

# The Influencing Factors of Sustainable Development of E-Commerce in Small and Medium-sized Enterprises in China

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## ABSTRACT

The influence of COVID-19 not only affected the economy but also changes marketing channels. E-commerce has become a new platform for small and medium-sized enterprises (SMEs) to develop their businesses; however, there are still some new problems faced by SMEs in E-commerce because of limited scales. This study try to used SWOT analysis to show the status quo of SMEs in e-commerce and establish the AHP evaluation index system. The system first used questionnaires to score the internal and external factors that affected the sustainable development of E-commerce for SMEs and constructed a judgment matrix to be compared. The result showed that SMEs should adopt the WO striving strategy and expand market share to promote the transformation of their own disadvantages and society's environment. The study tried to help SMEs find sustainable development in E-commerce after being influenced by COVID-19. In addition, past research have focused on large and medium-sized enterprises and this study trying to focused on SMEs which as a new research field for E-commerce in China.

**Keywords:** Small and Medium-sized Enterprises, SWOT Analysis, E-Commerce, Sustainable Development, AHP Evaluation Index System

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## INTRODUCTION

The development of e-commerce in China began in 1995 when China Telecom opened internet access services to the public, and the State Planning Commission initiated the China Commodity Ordering System (CGOS), the country's first computer network commodity trading system. By 2003, online shopping platforms such as Alibaba and JD.com began to emerge, marking a shift away from traditional physical business methods. In 2008, e-commerce transactions in China reached 3.1 trillion yuan, representing a year-on-year increase of 43%. The transaction volume for 423,480 industrial enterprises above a designated size totaled 1,196.85 billion Yuan, comprising 1,436.18 billion yuan in e-commerce sales and 957.52 billion Yuan in e-commerce procurement. Notably, 31% of small and medium-sized enterprises (SMEs) reported using the internet to find suppliers, while 24% engaged in marketing and promotion online. These statistics illustrate how e-commerce is transforming business management models and improving resource allocation efficiency. The global COVID-19 pandemic has further accelerated this shift, making e-commerce an integral part of daily life and prompting an increasing number of businesses to enter the growing e-commerce market (Laudon & Traver, 2020).

Despite the advancements, Chinese SMEs face several challenges in the online business landscape. First, there is a significant gap in understanding the theoretical aspects of e-commerce among many SMEs. With a historically weak management foundation, leaders often lack awareness of information technology, hindering their ability to seize opportunities in the information market of the knowledge economy. Second, the e-commerce infrastructure of these SMEs is often outdated. Current statistics indicate that only 22.3% of Chinese SMEs are actively participating in e-commerce, facing issues such as unclear website objectives and difficulty identifying target customers. Additionally, funding shortages are a pervasive challenge, as many enterprises struggle to invest adequately in the development and utilization of e-commerce platforms, slowing their progress. Finally, the globalization of SMEs remains limited. While e-commerce is a vital product of global economic integration and technological advancement, many Chinese SMEs are still adapting to the realities of international business, often constrained by the dominance of developed countries in this space.

This study aimed to address these challenges by exploring the future development direction and strategies for e-commerce among Chinese SMEs. Specifically, it sought to fill a gap in the existing literature by focusing on the unique challenges and opportunities faced by Chinese SMEs in the e-commerce landscape. While prior studies have generally examined the impact of e-commerce on businesses, few have specifically investigated the issues confronting Chinese SMEs. This study contributes to the literature on e-commerce development by providing insights into the evolving landscape of SMEs, particularly in the context of the sustainable development goals (SDGs). These goals are essential for ensuring that SMEs contribute meaningfully to China's GDP while balancing economic growth with environmental and social responsibilities.

By renewing the concept of enterprise operations in the aftermath of the COVID-19 pandemic, this study offers new strategies for SMEs in China to navigate the evolving e-commerce landscape and capitalize on emerging opportunities.

## LITERATURE REVIEW

The Chinese “Small and medium-sized enterprise Promotion Law” defined SMEs as “enterprises established in accordance with the territory of the People’s Republic of China with relatively small personnel and business scale, including medium-sized enterprises, small enterprises and micro-enterprises, and the details of the standard of operating income and total assets are formulated in light of industry characteristics” (Asdecker, 2021). For example, the “Small and Medium-sized Enterprises Classification Standard Regulations” in 2017 showed that the number of employees of the SMEs in the industrial field was less than 1,000 and the operating income is less than 400 million Yuan. In the services industry, such as accommodation, the number of employees of SMEs was less than 300 and the operation income was less than 100 million Yuan. Table 1 illustrates it clearly.

**Table 1: Chinese SMEs Standard Regulations, 2011**

Category	Factors	Measurement	Medium-size	Small	Micro
Agriculture, Forestry, Animal, Fishery	Ol(Y)	Ten-thousand yuan	$500 \leq Y < 20000$	$50 \leq Y < 500$	$Y < 50$
Industry	P(X)	Person	$300 \leq X < 1000$	$20 \leq X < 300$	$X < 20$
	Ol(Y)	Ten-thousand yuan	$2000 \leq Y < 40,000$	$300 \leq Y < 2000$	$Y < 300$
Wholesale	P(X)	Person	$20 \leq X < 200$	$5 \leq X < 20$	$X < 5$
	Ol(Y)	Ten-thousand yuan	$5000 \leq Y < 40,000$	$1000 \leq Y < 5000$	$Y < 1000$
Retail	P(X)	Person	$50 \leq X < 300$	$10 \leq X < 50$	$X < 10$
	Ol(Y)	Ten-thousand yuan	$500 \leq Y < 20,000$	$100 \leq Y < 500$	$Y < 100$
Transportation	P(X)	Person	$300 \leq X < 1000$	$20 \leq X < 300$	$X < 20$
	Ol(Y)	Ten-thousand yuan	$3000 \leq Y < 30,000$	$200 \leq Y < 3000$	$Y < 200$
Information transmission	P(X)	Person	$100 \leq X < 2000$	$10 \leq X < 100$	$X < 10$
	Ol(Y)	Ten-thousand yuan	$1000 \leq Y < 10,000$	$100 \leq Y < 1000$	$Y < 100$
Software, information technology services	P(X)	Person	$100 \leq X < 300$	$10 \leq X < 100$	$X < 10$
	Ol(Y)	Ten-thousand yuan	$1000 \leq Y < 10,000$	$50 \leq Y < 1000$	$Y < 50$
Leasing, business services	P(X)	Person	$100 \leq X < 300$	$10 \leq X < 100$	$X < 10$
	TA(Z)	Ten-thousand yuan	$8000 \leq Z < 12,0000$	$100 \leq Z < 8000$	$Z < 100$
Other unlisted industries	P(X)	Person	$100 \leq X < 300$	$10 \leq X < 100$	$X < 10$

Source: National Bureau of Statistics official website 2023

Notes: Ol - Operation Income. P - Participation of Enterprises (Employees), TA - Total Assets. Industry - including mining, manufacturing, production and supply of electricity, heat, gas and water. Transportation - excluding railway transportation. Information transmission - including telecommunications, Internet and related services. Other unlisted industries - including scientific research and technical services, water conservancy, environment and public facilities management, residents service, repair and other services, social work, culture, sports and entertainment, etc.).

In recent years, Chinese SMEs have rapidly advanced to promote technological innovation and drive economic growth. Currently, the number of SMEs in China exceeds 2 million, accounting for more than 90% of all enterprises and contributing over 45% of total tax revenue. Furthermore, SMEs generated approximately 60% of the total value of products and services in China and created over 80% of urban jobs. More than 70% of invention patents were attributed to SMEs, with a patent licensing growth rate exceeding 30%, underscoring their vital role in social and economic development (Gregory, Ngo, & Karavdic, 2019).

Amid this backdrop of SME development and increasing demand for international business engagement, many SMEs have begun to establish online operations, referred to as e-commerce (Qi et al., 2022). Research focusing on SMEs is particularly valuable, as it highlights their significant contributions to China's GDP in recent years (Alam et al., 2021). The National Bureau of Statistics reported a correlation coefficient exceeding 0.8 between SME activity and regional economic growth, indicating that areas with vibrant SME activity are often economic hotspots (Laudon & Traver, 2020).

By the end of 2023, there were 12.082 million home appliance stores in China, with annual e-commerce transaction volumes surpassing 38.3 trillion Yuan and an average annual growth rate of 32.6% (Duan et al., 2022). Traditional industries such as Shuanghui and Baixiang, along with emerging sectors like Fang Zhongshan Hu Spicy Soup and Lingbao Apple, have also embraced e-commerce (Hua & Chiu, 2022).

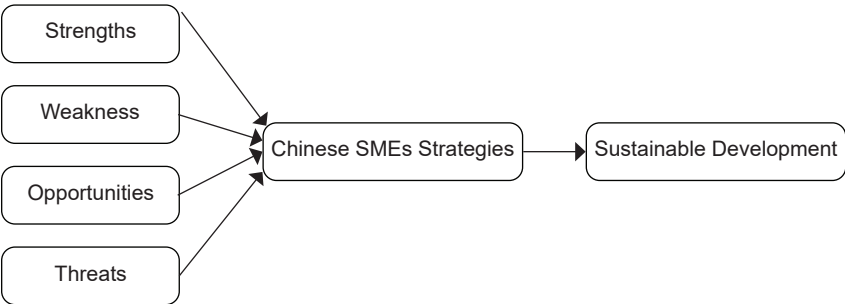
However, several constraints hinder the e-commerce growth of SMEs. First, the lack of new technological support is a significant challenge (Mou et al., 2019); many SMEs operate with outdated technology due to insufficient financial resources to acquire modern equipment (Alam et al., 2021). Second, managerial deficiencies are prevalent, as many SME leaders typically possess lower educational qualifications and limited vision for future development (Pang, Wang, Li & Duan, 2019). Third, the uneven development of e-commerce across different regions reflects disparities in economic conditions and government policies, with western China generally showing more robust e-commerce growth than eastern regions (Lu & Chen, 2021).

Additionally, the shortage of e-commerce talent poses another barrier. As e-commerce is a relatively new tool for marketing, SMEs often struggle to attract qualified professionals (Lu & Chen, 2021), who typically demand salaries beyond the reach of most SMEs (Bostan Ali et al., 2024). Furthermore, the inadequacy of website infrastructure exacerbates these issues; many regions lack access to advanced internet technologies such as 5G, hindering online shopping adoption and keeping some SMEs reliant on face-to-face business practices (Mou et al., 2019). Finally, unclear target customer identification complicates data analysis efforts, making it difficult for SMEs to effectively reach their desired customer segments (Lu & Chen, 2021).

To frame this literature review, the Resource-Based View (RBV) theoretical framework was employed, which emphasizes the importance of resources and capabilities in achieving competitive advantage (Duan et al., 2022). This framework highlights the necessity for SMEs to leverage their unique resources—such as innovative capabilities and adaptability—to thrive in the e-commerce landscape (Asdecker, 2021) and additionally, the literature review will explore the impact of COVID-19 in which significantly accelerated the adoption of e-commerce by forcing SMEs to pivot their operations online in response to changing consumer behaviors and restrictions (Laudon & Traver, 2020).

Moreover, the role of major e-commerce platforms like Alibaba, JD.com, and Pinduoduo is crucial in supporting SME growth (Pang, Wang, Li & Duan, 2019). These platforms not only provided necessary infrastructure but also facilitated market access and helped SMEs to expand their reach and improve their competitiveness in the digital marketplace.

The significance of digital marketing strategies, including search engine optimization (SEO), social media marketing, and content marketing, cannot be overlooked. These strategies are essential for driving traffic to SME e-commerce sites and fostering customer engagement (Gregory, Ngo & Karavdic, 2019). Furthermore, the logistics and supply chain management aspects of e-commerce present both challenges and opportunities for SMEs. Efficient logistics are critical for timely delivery and customer satisfaction, while effective supply chain management can enhance operational efficiency and reduce costs (Mou et al., 2019).



**Figure 1: Conceptual Framework**

## METHODOLOGY

### Data

The data for this study was gathered from Chinese SMEs listed on the SME Board and the Growth Enterprise Market (GEM) Board. Established in 2004 in conjunction with the Shenzhen Stock Exchange (SZ Main Board), the SME Board aims to support SMEs in need of funding and to encourage high-tech SMEs with promising futures to seek listing on the SZ Main Board (Özgül & Zehir, 2023). The GEM Board was founded in 2009 to assist small businesses in fulfilling the requirements for a full listing on the SZ Main Board. Consequently, the study population consisted of registered SMEs in China.

The data for this study came from a sample of Chinese SMEs listed on the SME Board and the GEM Board and non-listed SMEs. The SME Board was established in 2004 in conjunction with the Shenzhen Stock Exchange (Shenzhen Main Board) to support SMEs in need of capital and to encourage promising high-tech SMEs to list on the Shenzhen Main Board (Özgül & Zehir, 2023). The GEM Board was established in 2009 to help small businesses meet the requirements for full listing on the Shenzhen Main Board. Therefore, the sample for this study consisted of SMEs registered in China, and the judgmental sample method was used for sampling.

In this study, the author interviewed 20 respondents from Chinese SMEs listed on these boards. But it is worth noting that our sample selection included companies listed on the main board with a market value of more than 10 million, as well as some start-ups.

### Sampling Method

This study used personal and professional networks to select 20 SMEs from western, eastern, southern, and northern China at a ratio of 30%, 20%, 25%, and 25%, and adopted a stratified sampling method because the economic development of different regions in China is different, and this method could cover a more comprehensive picture, for example, western China seemed to show better economic conditions, and SMEs mostly opened online businesses after 2015. The total sample size was 20

SMEs in China, because these 20 SMEs included 10 with a net profit of more than 10 million US dollars in the past three years (Lu & Chen, 2021) and non-listed SMEs with a net profit of less than 10 million US dollars. The questions we asked during the interview process included “What breakthroughs and opportunities has your company experienced in the COVID-19 environment?”

## **Data Collection Procedure**

This study used qualitative and quantitative methods to ensure the professionalism of the evaluation, and investigated employees of managers, in charge of the e-commerce platform, which enabled them to compare hierarchical indicators in pairs and then score the result. This study first used the qualitative method of face-to-face interviews. The researchers entered these 20 SMEs and interviewed the managers of SMEs to find out the key factors from strengths, weakness, opportunities and threats in the enterprise. After concluding these results from managers, this study was designed as questionnaires using quantitative methods and let the employees of SMEs and those in charge of e-commerce to complete it. This questionnaire was based on a 5-point Likert scale with “strongly disagree, disagree, neutral, agree, and strongly agree” and the whole questionnaire had 23 questions and required approximately fourteen minutes to complete to verify the results of factors from the interviews. Finally, this study used the AHP evaluation index system to analyze the different weights and choose the highest position as the key factor for analysis. The Analytical Hierarchy Process (AHP) is a structured technique that uses mathematics and psychology to organize and analyze complex decisions. Developed by Thomas L. Saaty in the 1970s, the method provides a comprehensive and rational framework for comparing the relative importance of the various elements involved in the decision-making process (Kurttila et al., 2000).

## **Efficiency test**

The whole research process was took for one year, and the face-to-face interviews were conducted from August to December 2022. The questionnaire design and pilot test were conducted in January and February 2023 by using e-mail, and the result was obtained in May. Finally, the 20 questionnaires were all returned with a response rate was 100% and the efficiency rate was also 100% in May of 2023 (Zhou, 2022).



## RESULTS AND DISCUSSION

### Descriptive Analysis

#### ***Strength analysis (S) of Chinese SMEs***

The first one was flexibility and innovation. Most SMEs were engaged in only one specialized product or service which reduced the risks in the whole operation. Therefore, SMEs may developed their unique core competitiveness by continuing innovation and creating new strategies, it can be said that the disadvantage of SMEs was limited operation scale, but it could also easily create innovation into lower costs because online businesses need to change their strategies rapidly and some large enterprises need to abandon past equipment and technology with higher costs, SMEs could easily achieve the goal. The second one was decision management in SMEs was more flexible. Compared with large enterprises, SMEs had a sample management structure and organizational structure, it can also be said that the internal information communication in SMEs seemed less and smoother and the policies may be delivered on time. For example, the marketing department may find out a new strategy for opening an online business by Live Streaming, but the manager of the marketing department may first find out the successful data resources and provide a report to the marketing supervision and administration department, and if the report has real value for the operation, the marketing supervision and administration department may try to meet with leaders of marketing, and the finally decision making may appear one month later by meeting with different stakeholders. The third one was refined organizational structure. Because of the simple organization structure, it is easier for SMEs to carry out e-commerce immediately and reduce many middle difficulties from relevant policies, promotion and implementation of its products or services. In addition to this, refining the organizational structure can also reduce learning costs and switching costs, and the training of employees was quite simple to achieve the original goals. Moreover, the changes in the Internet were also rapid and the faster for learning the application of new technologies and policies will be easier for the whole enterprise to catch up with development of internet and society and the direct brought by e-commerce were easily accepted by employees at the same time.

### ***Weakness analysis (S) of Chinese SMEs***

The first one was the limited investment funds of Chinese SMEs. It could be explained that the initial needs for establishing an e-commerce platform may require lots of manpower, material and financial resources. These decision-making not only needs a manager to plan it, but also need lots of financial support. However, many SMEs could not afford so much money in the initial period. Some SMEs may were worried about the profits and returns because of the return from the initial operation of e-commerce was not obvious yet and managers also needed to consider the risks in this period. The second one was the shortage of e-commerce talent. Many Chinese SMEs had a lower level of internal information, incomplete information institutions, insufficient operation and management collaboration. These problems all needed employees to keep original operations, but there was a lack of professional talents who could easily operate and maintain e-commerce platforms, especially the lack of comprehensive e-commerce talents. The third one was the lower marketing share. At present, compared with SMEs in China, the larger enterprises in China had carried out e-commerce with a higher market share of over 70%. It could be said that almost all larger enterprises in China opened their e-commerce business and have taken a large market share although the number of e-commerce platforms established by SMEs continues to increase currently and the total number is also showed large (Wang & Zhou, 2013). The last one was unclear website construction. Many SMEs believed that e-commerce businesses only need to build a website and put the promotional materials of the enterprises on the website. Therefore, the product or service information was also incomplete and could not attract customers for purchase, which means it could not pay attention to aesthetics and customer experience, and target group also not clear and even the contact information was also wrong (Bostan Ali et al., 2024). There too little valuable information about products or services which made the e-commerce platform useless and could not play a real marketing role.

### ***Opportunities analysis (S) of Chinese SMEs***

The first one was good policy environment in China. As for the business environment policies, the government policies on the development of e-commerce for SMEs played a vital role. At present, the government has promulgated several policy documents to support the development of corporations, which included tax policies that reduced 20% tax for

SMEs when they first open their online businesses. Another one was talent policies in which governments give more financial support for recruitment of talents at a certain time. The next was internet marketing innovation. At present, the development of big data resources and cloud computing has changed the previous marketing methods which could be said that online marketing has ushered in a new stage. The development of e-commerce had greatly shortened the business cycle which is an excellent opportunity for the transformation and development of SMEs, which also was a chance for SMEs to use new technologies and new methods to restructure business processes to cope with the ever-changing market. The third one was resource sharing. In recent years, the establishment of e-commerce platforms for SMEs had increased day by day. The marketing environment of e-commerce was relatively favorable which meant all walks of life could cooperate on the Internet to achieve a win-win situation and achieve a reasonable allocation of resources. For example, the SMEs for a business to take photos for travelers could cooperate with traveling agencies and PS for photography agencies and these three agencies could cooperate and bring out a package price for travelers which was not only good for customers' cost of traveling, but could also save time for choosing agencies.

### ***Threats analysis (S) of Chinese SMEs***

The first one was lower customer loyalty. The whole society used to pay face to face in cash and some people believed that online transactions seemed to be risky and had lower confidence for paying online with no trust. It could be said that some customers may only purchase once because of lower trust in online payment. At the same time, the development of e-commerce had intensified competition which means more and more enterprises prefer to provide products or services online and the customer's switching costs had decreased. Therefore, for customers who often purchased or switched between similar brands and SMEs began to provide discounts to keep customer loyalty. The second one was an imperfect social supporting service system. Chinese e-commerce was still in the primary stage of e-commerce development. The degree of informational development in various regions of China was uneven, and the network infrastructure was not yet complete. Moreover, a healthy, fair and open competitive environment has not been established at the same time. At present, laws and regulations on e-commerce did not seem perfect. There were still some bottlenecks in the development of e-commerce in credit, payment and logistics. The third

was logistical problems in SMEs. Some SMEs preferred to use third-party logistics, but there were still many problems appeared, such as product loss, communication difficulties and unclear responsibilities because of the different quality of third-party logistics and the fees for logistics.

Based on the previous analysis, an Analytic Hierarchy Process (AHP) Evaluation Index System was established which was divided into three levels (see Table 2).

**Table 2: AHP Evaluation Index System**

AHP evaluation index system	
Target level (TL)	Strengths (S) Weaknesses (W) Opportunities (O) Threats (T)
Criterion level (CL)	(Strengths S) strong flexibility innovation ability; flexible decision-making management; refined organizational structure.  (Weaknesses W) limited enterprise investment funds; lack of e-commerce talent; low market share; imperfect website construction. (Opportunity O) good policy environment; innovation in online marketing; resource sharing.  (Threats T) low customer loyalty; imperfect social supporting service system; serious logistics problems.
Plan level (PL)	SO: pioneering strategy WO: striving strategy ST: conservative strategy WT: resistance strategy

**Empirical Analysis**

This study adopted the expert interview method to ensure the professionalism of the evaluation. The survey subjects were 20 experts randomly selected by employees of SMEs and heads of corporate e-commerce platforms from four different areas of China. This questionnaire was conducted via email or face-to-face interviews with a response rate of 100% and an effective rate of 100%. This study also selected Yaahp10.0 Software to organize and analyze the data. The elements was numbered in each group into S1, S2, S3, L Sn; W1, W2, W3, L Wn; O1, O2, O3, L On; T1, T2, T3, L Tn. Finally, pairwise comparisons were shown between each element of the same category at the same level. By using the group decision-making calculation function in the Yaahp10.0 Software to calculate

the weight of single-level indicators within SWOT groups, we can easily obtain the Strengths group judgment matrix, Weaknesses group judgment matrix, Opportunity group judgment matrix, and Threat group judgment matrix (see Table 3 and 4).

**Table 3: Strengths And Weaknesses Group Judgment Matrix**

S	S1	S2	S3	Weights	W	W1	W2	W3	W4	Weights
S1	1.00	1.57	2.48	0.49	W1	1.00	0.79	0.65	2.03	0.22
S2	0.53	1.00	1.34	0.28	W2	1.22	1.00	0.32	3.67	0.29
S3	1.65	9.62	1.00	0.23	W3	1.98	1.56	1.00	3.26	0.42
					W4	0.35	0.41	0.34	1.00	0.07

**Table 4: Opportunities And Threats Group Judgment Matrix**

O	O1	O2	O3	Weights	T	W1	W2	W3	Weights
O1	1.00	1.67	0.26	0.26	T1	1.00	1.92	1.23	0.42
O2	0.46	1.00	0.44	0.18	T2	0.53	1.00	0.54	0.27
O3	3.76	4.24	1.00	0.56	T3	0.85	1.74	1.00	0.31

According to the SWOT inter-group judgment matrix and weight results, the judgment matrix of the weaknesses group occupied the largest proportion of weight with 0.329, the judgment matrix of the opportunity group ranked second with a weight of 0.281. The judgment matrix of the strength group ranked the third position with 0.219 and threat group judgment matrix showed 0.171. As for the final results of the diagram in factors affecting the sustainable development of e-commerce in Chinese SMEs generated by Yaahp Software, it was easily shown that the weight of pioneering strategy (SO) was 0.173, the weight of conservative strategy (ST) was 0.232, the weight of striving strategy (WO) was 0.402, the weight of resistance strategy (WT) was 0.187. Therefore, the final result showed that current Chinese SMEs should adopt a WO striving strategy for SDGs.

## Diagnostic Test

As for the results from the research, Chinese SMEs can adopt a WO striving strategy for SDGs. WO striving strategy means SMEs should first find out their weakness and try to catch up with opportunities from external resources used. The results from the weakness aspects is similar with the study of “Assessing economic implications for micro, small and medium enterprises in Thailand post Covid-19 lockdown” in Thailand areas (Bostan Ali et al., 2024). However, there were showed some different arguments from

that the conservative strategy could be used in cross-border e-commerce field of Chinese SMEs. The reasons that were different with this research which could be divide into two aspects, the first one was this study focused on E-commerce and included cross-border e-commerce field, and Chinese SMEs were more active in the national field. The second was cross-border e-commerce field may needed to consider the policies and law in other counties which could show different strategies (Xie, 2021).

This showed first of all, the government brings out lots of policies to reduce taxation and house rent at the same time, which means SMEs can just apply for these policies and reduce the original costs. Moreover, China has already brought out a policy that SMEs can apply for bank loans without interest for five years (Lu, et al., 2021). The second one is lacks professional e-commerce that can cooperate with larger enterprises and universities. The third one is cooperate with large enterprises because of better resources and brand value. However, live streaming is another opportunity in marketing for SMEs because it can attract customers to purchase and know about the promotion of products. The last one is catch up with the opportunity for resource sharing from customers, which means some products in different SMEs can cooperate in promoting the products. For example, diapers and baby foods can be promoted at the same time to attract parents to purchase. The fifth is government could led customers to pay more attention to the products from Chinese SMEs and provide policies for purchases which can also create better circulation.

## CONCLUSION

### Key Findings

In conclusion, the rapid advancement of e-commerce platforms and the adoption of Sustainable Development Goals (SDGs) for Chinese SMEs highlight the urgent need for comprehensive policies that support their growth across society. Based on the research findings, it is evident that Chinese SMEs can benefit significantly from implementing a Weakness-Opportunity (WO) Striving Strategy for achieving SDGs. The WO Striving Strategy focuses on leveraging existing opportunities to address internal weaknesses and promote sustainable growth, and for Chinese SMEs this strategy could involve several key actions:

**Market Expansion:** SMEs should actively explore new market segments and geographic areas, particularly through e-commerce channels. By leveraging online platforms, they can reach a broader audience and tap into emerging markets. For example, a case study of a successful e-commerce SME, such as Xiaomi, demonstrated how targeted marketing strategies can help small businesses expand their customer base significantly.

**Innovation and Technology Adoption:** To effectively implement the WO strategy, SMEs should invest in digital transformation and innovative technologies. This includes adopting cloud-based solutions and data analytics to enhance operational efficiency. A notable example is Haier, which utilized IoT technology to improve product offerings and customer experience, leading to increased market competitiveness.

**Collaboration and Partnerships:** Forming strategic alliances with larger enterprises or industry associations can provide SMEs with additional resources and expertise. Such collaborations can facilitate knowledge sharing and open up new distribution channels. The partnership between Alibaba and various SMEs in the e-commerce sector illustrated how such alliances can drive growth and innovation.

**Sustainability Practices:** SMEs should integrate sustainable practices into their business models to enhance their brand image and appeal to environmentally conscious consumers. For instance, companies like TaoBao have promoted eco-friendly products and practices, contributing to a positive environmental impact while attracting a loyal customer base.

It is said that by adopting the WO Striving Strategy, Chinese SMEs can not only maximize current opportunities and expand their market share but also mitigate environmental threats, thus transforming their weaknesses into strength and this approach will enable them to tap into their full potential and foster the rapid development of the Chinese private economy.

## **Theoretical Contribution**

This research showed the future development directions of Chinese SMEs and it fills the gap in this field regarding the strategic direction of corporate development after the COVID-19 epidemic. Moreover,

this research deepened the research on SMEs and gave a more detailed explanation of the definition and classification of SMEs at the theoretical level. Thirdly, the study provides a more precise understanding of e-commerce and clarifies the development of e-commerce in China, which provides a more in-depth theoretical explanation for the future.

## **Practical Contribution**

The first one is lower customer loyalty. There are many competitors in the same industry because lots of SMEs have become competitive, SMEs can give discounts in time for the new products and attract these loyal customers to introduce new customers (Alam et al., 2022).

According to the result of WO striving strategy for SDGs, this study provides five suggestions for improving corporate competitiveness (Atan et al., 2018). The first one is to vigorously improve the level of its e-commerce platform under the guidance of the government, it could be said that the government provides more policies to encourage SMEs join the group of e-commerce to protect the financial safety and improve the whole level of industries. The second one is the universities and the whole society need to pay more attention to the development of talent and bring out the policies to attract talents to help e-commerce business, for example the talents in e-commerce live streaming (Atan et al., 2018). The third one is that the higher speed of the internet and financial safety in the platform may not only protect the safety of producers but also attract more customers to join online business which directly improves the profits of enterprises. The fourth one is to renew the products or services, or even the discount news in time to attract customers, it may not only be eliminated by the official website but also reduce the chances of customers surfing if the website design not renewed in time (Bostan Ali et al., 2024). The last one cultivates loyal customers for the products or services, it can be explained that enterprises may provide membership cards or festival discounts for the customers who purchase online which not only provide more sales, but also can attract more new customers at the same time (Alam et al., 2022). Moreover, cultivating loyal customers also needs enterprises to keep good services or products for customers always compared with other competitors.



## Limitations and Future Research

Although this study had used the SWOT-AHP method and give suggestions to the Chinese SMEs in e-commerce, there are still some shortcomings. The factors that affect the sustainable development of e-commerce in SMEs are comprehensive and cannot be concluded comprehensive, and there are certain limitations in the model establishment, the sample acquisition and research methods. In addition to this, the number of samples in this study was not very large and the situations SMEs in e-commerce has also changed rapidly according to the development society and internet. Moreover, the potential bias will affect the respondents in rating of factors of e-commerce in Chinese SMEs, for example, the education level, age, position in SMEs, years of working, it could be said that these potential bias may have also influenced the results.

Therefore, the research representativeness of Chinese SMEs in e-commerce only as a reference for other countries and the quantity of research still needs to be further improved and comprehensive.

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## REFERENCES

- Alam, Md. M., Awawdeh, A. E., & Muhamad, A. I. B. (2021). Using e-wallet for business process development: Challenges and prospects in Malaysia. *Business Process Management Journal*, 27(4), 1142–1162.
- Alam, Md. M., Tahir, Y. M., Saif-Alyousfi, A. Y. H., Ali, W. B., Muda, R., & Nordin, S. (2022). Financial factors influencing environmental, social and governance ratings of public listed companies in Bursa Malaysia. *Cogent Business & Management*, 9(1).

- Asdecker, B. (2021). Building the e-commerce supply chain of the future: What influences consumer acceptance of alternative places of *delivery on the last-mile*. *Logistics*, 5(4), 90.
- Atan, R., Alam, Md. M., Said, J., & Zamri, M. (2018). The impacts of environmental, social, and governance factors on firm performance. *Management of Environmental Quality: An International Journal*, 29(2), 182–194.
- Bostan Ali, W., Olayinka, J. A., Alam, M. M., & Immelman, A. (2024). Assessing economic implications for micro, small and medium enterprises in Thailand post Covid-19 lockdown. *PLoS ONE*, 19(2), e0294890.
- Duan, C., Kotey, B., & Sandhu, K. (2022). The effects of cross-border e-commerce platforms on transnational digital entrepreneurship. *Journal of Global Information Management*, 30(2), 1–19. <https://doi.org/10.4018/jgim.20220301.oa2>
- Gregory, G. D., Ngo, L. V., & Karavdic, M. (2019). Developing e-commerce marketing capabilities and efficiencies for enhanced performance in business-to-business export ventures. *Industrial Marketing Management*, 78(3), 146–157.
- Hua, Q., & Chiu, C. L. (2022). Analysis of Young Chinese Purchase Intention on TikTok Live Streaming. *Management Review: An International Journal*, 17(1), 65–99. <https://doi.org/10.55819/mrij.2022.17.1.65>
- Kurttila, M., Pesonen, M., Kangas, J., & Kajanus, M. (2000). Utilizing the analytic hierarchy process (AHP) in SWOT analysis — a hybrid method and its application to a forest-certification case. *Forest Policy and Economics*, 1(1), 41–52. [https://doi.org/10.1016/s1389-9341\(99\)00004-0](https://doi.org/10.1016/s1389-9341(99)00004-0)
- Laudon, K. C., & Traver, C. G. (2020). E-commerce 2019: Business, technology, society. *Pearson Education Limited*.
- Li, S. (2006). Current status and development strategies of e-commerce for small and medium-sized enterprises. *Journal of Xuzhou Institute of Technology*, 95-98.

- Lu, B., & Chen, Z. (2021). Live streaming commerce and consumers' purchase intention: An uncertainty reduction perspective. *Information & Management*, 58(7), 103509.
- Mou, J., Cohen, J., Dou, Y., & Zhang, B. (2019). International buyers' repurchase intentions in a Chinese cross-border e-commerce platform. *Internet Research*, 30(2), 403–437. <https://doi.org/10.1108/intr-06-2018-0259>
- Özgül, B., & Zehir, C. (2023). How managers' green transformational leadership affects a firm's environmental strategy, green innovation, and performance: The moderating impact of differentiation strategy. *Sustainability*, 15(4), 3597.
- Pang, C., Wang, Q., Li, Y., & Duan, G. (2019). Integrative capability, business model innovation and performance: Contingent effect of business strategy. *European Journal of Innovation Management*, 22(3), 541–561.
- Qi, Y., Wang, X., Zhang, M., & Wang, Q. (2022). Developing supply chain resilience through integration: An empirical study on an e-commerce platform. *Journal of Operations Management*, 3(1). <https://doi.org/10.1002/joom.1226>
- Sheikh, Z., Yezheng, L., Islam, T., Hameed, Z., & Khan, I. U. (2019). Impact of social commerce constructs and social support on social commerce intentions. *Information Technology & People*, 32(1), 68-93.
- Wang, Y., & Zhou, R. (2013). Research on promoting the e-commerce development of small and medium-sized enterprises in Liaoning Province through producer services. *Journal of Tianjin University of Technology*, 65-69.
- Xie, S. (2021). The “Competition” for Training Cross Border E-commerce Talents in China on the Background of “Internet Plus”. *Journal of Higher Education Theory and Practice*, 21(6).

- Xu, J., & Song, Q. (2018). Analysis of the Influence Factors Affecting the Development of Cross Border E-commerce in Gansu's Small and Medium Sized Foreign Trade Enterprises. *MATEC Web of Conferences*, 228(4), 05007.
- Zhang, Y. W. (2019). A Brief Analysis on Effect of Cross-border E-commerce for Small and Medium-sized Trade Enterprises Development in China. DEStech Transactions on Social Science, *Education and Human Science*, 3(ICSSM).
- Zhou, X. (2022). Research on the development prospect of e-commerce live broadcast based on SWOT analysis. *Highlights in Business, Economics and Management*, 2, 131–135.