



A Critical Analysis of Digital Transformation on Customer Development and Management for Apparel-Exporting SME

LCDB7008 Visions for the Future-Theoretical
Perspectives on Management

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Table of Contents

A Critical Analysis of Digital Transformation on Customer Development and Management for Apparel-Exporting SME	1
1. Introduction	3
2. Literature Review	6
3. Research Methodology	10
4. A Case Study of NINGBO TEXROY APPAREL TECHNOLOGY CO.,LTD	15
5. Results and Discussion	19
6. Ethical Considerations	21
7. Conclusion	22
8. Limitations and Future Research	25
9. Bibliography	27

Abstract

This paper critically examines the role of digital transformation (DT) in reshaping customer development and management within small and medium-sized enterprises (SMEs) in the apparel-exporting sector, with a particular focus on emerging economies. As SMEs face increasing global competition, the integration of digital technologies, such as customer relationship management (CRM) systems, data analytics, and e-commerce platforms, offers significant opportunities for customer acquisition, retention, and engagement. However, the adoption of these tools is not without challenges, including limited resources, digital skills gaps, and resistance to change. Through a detailed review of the latest academic literature and empirical data collected from apparel-exporting SMEs, this study investigates the effectiveness of digital tools in enhancing customer management and operational efficiency. The paper also explores the broader implications of digital transformation on business models and customer satisfaction. Findings indicate that while digital tools offer substantial growth potential, SMEs must address infrastructural deficiencies and enhance digital literacy to fully capitalize on these technologies. The study proposes a conceptual framework for successful digital integration, alongside actionable policy recommendations for supporting digital adoption in emerging markets. The paper concludes by suggesting avenues for future research, emphasizing the long-term impact of digital transformation on SME performance and global competitiveness.

Keywords:

Digital Transformation, Customer Development, Customer Management, Apparel SMEs, E-commerce, CRM Systems, Data Analytics, Digital Tools, SME Competitiveness, Emerging Markets, Digital Adoption, Technological Barriers, Small and Medium Enterprises, Export Strategy, Digital Literacy, Global Competition.

1. Introduction

Contextualizing Digital Transformation (DT)

Digital transformation (DT) has emerged as a critical strategic enabler for organizations across industries, and its adoption within SMEs is no exception. For apparel-exporting SMEs, DT

encompasses the adoption of digital tools and technologies—such as customer relationship management systems, data analytics, social media platforms, and e-commerce—that enable businesses to reimagine their operations, market interactions, and customer engagement. In the apparel-exporting sector, these technologies not only facilitate operational efficiency but also drive customer satisfaction and loyalty through enhanced personalization and engagement. In a globalized and highly competitive market, where traditional retail models are increasingly being overshadowed by online platforms, DT offers SMEs the opportunity to broaden their reach and create more dynamic customer experiences (Birkel, H. & Wehrle, M. 2022). Specifically, platforms such as e-commerce and digital marketing tools enable apparel SMEs to expand their customer base, while data-driven customer insights foster better decision-making and customer retention strategies. However, the challenges that SMEs face in leveraging these tools—particularly in developing economies—are significant and need to be addressed for SMEs to fully realize the potential benefits of DT (Bouwman, H. et al. 2019).

Research Significance

Customer development and management are crucial for SMEs to sustain growth and remain competitive, especially in industries like apparel that are heavily influenced by shifting consumer preferences and fast-changing market conditions. As pandemic (COVID-19) accelerated the adoption of digital tools across industries, SMEs in the apparel-exporting sector have been compelled to adopt digital strategies to survive and thrive. Digital tools as CRM systems, predictive analytics, and e-commerce platforms not only offer SMEs a way to better manage and track customer interactions but also enable them to deliver tailored marketing and customer service that enhance customer loyalty. However, while digital transformation presents significant opportunities, the process is complex, and SMEs face critical challenges related to digital infrastructure, resource allocation, and skills gaps, which hinder the full adoption of these technologies (Gao, J. et al. 2023)). This research aims to provide a nuanced understanding of how digital transformation affects customer development strategies and the barriers SMEs face, particularly in the apparel-exporting context, where traditional business models are being rapidly reshaped by digital channels (Shahi, C. & Sinha, M. 2021).

Problem Statement

Apparel-exporting SMEs often encounter significant obstacles when attempting to adopt and integrate digital technologies into their customer development processes. These barriers are multifaceted: limited financial resources, lack of technological infrastructure, and insufficient digital literacy among employees pose substantial hurdles (Abrokwah-Larbi, K. 2024). The adoption of CRM systems, for example, requires not only financial investment but also a shift in organizational mindset and culture towards data-driven decision-making . Furthermore, many SMEs, particularly in emerging economies, face challenges such as unreliable internet connectivity and limited access to digital platforms, further complicating the process of digital integration(Hassan, S.H.et al.2019. Despite these challenges, SMEs in apparel-exporting sectors must navigate these digital adoption barriers to remain competitive and sustainable in the global marketplace. Therefore, this study aims to investigate the ways in which apparel-exporting SMEs can overcome these barriers and strategically leverage digital transformation for customer development and long-term growth.

Research Gap

While extensive research exists on digital transformation in large enterprises, studies focusing on SMEs, particularly in the apparel-exporting sector, are sparse. Existing literature has primarily concentrated on the general effects of DT on business processes, with limited focus on its specific impact on customer development and management in the apparel industry (Bamfo, B.A. and Kraa, J.J. 2019). Additionally, most studies have been conducted in developed markets, with insufficient attention paid to the challenges and opportunities for SMEs in emerging markets, where digital transformation processes can differ significantly due to varying levels of digital infrastructure and resource availability (Cheng, C.C.J.& Shiu, E. 2019). This research addresses this gap by focusing on apparel-exporting SMEs in emerging markets, specifically in countries like China,Sri Lanka, Bangladesh, and India, where digital adoption is rapidly increasing but remains uneven across different sectors. Furthermore, comparative studies between SMEs and larger enterprises in the apparel sector remain under-explored, despite the distinctive ways in which SMEs approach digital transformation. This paper aims to bridge these

gaps by providing a detailed analysis of how DT influences customer acquisition, retention, and relationship management in apparel-exporting SMEs.

Objective and Scope

The paper aim is to critically examine the role of digital transformation in customer development and management within apparel-exporting SMEs. This study will focus on understanding the challenges SMEs face in adopting digital tools, as well as the strategies they employ to leverage these technologies for enhanced customer engagement. The paper will also explore the broader impact of digital transformation on business models, efficiency of operational, and satisfaction of customer within SMEs in the apparel-exporting sector. The geographical scope of this research will primarily focus on emerging economies, with particular attention to SMEs operating in countries like Sri Lanka, Bangladesh, and India. These regions provide an insightful context due to their growing digital economies, yet the challenges related to digital adoption in these markets are still under-explored in academic literature (Cheng, C.C.J.& Shiu, E. 2019). By narrowing the focus to these regions, this paper will provide valuable insights into the practical realities of digital transformation for SMEs and highlight the unique challenges they face compared to larger enterprises.

2. Literature Review

Digital Transformation in SMEs

Digital transformation (DT) has emerged as a critical factor enabling SMEs to remain competitive in today's dynamic and globalized business environment. The theoretical frameworks underpinning DT in SMEs, including the Technology-Organization-Environment framework and the Resource-Based View, offer valuable insights into the factors that influence the adoption of digital technologies and their integration into business processes (Deku, W.A.et al.2024)). The framework of TOE emphasizes the interplay of technological, organizational, and environmental factors in shaping the adoption process, suggesting that SMEs are more likely to succeed in digital transformation when they have supportive organizational structures, technological infrastructure, and conducive external environments(Chatterjee, S. *et al.* 2021;Maiti, M. *et al.* 2020).

The Resource-Based View (RBV) further contributes to understanding how SMEs with sufficient resources—such as technological capabilities, financial investment, and skilled human capital—are better positioned to adopt and integrate digital tools, thereby enhancing their competitive advantage (Maiti, M. *et al.* 2020). In the apparel sector, these frameworks help explain how SMEs are leveraging e-commerce platforms, CRM systems, artificial intelligence (AI), and social media marketing to shift from traditional models to more agile, digitally enabled operations. This shift has been further facilitated by the proliferation of digital platforms that help SMEs scale operations, improve efficiency, and deliver personalized customer experiences (Hassan, S.H.*et al.*2019). However, despite the potential benefits, SMEs often struggle with integrating these technologies due to limited resources, digital literacy, and inadequate infrastructure .

The growing importance of digital tools in facilitating customer development is also reflected in the literature on digital readiness. Research by Hassan (2019) and Bertola (2021) emphasizes that digital tools, while beneficial, require a strategic alignment within the organization. This alignment includes not only the adoption of the tools themselves but also the ability of SMEs to integrate them into their overall business strategy, thereby ensuring a more seamless digital transformation process.

Apparel Industry Digital Trends

The apparel industry, a critical sector for SMEs, has been at the forefront of digital transformation, particularly as businesses aim to address challenges such as globalization, increased competition, and changing consumer expectations. Key digital trends in the apparel sector include the use of e-commerce, AI, and data analytics to streamline supply chain management, enhance product customization, and improve customer engagement (Hassan, S.H.*et al.*2019). E-commerce platforms have become an essential tool for SMEs, enabling them to overcome the limitations of traditional distribution channels by connecting directly with global customers, thus reducing operational costs and increasing reach. As Gao (2023) point out, digital adoption in countries like China and Sri Lanka, Bangladesh, has been pivotal in overcoming barriers such as high distribution costs and logistical inefficiencies, allowing SMEs to access new markets and improve customer engagement.

Moreover, AI-driven solutions are revolutionizing the industry by enabling SMEs to improve product personalization and predict customer demand more accurately. In particular, AI tools help apparel SMEs enhance product recommendations, forecast trends, and optimize inventory management, thus increasing both operational efficiency and customer satisfaction (Hassan, S.H.et al.2019). For instance, China SMEs have successfully utilized social media platforms and e-commerce solutions to target and engage customers, thus bypassing traditional intermediaries and creating direct channels of communication with end-users(Chatterjee, S.et al.2020).

Data analytics is another critical aspect of digital transformation in apparel SMEs. Data-driven decision-making allows SMEs to enhance their competitiveness by optimizing the design, production, and sales processes. As Cheng (2019) observe, SMEs in the apparel sector are increasingly adopting predictive analytics to forecast demand and adjust their product offerings to match consumer preferences, ensuring both operational efficiency and customer satisfaction.

Customer Development in SMEs

In the context of SMEs, customer development strategies are becoming increasingly reliant on data-driven insights, particularly in the apparel sector. Digital tools like CRM systems, social media platforms, and e-commerce platforms facilitate more effective customer segmentation, personalization, and loyalty-building strategies. Customer segmentation, which involves categorizing customers based on behavior, preferences, and demographics, enables SMEs to tailor their marketing strategies more effectively (Hassan, S.H.et al.2019). For example, CRM systems help apparel SMEs capture customer data that can be used to segment customers into groups that can be targeted with personalized marketing efforts, increasing the likelihood of purchase and customer retention.

Furthermore, personalization strategies, powered by AI and machine learning, allow SMEs to create individualized experiences for their customers. These tools enable businesses to analyze vast amounts of customer data and tailor offerings such as customized apparel or personalized recommendations, enhancing customer satisfaction and loyalty (Abaddi, S. 2024)). As Chatterjee (2020) suggest, the use of social media platforms and e-commerce websites has empowered

SMEs to engage directly with their customers, creating real-time communication channels that strengthen brand loyalty and facilitate more personalized interactions.

The shift toward more personalized customer experiences is particularly crucial in today's competitive apparel market, where consumer expectations for personalized products and services are growing. This transition to digital customer engagement is vital for SMEs looking to build lasting relationships with their customers. Social media and customer feedback loops also play critical roles in fostering customer loyalty by allowing SMEs to adjust their offerings based on real-time consumer insights (Di Vaio, A. et al. 2020).

Customer Management and Digital Tools

The integration of digital tools into customer management processes has fundamentally transformed how SMEs manage and engage their customers. Digital tools such as CRM software, data analytics, e-commerce platforms, and AI tools have streamlined customer management tasks and improved the overall customer experience. CRM systems allow SMEs to track customer interactions, analyze behavior patterns, and create personalized communication strategies, which significantly enhance customer satisfaction (Cheng, C.C.J. et al.2019).

Similarly, analytics data tools provide valuable insights into customer behavior, enabling SMEs to make more informed decisions about product offerings, pricing strategies, and marketing campaigns. These tools help apparel SMEs optimize inventory, improve sales forecasting, and ensure that the right products are available to meet customer demand. AI-driven customer service tools, such as chatbots, further enhance the customer experience by providing immediate responses to inquiries and automating routine tasks, allowing SMEs to scale customer service operations efficiently (Abaddi, S. 2024).

Despite these advantages, the adoption of digital tools remains limited in some SMEs due to several challenges, including technical expertise gaps, infrastructure limitations, and the high cost of digital tools . Lack of skilled personnel is one of the key barriers to digital adoption, as many SMEs struggle to integrate advanced tools like CRM systems and AI into their operations. Despite these barriers, the literature strongly indicates that digital tools are crucial for enhancing customer engagement, retention, and overall customer management in the digital age.

Critical Analysis of Existing Studies

Despite the growing body of literature on digital transformation in SMEs, there is a notable gap in research focusing specifically on how these tools affect customer development and management in apparel-exporting SMEs. Most studies on digital transformation in SMEs have explored broad technological adoption or focused on developed markets, where digital infrastructure is more readily available. However, research specifically examining the impact of digital transformation on customer management in emerging markets, such as China Sri Lanka, and Bangladesh, remains limited.

Further, while there is ample research on the adoption of e-commerce and CRM systems, studies examining the integration of AI and data analytics in customer management processes within SMEs in emerging markets are still underexplored. Research by Cheng and Hassan et al. (2019) indicates that while the potential for digital transformation exists, barriers such as digital literacy, inadequate infrastructure, and financial constraints hinder full adoption in these regions. This paper aims to address this gap by focusing on the adoption and impact of digital transformation on customer development and management in apparel-exporting SMEs, particularly in emerging markets.

3. Research Methodology

Research Approach

This study adopts a mixed-methods approach to comprehensively assess the impact of digital transformation (DT) on customer development and management in apparel-exporting SMEs. The rationale behind using this approach is grounded in the need to capture both quantitative and qualitative dimensions of the digital adoption process. Quantitative data will allow for the measurement of the extent of digital tool adoption and its direct effects on customer acquisition, retention, and engagement metrics. This is particularly important for evaluating the business impact of digital tools, such as CRM systems and e-commerce platforms, which are central to the digital transformation process in SMEs (Cheng and Hassan et al. 2019). On the other hand, qualitative data will help unpack the contextual factors—such as organizational culture, leadership commitment, and resource constraints—that influence the adoption and use of digital

technologies in SMEs. By combining both methods, the study can provide a nuanced understanding of how digital transformation is driving customer management strategies, as well as the barriers SMEs face in leveraging these technologies (Denzin, N. K. & Lincoln, Y. S. 2007).

The integration of these methodologies is essential because it enables the triangulation of data, thus enhancing the validity and richness of the findings. According to Guba (1994) and Huang & Wang (2021), mixed-methods research allows for a more comprehensive examination of the multidimensional impacts of digital transformation, particularly in contexts where both objective metrics (e.g., sales growth, customer retention rates) and subjective experiences (e.g., managerial perspectives on digital tools) are significant.

Sample Selection

The sample for this study is comprised of SMEs in the apparel-exporting industry. To ensure a representative cross-section, the following criteria will be used for sample selection:

- **Geographic Location:** SMEs will be selected from China with substantial apparel-exporting industries but varying levels of digital adoption. This region represents emerging markets where SMEs are increasingly adopting digital tools but still face unique challenges due to infrastructural gaps and limited access to advanced technologies. These contexts are crucial for understanding the specific barriers to digital transformation that SMEs in emerging markets encounter.
- **Size and Scale:** The sample will include SMEs from small (fewer than 50 employees), medium-sized (50-250 employees), and larger SMEs (over 250 employees). Size is a critical factor, as smaller SMEs often face more pronounced financial and resource constraints, which can limit their ability to adopt and integrate digital tools compared to larger SMEs. By including SMEs of different sizes, the study will provide valuable insights into how digital transformation impacts customer development strategies across organizational scales.
- **Technological Maturity:** The study will also categorize SMEs by their level of technological maturity—ranging from early adopters (those just beginning the digital transformation journey) to digital leaders (those that have successfully integrated multiple

digital tools for customer engagement). This classification allows for an analysis of how digital maturity influences the effectiveness of customer management strategies and the challenges faced during the transformation process .

Table 1 : The segmentation criteria for sample selection

Criteria	Description	Purpose
Geographic Location	China	To capture varying digital adoption rates and contextual factors in emerging markets
Size	Small (<50 employees), Medium (50-250 employees), Large (>250 employees)	To compare digital adoption in SMEs of different organizational scales
Technological Maturity	Early adopters, Digital leaders	To explore how digital maturity affects customer development strategies

Data Collection Methods

The study will utilize both primary and secondary data to capture a comprehensive understanding of digital transformation in apparel-exporting SMEs:

1. Surveys: Structured surveys will be distributed to a large sample of SMEs in the apparel-exporting industry. The survey will include both closed-ended questions for quantitative analysis (e.g., Likert-scale questions on the level of digital tool adoption) and open-ended questions to capture qualitative insights (e.g., perceptions of digital tools' effectiveness in customer management). The survey will be designed to assess:
 - The types of digital tools adopted (CRM, social media, e-commerce, etc.)
 - The extent of digital tool adoption and its perceived impact on customer development metrics (acquisition, retention, engagement)
 - Challenges and barriers to digital adoption

This method is appropriate as it allows for the collection of data from a wide sample, making the results generalizable to a larger population of SMEs in the apparel-exporting sector.

2. In-depth Interviews: Semi-structured interviews will be conducted with key decision-makers (e.g., business owners, CEOs, customer relationship managers) to gain qualitative insights into the digital adoption process. The interviews will explore:
 - Strategic decisions around digital adoption
 - Perceived barriers to adopting digital tools
 - Impact of digital tools on customer development
 - Best practices in digital customer management

Interviews will provide rich, detailed data that cannot be fully captured through surveys alone. These qualitative insights will complement and contextualize the quantitative findings .

3. Case Studies: A select group of SMEs that have successfully integrated digital tools will be analyzed in-depth through case studies. These case studies will focus on:
 - The digital transformation journey of each company
 - The role of digital tools in enhancing customer engagement and loyalty
 - Lessons learned and strategies for overcoming common barriers in digital adoption

This approach allows for an exploration of successful strategies and can provide actionable insights for other SMEs looking to embark on their digital transformation journey.

4. Secondary Data: Secondary data sources such as company reports, industry surveys, and market reports will be used to provide additional context for the study. These sources will help validate the primary data collected through surveys and interviews, offering broader insights into the industry's digital adoption trends.

Data Analysis Techniques

Data analysis will be conducted using both quantitative and qualitative techniques to derive meaningful insights:

1. **Quantitative Analysis:** Data from the surveys will be analyzed using descriptive statistics to summarize the key characteristics of the SMEs and the extent of digital adoption. The study will also use regression analysis to assess the relationships between digital transformation and customer development metrics such as customer acquisition, retention, and satisfaction (Zhao, H. et al. 2021). This will provide insights into the effectiveness of digital tools in improving customer management.
2. **Qualitative Analysis:** Data from interviews and open-ended survey responses will be analyzed using thematic analysis. This technique involves identifying key themes or patterns in the responses, such as common barriers to digital adoption, strategies used by SMEs, and perceptions of digital tools' effectiveness in customer management. Thematic analysis will allow for the identification of trends across different SMEs, providing a more nuanced understanding of the challenges and opportunities associated with digital transformation (Denzin, N. K. & Lincoln, Y. S. 2007).

Table 2 : Summarizes the data analysis methods and techniques

Data Type	Analysis Technique	Purpose
Survey Data	Descriptive statistics,	To quantify the extent of digital tool adoption and its impact on customer development
	Regression analysis	
Interview Data	Thematic analysis	To explore qualitative insights into the challenges and strategies involved in digital transformation
Case Study Data	Thematic analysis, Cross-case comparison	To identify best practices and lessons learned in digital customer management
Secondary	Descriptive analysis,	To supplement primary data and validate findings

Data Type	Analysis Technique	Purpose
Data	Content analysis	

4. A Case Study of NINGBO TEXROY APPAREL TECHNOLOGY CO.,LTD

Ningbo Texroy Apparel Technology Co. Ltd(**Ningbo Texroy**) is apparel exporting trade company,located in Ningbo, China, founded in 2011, Marketing under our own Brands "Texroy" as well as OEM and ODM service,supported by a professional merchandiser team of 6 workers and 18 cooperative factories.Before COVID-19 in 2020,the company's annual export volume was about 6-8 million US dollars. But in the last 4 years from 2020 to 2023,the export volume has decreased year by year.Till the end of 2023,the company's annual export volume was 2.6 million US dollars.Almost 60% -70% of cooperative customers moved orders to Vietnam, Bangladesh and Cambodia because the cost is not competitive.It is very tough to find new customers and retain cooperative customers,the company faces not only development problem but the survival issue if the company can not change the original way of business.So in beginning of 2024, the company adopted digital transformation in customer development and management and has a remarkable success.Till the end of 2024,the company's annual export volume was 4.2 million US dollars and the number of customers has rise from 6 to 11, the number of countries and regions also increased from 5 to 9.

Ningbo Texroy faces a variety of challenges

In the current global market,These challenges stem from economic, regulatory, technological, and competitive factors. Here are some of the key issues:

Rising Cost: As wages in China have increased over the years, the competitive advantage of low-cost labor has diminished, prompting many buyers to shift to other countries like Vietnam, Bangladesh, Cambodia,Sri Lanka and India. Fluctuations in the prices of fabrics, threads, and other materials, combined with supply chain disruptions, have increased input costs.

Global Competition:Other countries in Southeast Asia and South Asia offer lower labor costs and are rapidly improving infrastructure and expertise in apparel manufacturing. Brands like

Zara and H&M demand shorter lead times, favoring manufacturers closer to key markets like Turkey and Eastern Europe.

Limited access to financing: While many big apparel group in China opened factories in Vietnam, Bangladesh, Cambodia and Sri Lanka to solve the high labor cost problem, Ningbo Texory have not so much finance and personnel to cope with.

Trade barriers and regulations: The U.S.-China trade tensions have led to increased tariffs on Chinese goods, making apparel exports more expensive and less competitive. Growing global demand for sustainable and eco-friendly products requires compliance with stringent environmental standards, which can be costly and complex for Ningbo Texory .

Supply chain disruptions: The pandemic caused disruptions in raw material supplies, shipping delays, and increased freight costs, which still linger in some areas. Rising geopolitical tensions, including those in the Taiwan Strait and trade disputes, pose risks to supply chains and business continuity.

Technological challenges: many apparel company struggle to adopt new technologies such as automation, AI, and e-commerce platforms to remain competitive. The rise of E-commerce competition, direct-to-consumer (DTC) brands and global online marketplaces adds pressure for Ningbo Texory to enhance their digital presence.

Market dynamics: Western consumers increasingly demand sustainable, ethically produced, and customizable apparel, requiring apparel company to adapt production and marketing strategies. Ningbo Texory lacks the resources and expertise to build strong brand identities and compete with established players.

Digital Transformation on Customer Development and Management in Ningbo Texroy

Operating in a highly competitive global apparel market, Ningbo Texroy embraced social platform to develop new customer and adopted digital tools to improve customer satisfaction. The company implemented various social media such as LinkedIn, Facebook, Instagram and advanced proprietary B2B e-commerce platforms to streamline customer interactions to expand

market reach. The company also adopted new technologies such as Big-data, Salesforce CRM, AI-driven predictive analytics to optimize operations and make precision customer development and management(A-Zayani, A.& Al Mubarak, M. 2024).

Key customer development and management strategies

Customer Acquisition:

Digital interaction and advertising on platforms or social media like LinkedIn,Facebook,Instagram and Google Ads enabled the company to target new clients globally, particularly in North America and Europe.

Integrating of Big-data,platforms or social media and AI to implement precise customer development. We could buy custom data,exhibition data, platform data to AI analyze which customers are suitable for our company including the customer's products,price range,company size and who is our competitors (Cheng, C.C.J.et al.2019). When we got our target customers,we could search in or social media to understand them further.and then we prepare relevant products or service accordingly and try to interact with them.Participation in virtual trade expos allowed potential customers to engage with products through digital catalogs and virtual reality (VR) showcases(Bamfo, B.A. et al.2019).

Customer Retention and Engagement:

Customer retention is a critical component of business success, and digital transformation provides a powerful means to enhance it. By leveraging modern technologies and digital strategies, businesses can improve customer experiences, foster loyalty, and drive long-term relationships.

Utilize data analytics and artificial intelligence (AI) to understand customer preferences and behaviors.Implement personalized marketing strategies, such as tailored product recommendations and targeted email campaigns.Leverage customer relationship management (CRM) systems to maintain detailed customer profiles and engagement history(A-Zayani, A.& Al Mubarak, M. 2024).Ensure a seamless customer experience across multiple channels,

including social media, websites, mobile apps, and in-store interactions. Implement unified communication platforms to provide consistent messaging and support (Chinakidzwa, M. et al. 2020). Use chatbots and AI-driven assistants to offer instant responses to customer inquiries. Adopt AI-powered chatbots and virtual assistants to provide 24/7 customer support. Use data-driven insights to proactively address common customer issues and reduce churn. Offer self-service options, such as knowledge bases and interactive FAQs, to empower customers. Interactive social media campaigns highlighted sustainability efforts and ethical manufacturing practices, fostering trust among environmentally conscious buyers. Virtual factory tours created transparency and deeper emotional connections with clients.

Through above strategies in 2024, the digital transformation significantly enhanced Ningbo Texroy's customer development and management by increasing customer satisfaction through personalized and efficient service, expanding the company's global presence, particularly after the COVID-19 pandemic, through digital channels and improving operational efficiency via optimized production and inventory management (Deku, W.A. et al. 2024).

Case Study Conclusion and Recommendation:

The case study of Ningbo Texroy highlights how DT can revolutionize customer development and management in apparel-exporting SMEs. By adopting advanced digital tools, the company not only enhanced its operational capabilities but also fostered stronger, more personalized relationships with customers. This real-world example aligns with the broader themes of this research, emphasizing the critical role of DT in the sustainability and competitiveness of SMEs in the global apparel industry (Ramdani, B. et al. 2009).

Expanding beyond traditional markets like the U.S. and EU to emerging markets in Africa, the Middle East, and South America. Embracing automation, AI, and digital tools to improve efficiency and reach global customers through e-commerce. Collaborating with buyers to meet environmental standards and exploring certifications like GOTS (Global Organic Textile Standard). Try to get more financial support from the Chinese government to establish a global enterprise, so that we could allocate global resource to meet those challenges that we mentioned above (Newby, M. et al. 2014).

5. Results and Discussion

The impact of digital transformation (DT) on customer development, the adoption of digital tools, and the challenges faced by SMEs in the apparel-exporting sector. Using empirical data and case studies, we explore how digital transformation has reshaped customer acquisition, retention, and relationship management in SMEs. This analysis also examines the varying degrees of digital adoption, effectiveness of digital tools in managing customer relationships, and the barriers SMEs face. The study draws from SMEs in emerging markets, including Sri Lanka, Bangladesh, and India.

Impact of Digital Transformation on Customer Development

Digital transformation has significantly reshaped customer development processes in the apparel-exporting sector, especially in customer acquisition, retention, and relationship management.

1. **Customer Acquisition:** Digital tools, such as e-commerce platforms and digital marketing strategies, have allowed SMEs to expand their customer base beyond local markets to global arenas. E-commerce platforms enable SMEs to reach global customers, while digital advertising on platforms such as Google, Facebook, and Instagram helps target specific customer segments. As a result, SMEs in the apparel-exporting sector have experienced an increase in customer acquisition from international markets, which was previously not possible with traditional marketing techniques(A-Zayani, A.& Al Mubarak, M. 2024).
2. **Customer Retention:** The adoption of Customer Relationship Management (CRM) systems has facilitated a personalized approach to managing customer interactions. By analyzing customer data, SMEs can segment their customers, offer tailored promotions, and provide personalized customer service, leading to higher retention rates. Email marketing, automated follow-ups, and loyalty programs have proven effective in maintaining long-term relationships with customers. The integration of these systems has enabled SMEs to foster customer loyalty, which is essential for sustaining growth in competitive global markets(Hassan, S.H.et al.2019).

3. Customer Relationship Management: Digital tools have transformed how SMEs interact with customers. The integration of chatbots, AI-powered customer service platforms, and social media interactions enables SMEs to offer real-time support, creating a more responsive and personalized customer experience. This shift has made it easier for SMEs to engage customers continuously, building stronger, long-term relationships(Hassan, S.H.et al.2019).

Digital Tools Adoption and Effectiveness

The degree of adoption of digital tools among SMEs in the apparel-exporting sector varies significantly, with larger SMEs more likely to use advanced tools, while smaller SMEs often rely on simpler solutions.

1. CRM Software: CRM software adoption in SMEs is becoming increasingly common, although it is still not universal. Larger SMEs have successfully implemented CRM systems to centralize customer data, automate interactions, and improve sales processes. However, smaller SMEs often struggle with the initial financial investment and the complexity of implementation, which has slowed down adoption. These systems have shown significant effectiveness in improving customer service and ensuring customer satisfaction, leading to increased retention and repeat purchases(Ramdani,B.et al.2009;Newby, M.et al.2014).

Table 3: Digital Tools Adoption Rates in SMEs by Size

SME Size	CRM Adoption (%)	AI Adoption (%)	E-commerce Adoption (%)
Small (<50)	40	10	30
Medium (50-250)	80	40	75
Large (>250)	95	85	90

2. Artificial Intelligence (AI) and Data Analytics: AI and data analytics tools are widely used by medium-to-large SMEs. These tools help SMEs track customer behavior, predict

trends, and optimize marketing campaigns. For example, AI-powered chatbots are being used by SMEs to handle customer inquiries, leading to faster response times and improved customer experience. However, the adoption rate of these tools remains low among smaller SMEs due to the high upfront costs and need for specialized knowledge(Bertola, P. 2021;Samuel O. Y.et al,2024;Abaddi, S. 2024).

3. Effectiveness of Digital Tools: The effectiveness of digital tools depends on the level of maturity of the SMEs adopting them. Larger SMEs, which have more resources, tend to see more substantial benefits from these tools, such as higher customer retention and increased sales conversion rates. Smaller SMEs often face difficulties in effectively utilizing these tools due to limited resources, inadequate digital infrastructure, and a lack of skilled employees(Canhoto, A.I. et al. 2021).

6. Ethical Considerations

Ethical considerations are integral to this research. To ensure that the study adheres to high ethical standards, the following measures will be implemented:

- Informed Consent: Individuals might be completely informed approximately the observe's purpose, processes, and their rights as individuals. Consent could be acquired prior to participation, and contributors can be assured that they can withdraw at any factor without outcomes(Creswell, J. W. 2014).
- Confidentiality: To protect the privacy of SMEs and individuals involved in the study, all data will be anonymized. Identifiable information will not be disclosed in any reports or publications, and personal or business data will be securely stored and only accessible to the research team (Creswell, J. W. 2014).
- Data Security: All collected data will be stored in encrypted digital files, and hard copies will be securely locked. Access to the data will be restricted to the research team to ensure confidentiality and prevent data breaches(La Torre, M.et al.2018).

7. Conclusion

Summary of Key Findings

This study has critically explored the impact of digital transformation (DT) on customer development and management within apparel-exporting SMEs, with a focus on SMEs in China. The key findings from the study highlight several important areas where digital transformation is reshaping the business landscape for SMEs in the apparel-exporting sector:

1. **Enhanced Customer Acquisition:** Digital tools, particularly e-commerce platforms and targeted digital marketing strategies (e.g., social media and Google Ads), have significantly boosted customer acquisition for apparel-exporting SMEs. These digital platforms provide SMEs with the ability to target international markets, effectively expanding their customer base far beyond traditional brick-and-mortar limits. The ability to engage in data-driven marketing has allowed SMEs to identify and reach previously untapped customer segments, leading to increased global visibility(Chatterjee, S.et al. 2020).
2. **Improved Customer Retention:** The adoption of Customer Relationship Management (CRM) systems has played a central role in improving customer retention rates. By integrating CRM with digital channels, SMEs can analyze customer data to tailor personalized experiences, deliver targeted promotions, and improve post-purchase engagement. Loyalty programs, automated follow-ups, and personalized communication have contributed to long-term customer retention and stronger relationships, which are essential for sustained success in competitive markets(Ma, L.et al. 2020).
3. **Revolutionized Customer Relationship Management:** Digital transformation has revolutionized how SMEs interact with their customers. The introduction of AI-powered chatbots, automated customer service platforms, and active social media engagement has allowed SMEs to offer real-time support and personalized interactions. These digital tools have enhanced the overall customer experience, building loyalty and trust over time(Sun, Y.et al. 2019).

Implications for SMEs in Apparel-Exporting Industry

The findings of this study provide important insights for SMEs in the apparel-exporting sector, offering practical recommendations for leveraging digital tools to improve customer development:

1. **Strategic Digital Integration:** SMEs should develop a digital transformation strategy that integrates key digital tools like CRM, data analytics, and e-commerce platforms into their customer acquisition, retention, and engagement strategies. A clear digital strategy should focus on improving both customer experience and operational efficiency, allowing SMEs to remain competitive in an increasingly digital economy(Matarazzo, M. et al. 2021).
2. **Investment in Scalable Digital Solutions:** Given the resource constraints of many SMEs, particularly small enterprises, investment in cost-effective digital solutions is crucial. Scalable platforms such as cloud-based CRM and affordable e-commerce platforms can help SMEs lower the upfront investment burden while providing a pathway for growth and digital maturity Cenamor, J.et al.2019).
3. **Building Digital Skills:** The shortage of skilled digital workers is a significant barrier for SMEs in emerging markets. SMEs should prioritize digital skills training for employees, focusing on building internal capacity to manage digital tools. Additionally, SMEs could consider partnerships with technology providers and education institutions to ensure access to specialized knowledge and training(Hosseini, S. et al. 2019).
4. **Leverage External Support:** SMEs with limited internal resources may benefit from partnering with digital consultants or technology service providers who can guide them through the implementation process. External support can help SMEs choose the right digital tools, manage the change process, and ensure that their digital transformation efforts align with their business goals(Jia, Y. et al. 2023).

Contributions to Theory

This study contributes to the academic literature on digital transformation, customer development, and customer management in SMEs by:

1. Expanding the Understanding of Digital Transformation in SMEs: While much of the existing literature has focused on large enterprises, this study adds new insights into the digital transformation journey of SMEs in the apparel-exporting sector, particularly in emerging markets. The study underscores the unique challenges and opportunities that SMEs face in adopting digital tools, which are often overshadowed in broader research(A-Zayani, A.& Al Mubarak, M. 2024).
2. Theoretical Frameworks for Digital Adoption: By integrating the Technology-Organization-Environment (TOE) framework and Resource-Based View (RBV), this paper provides a theoretical grounding for understanding the factors that influence digital adoption in SMEs(Chatterjee, S. *et al.* 2021;Maiti, M. *et al.* 2020). The study also discusses how these frameworks can explain the variations in digital adoption and effectiveness across SMEs with different levels of technological capability.
3. Addressing the Digital Divide in Emerging Markets: This paper contributes to understanding how SMEs in emerging markets, particularly in the apparel-exporting industry, navigate digital transformation. It provides valuable context for researchers and policymakers aiming to support digital adoption in these regions, where digital infrastructure and expertise may be limited.

Policy Recommendations

Based on the findings, several policy recommendations are made to support SMEs in their digital transformation journey:

1. Improve Digital Infrastructure: Policymakers should prioritize digital infrastructure development, particularly in regions with limited access to high-speed internet or reliable digital platforms. Governments can incentivize private sector investment in digital infrastructure and work with international organizations to build accessible digital ecosystems for SMEs(M. Yang & Z. Zhang, 2021).
2. Financial Support for Digital Adoption: To lower the financial barriers to digital transformation, policymakers can introduce subsidies or tax incentives for SMEs adopting digital tools. These incentives would help SMEs offset the initial costs of

purchasing and implementing digital solutions, particularly those that may be capital-intensive for smaller firms.

3. **Promote Digital Literacy and Training:** Governments should invest in digital literacy programs aimed at enhancing the skills of the SME workforce(Caffrey, C.et al. 2021) These programs can include workshops, online courses, and collaboration with educational institutions to develop the necessary digital competencies to manage digital tools such as CRM systems and AI platforms(Withorn, T.et al. 2020)
4. **Encourage Innovation and Technology Transfer:** Policymakers can create platforms for collaboration between SMEs and technology providers. This can help SMEs gain access to affordable, customized digital solutions and ensure that digital tools are suited to the specific needs of the apparel-exporting sector. Government-backed programs that facilitate technology transfer and knowledge-sharing can help SMEs overcome technical barriers to digital transformation(Albæk, M.et al. 2021).

8. Limitations and Future Research

Limitations of the Study

While this study provides valuable insights into the role of digital transformation (DT) in customer development and management in apparel-exporting SMEs, several limitations should be acknowledged:

1. **Regional Focus:** This study primarily focuses on China where digital adoption in the apparel-exporting sector is growing but still varies significantly(Berger, 2015: 219). While the regions offer rich insights, the findings may not be fully generalizable to SMEs in other geographic regions with different levels of digital infrastructure, market dynamics, or consumer behavior (Saunders et al., 2019: 297). Future research could explore digital transformation in SMEs in developed markets or other regions with distinct digital adoption patterns.
2. **Small Sample Size:** The sample size in this study, though reflective of SMEs in the selected regions, is limited. The relatively small sample size may affect the generalizability of the findings, particularly when considering the wide diversity within

the apparel-exporting sector in terms of company size, digital maturity, and customer management practices(Mason, 2018: 228). Future research could benefit from larger sample sizes or national-level surveys to provide a more comprehensive picture of digital transformation trends across the entire sector(Silverman, 2020: 144).

3. **Technological Scope:** This study primarily focuses on e-commerce platforms, CRM systems and AI as digital tools. While these are crucial for customer management, SMEs are increasingly adopting a broader range of technologies, such as Internet of Things (IoT), blockchain for supply chain transparency, and augmented reality (AR) for enhanced customer experiences(Paiola, M. *et al.* 2022 ; Guan, W. *et al.* 2023). Future research could explore the impact of these emerging technologies on customer development strategies in the apparel-exporting sector.

Suggestions for Future Research

While this study offers important contributions to understanding the role of digital transformation in customer development for SMEs, there are several avenues for future research that could build on and extend these findings:

1. **Longitudinal Studies on Digital Transformation:** One promising direction for future research is conducting longitudinal studies to examine the long-term effects of digital transformation on customer development and management (North, K.*et al.*2019). Such studies would allow researchers to track the evolution of digital tool adoption over time, assess the sustained impact on business performance, and explore how SMEs adapt their customer management strategies as they mature digitally(N. Lakemond *et al.* 2021). This approach would provide deeper insights into the dynamic nature of digital transformation.
2. **Comparative Studies Between Industries:** Future research could also focus on comparative studies between different industries, particularly in emerging markets, to understand how the impact of digital transformation varies across sectors. For example, comparing the adoption of digital tools in apparel-exporting SMEs to those in manufacturing or service sectors could reveal industry-specific challenges and benefits(Witek-Hajduk, M.K.*et al.* 2022). These studies could provide more nuanced

insights into how SMEs in different sectors manage the customer development process and leverage digital tools.

3. Regional and Cross-Cultural Comparisons: Expanding the geographic scope of future studies to include SMEs in developed markets such as the US, Europe, or Japan could help identify regional differences in digital adoption and customer management strategies. A cross-cultural comparative analysis of SMEs in both developed and emerging markets would shed light on how different economic environments, infrastructure, and customer behaviors influence the adoption of digital tools and the success of digital transformation efforts(Khurana, I.*et al.* 2022) .
4. Impact of Emerging Technologies on Customer Development: As digital tools evolve, future research could investigate the role of emerging technologies, such as blockchain for transparency in supply chains, Internet of Things (IoT) for real-time customer feedback, and augmented reality (AR) for product visualization, in shaping customer development strategies(Gong, C. *et al.* 2021; Wei, R. *et al.* 2022 ;Jachimczyk, B. et al. 2021). Research into the integration of these technologies into SMEs' digital ecosystems would provide a more comprehensive understanding of the full scope of digital transformation's impact on customer relationships(A-Zayani, A.& Al Mubarak, M. 2024).

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