to demonstrate improved results. Currently, due to outcome-based expectations and cost restrictions, "nice to have," "assists," and "ease processes" are insufficient. The constrained disorder principle (CDP) states that the inherent disorder of complex biological systems, which is restricted by dynamic bounds, defines these systems [7]. Strome, Trevor considers thatIn order to improve operations, sustainability, and competitiveness, airports are implementing digital transformation efforts. There

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are risks involved in not using a disciplined approach when building a digital transformation project portfolio, despite the fact that digital transformation offers airports a number of potential benefits, including improved insights, efficiencies, streamlined passenger journeys, and new business/revenue opportunities. Initiatives for digital transformation are not "one size fits all," just as no two airports are exactly alike. Projects to deploy new technology and introduce new systems under the banner of "digital transformation" must serve the airport's strategic goals and be in line with commercial and operational goals. Digital transformation initiatives must also fit within the resource and skills capacity of the airport to successfully perform the work and provide the necessary post-deployment support afterwards [8].

Xiaheng Zhang says that meeting market demand is the primary driver of digital transformation for SMEs, and improving production efficiency and significantly reducing costs are the other two important drivers for SME digital transformation, with nearly half of enterprises preferring these two factors [9].

1.2.3. Advice On The Digital Transformation Of Small And Medium-Sized Enterprises

Peijian Xu, Ding Qi and Siwen Zhang mention that the digital transformation of Chinese SMEs can: strengthen policy guidance and carry out precise policies. Strengthen funding and reduce transition concerns. Build ecosystems and strengthen public services. Improve the awareness of transformation and strengthen talent protection [10]. Shuqin Li mentions that it is necessary to create a good business environment for small and medium-sized enterprises, reduce investment risks, and innovate financing models [11]. Broadly speaking, these studies have provided some written suggestions for the digital transformation of small and medium-sized enterprises, but as for how these suggestions are implemented and implemented, they have not yet been able to provide effective countermeasures, and this article will make some exploration and research in these aspects.

Kirov, Vassil says the EU is aware of the connections and synergies between the green and digital transitions. Digital technology may play a crucial role in assisting the green transition by providing tools for tracking, maximizing, and regulating energy use, supporting smart grids, simplifying the integration of renewable energy sources, and enabling more sustainable production and consumption patterns. Environmental regulations can be made more efficient and successful by using digital solutions, which also make it possible to create cutting-edge green technologies [12]. According to Eizenberga, Agnese, Zeverte-Rivza, Sandija, and Auzina, Anita, the purpose of their study is to evaluate the state of the fisheries sector's digital transformation and develop scenarios for further digital transformation of the industry. Three development scenarios are developed as a result of the results of a SWOT analysis, which revealed the benefits and drawbacks of digital transformation in the fishing sector. 1) failure of SMEs in the fishing industry to adopt the digital transformation; 2) effective management of the fishing industry through the growth of sales networks; and 3) use of digitalization tools throughout the entire manufacturing process. The most prudent course of action to considerably boost the competitiveness of the businesses and their exportability is to adopt digitalization tools in all phases of production, as proposed by scenario No. 3, taking into account the results acquired and overall trends in the fisheries sector[13].

1.3. Research Significance And Paper Organization

This paper discusses the development path and challenges of SME digital transformation by examining the impact of digital transformation on itself in the context of the new era. The new era of digital economy is sweeping the world, affecting everyone's life. Many SMEs are facing the need for transformation, and digital transformation is a key step. At present, the digital transformation of small and medium-sized enterprises is in the early stage, and the proportion of digital transformation

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completed does not exceed 40%, and the overall digital transformation completion degree is not high. After the stage of exploration, practice, and in-depth application, enterprises can truly complete digital transformation. At present, more than 80% of small and medium-sized enterprises are still only in the exploration stage, and only no more than 10% of small and medium-sized enterprises have entered the final in-depth application stage. In addition, the digital transformation of small and medium-sized enterprises faces obstacles and challenges such as weak foundation, difficult government policies, shallow digital awareness, limited funds, and high investment costs. Moreover, the government should promote the transformation of small and medium-sized enterprises by formulating policies to benefit enterprises and increasing the construction of digital infrastructure. At the same time, enterprises should exercise their initiative and cultivate digital thinking to further promote digital transformation.

The structure of this paper is as follows: the first part is a literature review, the second part is written with various levels of perspectives, the third part is written with the research done in this paper, the fourth part describes the challenges of the digital transformation of SMEs, the fifth part describes its development path,and the last part is its conclusion.

2. Analysis On Digital Transformation Based On Supermarket Enterprise

2.1. The Current Situation Of The Digital Transformation Of The Entire Supermarket Industry

This paper Taking Yonghui Supermarket, RT-Mart Supermarket and Fat east Supermarket as typical representatives, supermarket transformation is now facing the background of the gradual warming of the economy after the epidemic, the trend of the digital economy dominating the economic development and the serious competition within the industry, and has made initial measures to make simultaneous efforts from multiple aspects, online and offline at the same time. In addition, they further improve the business system according to the needs of customers, which is considered their best choice. Innovate business in the field of online development on the basis of offline business. They continue to try and innovate their operating models, strive to create the most competitive business scenarios, and strengthen their in-depth operation capabilities for users. In this case, by investigating and comparing online supermarkets with offline supermarkets, this paper finds that for retailers selling daily necessities, customers pay more attention to the convenience of purchase, the quality of the goods, and whether they are relatively cost-effective.

In the context that many small and medium-sized enterprises are still in the pre-mid-stage of digital transformation or even do not know where to start, Fat east has initially completed the transformation to a large extent and advanced to the second half of the transformation by cultivating the digital thinking of internal personnel and developing the online consumer market while continuing to focus on offline consumer groups. In the process of digital transformation, they also encountered many problems encountered by small and medium-sized enterprises and even state-owned enterprises, but they finally did their best to enhance the management's management of digital cognition, establish talent training cooperation with universities, actively cooperate with the policies promulgated for them to benefit enterprises, and exert their own subjective initiative to help digital transformation.

It can be said that Fat east in Xuchang is a typical example of traditional supermarket retail in the local market to respond to market changes, seize digital development opportunities, cater to consumer psychology, and cultivate consumption habits.

2.2. The Overall Overview Of The Enterprises Fat East

Fat east makes full use of the dissatisfied return principle, adheres to the principle of customer-centric, customer satisfaction as the starting point, and maximizes customer satisfaction through meticulous

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service. At the same time, Fat east also has a development secret, giving full play to the mixed multi-format model from supermarkets to department stores, from specialty stores to convenience stores, from pharmacies to shopping malls. Fat east's dense commercial network almost monopolizes the daily retail in Xuchang area; On the basis of subdividing the format of the format, Fat east also carried out market segmentation to meet the food, clothing and entertainment needs of all ordinary people, all of which are readily available and satisfied, covering all market segments of high, medium and low. From the high-end Times Square, to the life square serving the mid-end market, to the mass clothing department store for mass consumption, it provides people of different life classes with the necessary guarantees for their lives and the convenience of entertainment consumption. Fat east often said: You treat consumers with sincerity, do everything possible to make every customer satisfied, let them really find the feeling of "emperor" in your store, and he will naturally visit him often. The most important thing in this is the behavioral principle called the "Eastern philosophy" by the fat east people: This paper should have an attitude of suffering losses and should not rush to achieve quick results in case of problems [14].

Additionally, Fat east Trading company operates in a "supermarket + department store" manner overall, setting it apart from traditional department shops. The operation of the company is self-operated. Since suppliers provide all of Fat east Trading Group's products, and since commodity pricing is done using the "cost price + profit" paradigm, Fat east has a high degree of pricing autonomy. Additionally, Fat East Trading Group's department store business uses a cooperative operation model, and the company gets the products it requires through open investment promotion. Fat east Trading Group gives the product's brand a lot of consideration and typically choose a brand with high social visibility and more recognition by customers.

2.3. Fat East And Other Supermarket Companies May Encounter Obstacles In The Process Of Transformation

The first obstacle to mention is its limited size. As a small and medium-sized supermarket with stores only in some jurisdictions of Henan Province, Fat east has certain limitations in its scale, not going out of the province and going to the whole country, more for customers in Xuchang City and surrounding counties, and has not been able to radiate the entire market and services to the whole country and even the world. At the same time, enterprises have limited ability and foundation to respond to unexpected situations, and are prone to sudden death in the entire transformation process. In addition, limited funds are also a problem that Fat east and many small and medium-sized enterprises may encounter in the process of transformation, because the cost of digital transformation is relatively high, and it is not easy to complete the transformation smoothly without sufficient funds or investment support. The next thing to mention is that employees and management have a weak understanding of digitalization, resulting in enterprise informatization becoming a work burden, and the overall level of digital application of employees is not high, which restricts the further transformation of enterprises. The last challenge that Fat east may encounter is the shortage of digital talents, which means that it may be difficult to give some information innovation to enterprises and promote the digital transformation of enterprises.

3. Case Studies In Automotive Digital Transformation

3.1. Development Status Of Digital Transformation Of Automobile Manufacturing Enterprises

At a critical stage of the contemporary wave of digital transformation, one of the most complex technology industries in the world’s production. The digital transformation of the automotive product manufacturing industry has become an inevitable trend in the development of the automotive industry.

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Nowadays, the development of the digitization is gradually changing the production process of traditional automobile production companies, including manufacturing and service processes. How to maintain an invincible position is what every automobile company needs to plan. Under the influence of general environmental trends, the ultimate goal of small and medium-sized enterprises in the process of high-quality sustainable development: committed to meeting market demand, greatly reducing production costs, improving production efficiency, and completing digital transformation. However, at the same time, the automobile industry will also face severe challenges from the "new four modernization" era in terms of automobile electrification, intelligence, networking, and information sharing.

3.2. Overview Of The FAW-Volkswagen Automobile Company

On February 6, 1991, FAW-Volkswagen Automobile Company was established. It is the first modern car production base built on an economic scale in my country. At the beginning of its establishment, the company adhered to the policy of construction, production and localization at the same time, and various tasks have made remarkable progress. Facing the new situation of vigorous development of the automobile industry, FAW-Volkswagen Changchun will continue to deepen its efforts in the field of fuel vehicles and new energy vehicles by integrating the existing development planning system and combining with the company's "2035" strategy, leaving a more solid pace on the track [14].

3.3. FAW-Volkswagen Automobile Company's Current Status Of Digitization Process

The company's digitization started relatively late. It has developed multiple digital projects based on multiple dimensions such as quality, cost, environmental protection, and energy. The basic digital data layer is relatively clear. It actively improves the independent development capabilities of each department and follows the planned development route. Through step-by-step implementation, this paper have conducted full research in various production plants and workshops, strengthened digital transformation, and promoted the effective transformation from process sorting to digital architecture application. This paper has already achieved some strategic results in assisting operations.

3.4. Difficulties In The Digital Upgrade Process Of FAW-Volkswagen Automobile Company

3.4.1. Challenges At The Organizational Level

In the process of building a digital transformation system, the results of the internal organization of the enterprise are related to all business processes of the enterprise unit. The company lacked coordination from the top during its transformation. In the context of the popularity of digitization, FAW-Volkswagen’s digital transformation and overall deployment are following suit, and the leadership and various departments have not responded in advance. This led to improper coordination among various departments and did not deeply integrate business and digitization. Each department only collected data and applied them separately and did not form a complete digital system. Subsequent innovation and business volume have laid hidden dangers.

3.4.2. Transform While Maintaining Business Growth

The company's capabilities in the initial digital transformation stage are still difficult to find space in the business layout for transformation, and it is difficult to integrate the data and information resources retained by traditional companies in the past few years. For Little- and medium-sized businesses like FAW-Volkswagen, based on the company's own profit level, it will increase resource investment in digital transformation in product layout and business model changes, and gradually enrich the development path of the automotive industry based on its own product development

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content. While activating the development of new models, relying on typical car styles to completely change FAW-Volkswagen's production and operation status and promote the transformation process at a deeper level is a big challenge.

3.4.3. Insufficient Digital Mining And Lack Of Unification

There are differences in data formats and broken information links between data in different systems, making it difficult to form a unified data chain. At the same time, due to the excessive use of data and the lack of security assessment, FAW-Volkswagen cannot obtain fully mined data and make use of it in the subsequent transformation process, and the business barriers of various departments cannot be broken through, which provides a network that is damaged by external intrusions. Data opportunities include core data loss and production shutdown due to viruses. As a result, the company is at a disadvantage at a critical stage in terms of core indicators such as production efficiency, cost control and other competitive factors [14].

4. The Development Path And Suggestion For The Digital Transformation Of Small And Medium-Sized Enterprises

4.1. Improve The Internal System Of The Enterprise

Further strengthen cooperation among various departments within the enterprise and always be prepared for risk prevention. Clarify the risks that each department needs to bear and make relevant plans and measures. In addition, the responsibilities of each position must be clarified to give employees a sense of collective belonging, strengthen employees' self-awareness, and further prevent company risks in advance. The soundness of internal control cannot be separated from the support of a good environment. The organizational structure should be improved to make it more scientific, and digital technology should be used to make the structure clearer so that information can be transferred between departments and information sharing can be achieved. In addition, it is also necessary to Strengthen the identification of risk points, improve supervision of risk points, and use digital technology to design a more complete plan to avoid risk points, especially nodes with great harm, which should be paid special attention to. After establishing an excellent internal control environment, people must promote the development of internal control. Employees must continue to learn relevant knowledge about financial risk internal control, combine online with offline, watch videos online, write experiences, and watch exhibitions and exchange meetings offline, so that everyone can All employees are involved in internal control work, mobilizing everyone's enthusiasm and making internal control deeply rooted in the hearts of the people.

4.2. Focus On Digital Core Technology Breakthroughs

Nowadays, digital technology continues to iterate and innovate. Small and medium-sized enterprises should keep up with the trend and consolidate big data, artificial intelligence, cloud computing, blockchain, etc. At the same time, combined with digital technology, they should also realize the integration of digital technologies such as quantum technology and biotechnology. New breakthrough. To promote the efficient operation of the digital technology supply system and the participation of multiple entities and platforms in digital technology research and development, individual must also achieve synergy between government, enterprises, industry, academia and research, and accelerate the cultivation of a group of new digital talents.

Improve the construction of new digital social infrastructure required for the digital transformation of my country's small and medium-sized enterprises. Digital infrastructure construction is the foundation of digitalization and determines the functional level and application prospects of

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digitalization. It is necessary to deploy new information infrastructure such as the industrial Internet, 5G networks, urban and rural Internet of Things, and data exchange centers in multiple places to continuously improve communication connection speeds.

5. Conclusion

5.1. Key Findings

Reading relevant literature on small and medium-sized enterprises in recent years has given me a lot of inspiration for this article. During the research process, this article found that Pang Donglai and FAW Daqing Co., Ltd. are actively carrying out digital transformation when facing the challenge of unstable market in the early stage of economic recovery, and the future development opportunities are very considerable. In response to the above information, this article conducts case analysis on the above two small and medium-sized enterprises and draws the research conclusion: digital transformation has a certain promoting effect on the development of small and medium-sized enterprises.

5.2. Future Studies

Fat East has made a good example for the digital transformation of small and medium-sized enterprises. In view of the fact that the vast majority of smes are still in the early stage of transformation or even have not yet started, and they encounter problems such as excessive financial pressure, limited scale, asymmetric information and low application of digital products. Learning from Fat East management and transformation mode is a good choice to a certain extent. In the near future, Lei Jun, CEO of millet, also went to Henan to pay attention to the fat east business super business model. Therefore, Little- and medium-sized businesses need to complete the transformation as soon as possible according to the experience and lessons of these enterprises that have achieved transformation to a certain extent, otherwise it is easy to be eliminated by the environment. In addition, FAW-Volkswagen Automobile Company provides the small and medium-sized automobile industry with typical problems that may be encountered in the digital transformation and new ideas to solve, develops a unique value proposition based on core competitiveness, utilizes the individuation and novelty of each small and medium-sized enterprise, and provides suggestions for future research to improve infrastructure and facilitate development. Reflect this FAW-Volkswagen Automobile Company in the practice of digital transformation typical. Based on these two case studies, this paper collaborates the current situation, development path and challenges of digital transformation of small and medium-sized enterprises. Under everyone's current thinking, digital applications have become an indispensable part of life, and enterprises want to develop well. Therefore, only by strengthening the belief in digital transformation, summarizing the previous transformation experience, cooperating with all sectors of society, formulating specific work goals for transformation and carefully and carefully implementing them, can the digital transformation of enterprises be completed to the greatest extent in a short period of time.

Authors Contribution

All the authors contributed equally and their names were listed in alphabetical order.

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