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E-Commerce Integration in Small and Medium-Sized Enterprises: Strategies, Challenges, and Impact on Market Competitiveness

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Abstract. This paper explores how small and medium-sized enterprises (SMEs) adopt and integrate e-commerce platforms to enhance their business operations and market competitiveness. Using a multiple-case study design, the research examines two SMEs from different sectors: one in retail and the other in manufacturing. Data were collected through semi-structured interviews with key decision-makers and employees involved in the e-commerce adoption process. The findings reveal that the primary motivations for e-commerce adoption include market expansion, cost reduction, and operational efficiency. However, SMEs face several challenges, such as technological limitations, financial constraints, and digital skills gaps. To overcome these challenges, SMEs employ strategies such as staff training, external collaboration, and leveraging data-driven decision-making. The study highlights the positive impacts of e-commerce integration, including increased sales, improved operational efficiency, and enhanced market competitiveness. Theoretical contributions are made by extending the literature on e-commerce adoption in SMEs, particularly in terms of the strategies employed to overcome adoption barriers. Practical implications include actionable recommendations for SMEs considering or undergoing digital transformation, emphasizing the importance of strategic planning, training, and leveraging customer data to enhance competitiveness in a digital marketplace.

Keywords: Small and Medium-Sized Enterprises (SMEs), E-Commerce Adoption, Digital Transformation, Market Competitiveness, Operational Efficiency.

1 Introduction

The rapid advancement of digital technologies has revolutionized business practices across industries, and one of the most significant transformations has been the rise of e-commerce platforms. These platforms have opened new avenues for businesses to reach customers globally, enhancing operational efficiency, and improving competitive advantage. Small and medium-sized enterprises (SMEs), which often face resource constraints, are increasingly adopting e-commerce platforms to capitalize on these opportunities (Nguyen et al., 2024). Despite the potential benefits, the adoption of e-commerce in SMEs is not without challenges. These businesses must navigate technological barriers, financial limitations, and a lack of digital expertise to effectively integrate e-

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commerce into their operations (Holland & Gutiérrez-Leefmans, 2018). The motivation behind this research stems from the critical role that SMEs play in global and local economies, particularly in emerging markets. SMEs contribute to economic growth, job creation, and innovation, but they often struggle to compete with larger corporations due to limited access to resources and digital infrastructure. E-commerce platforms present a viable solution to enhance their market presence, optimize supply chain processes, and increase customer engagement (Jiang & Chen, 2021). However, the successful integration of e-commerce is not a straightforward task and varies significantly across different industries and regional contexts. Understanding the challenges and successes of SME e-commerce adoption is crucial to informing policy decisions, business strategies, and support mechanisms aimed at fostering digital transformation in this sector.

Given the growing significance of e-commerce in the global marketplace, this research aims to explore how SMEs leverage e-commerce platforms to enhance their business operations and market competitiveness. The study will focus on identifying key factors that influence the decision-making process, adoption challenges, and the strategic outcomes of e-commerce adoption. By concentrating on a single case study of an SME, this research will provide in-depth insights into the practical applications, obstacles, and results of e-commerce integration. This case study approach allows for a detailed analysis of the context-specific factors that may impact the effectiveness of e-commerce adoption, offering valuable lessons for other SMEs considering similar technological advancements.

The rise of e-commerce platforms has been particularly transformative for SMEs, as these platforms offer relatively low-cost ways to expand market reach beyond traditional geographical boundaries. E-commerce platforms, such as Shopify, WooCommerce, and Amazon, have democratized access to digital marketplaces, enabling SMEs to compete with larger firms in ways that were previously not possible. However, the transition to online business models is complex and requires a shift in business operations, including marketing strategies, customer relationship management, inventory management, and payment systems. Moreover, while some SMEs have successfully integrated e-commerce, others face barriers such as a lack of digital literacy, insufficient infrastructure, and a limited understanding of online customer behavior. This research seeks to address the gap in knowledge regarding the specific challenges and strategies that SMEs face when adopting e-commerce platforms, with a focus on the practical implications of such adoption. Thus, the central research question guiding this study is:

RQ. How do small and medium-sized enterprises (SMEs) adopt and integrate e-commerce platforms to enhance their business operations and market competitiveness?

This research adopts a multiple-case study design, utilizing semi-structured interviews as the primary method of data collection, and thematic and content analysis for data interpretation. The methodology is designed to provide a comprehensive and nuanced understanding of the challenges and strategies associated with e-commerce adoption in SMEs, while ensuring ethical rigor and methodological rigor in data collection and analysis. Through this approach, the study aims to contribute valuable insights into the digital transformation process in SMEs and the role of e-commerce platforms in enhancing their business operations and competitiveness.

2 Literature review

Small and medium-sized enterprises (SMEs) are essential to the global economy, contributing significantly to employment, innovation, and economic growth. SMEs, particularly in emerging economies, represent a substantial share of business activity and provide key job opportunities. Despite their importance, SMEs face several challenges that hinder their growth, including limited access to capital, technology adoption barriers, and difficulties in expanding their market reach (Hoang, Nguyen, & Le, 2022). E-commerce platforms offer a promising solution for SMEs to overcome these barriers by providing access to new markets, enhancing operational efficiency, and improving customer engagement (Tanveer, Hoang, & Ishaq, 2025). The integration of e-commerce platforms has become a crucial aspect of digital transformation for SMEs. These platforms enable businesses to expand their market reach, streamline operations, and enhance digital marketing strategies. According to Holland and Gutiérrez-Leefmans (2018), e-commerce allows SMEs to bypass traditional geographical constraints, enabling them to compete on a more level playing field with larger firms. Additionally, e-commerce platforms facilitate the automation of processes like inventory management, payment systems, and customer engagement, which can significantly reduce operational costs and improve business efficiency (Ballerini, Herhausen, & Ferraris, 2023). However, as highlighted by Gallastegui and Forradellas (2024), SMEs still face significant challenges when it comes to the adoption of e-commerce, including technological and financial constraints, as well as a lack of digital skills.

Adopting e-commerce platforms offers numerous benefits for SMEs. One of the most notable advantages is market expansion. E-commerce allows SMEs to reach a global customer base, overcoming the limitations of regional market focus. This access opens up new revenue streams and improves the competitiveness of SMEs in international markets (Tanveer, Hoang, & Ishaq, 2025). Furthermore, e-commerce platforms help reduce operational costs. By eliminating the need for physical storefronts, SMEs can save on rent, utilities, and staffing costs. These savings allow SMEs to reinvest in other critical areas of their business, such as digital marketing and customer relationship management (Wei & Pardo, 2022). Another significant benefit of e-commerce adoption is the improvement in customer relationship management. E-commerce platforms enable SMEs to gather valuable customer data, which can be used to enhance customer experiences through personalized marketing, targeted promotions, and customized offerings. As noted by Ballerini, Herhausen, and Ferraris (2023), this level of personalization can help increase customer loyalty, which is crucial for long-term business success.

While e-commerce offers significant advantages, SMEs face numerous barriers to successful adoption. One of the main challenges is technological constraints. Many SMEs, especially in developing countries, lack the digital infrastructure necessary to support e-commerce operations. These include secure payment systems, integrated supply chain management tools, and functional websites that can handle the complexities of online sales (Gallastegui & Forradellas, 2024). Furthermore, SMEs often lack the technical expertise to manage these systems effectively, which can impede their ability to fully utilize e-commerce platforms (Hoang & Bui, 2023). Financial constraints are another significant barrier to e-commerce adoption. Many SMEs operate on limited budgets and may struggle to afford the initial costs of setting up an e-commerce platform, including subscription fees, website development, and digital marketing campaigns (Tanveer, Hoang, & Ishaq, 2025). These financial limitations prevent SMEs from fully investing in the necessary tools and technologies to optimize their e-commerce operations. Additionally, SMEs often lack access to capital to invest in advanced technologies, such as artificial intelligence (AI) or data analytics, which could help them gain a competitive advantage (Wei & Pardo, 2022). Digital skills and literacy also represent significant obstacles to the adoption of e-commerce. Many SME owners and employees lack the necessary digital skills to manage e-commerce platforms effectively. This includes knowledge of digital marketing, customer service automation, cybersecurity, and website maintenance (Hoang & Bui, 2023). Without these skills, SMEs are often unable to maximize the potential benefits of e-commerce, which limits their ability to compete effectively in the digital space. Finally, organizational resistance to change can further hinder e-commerce adoption. Employees and management may resist adopting new technologies due to fears of disruption, lack of understanding, or concerns about complexity. Overcoming this resistance requires strong leadership, staff training, and a commitment to digital transformation (Gallastegui & Forradellas, 2024).

E-commerce platforms can provide SMEs with a strategic advantage in the market. By adopting e-commerce, SMEs can increase their competitiveness by improving customer service, reducing operational costs, and expanding their market reach. As noted by Wei and Pardo (2022), e-commerce allows SMEs to differentiate themselves by offering personalized experiences, optimizing their product offerings, and engaging with customers in real-time. This enables SMEs to build customer loyalty and retention, both of which are essential for long-term success in competitive markets. Furthermore, e-commerce platforms enable SMEs to adopt innovative business models. By integrating advanced technologies such as artificial intelligence (AI), SMEs can enhance their marketing efforts, automate customer service, and make data-driven decisions. These technologies allow SMEs to better understand their customers' needs, optimize pricing strategies, and predict future trends, which significantly enhances their ability to compete in global markets (Wei & Pardo, 2022). E-commerce platforms thus serve as a vital tool for fostering innovation and enhancing the overall performance of SMEs.

E-commerce platforms present significant opportunities for SMEs, offering them a means to expand their market reach, reduce operational costs, and improve customer relationships. However, the adoption of these platforms is not without its challenges. SMEs must overcome technological, financial, and digital literacy barriers to fully capitalize on the benefits of e-commerce. Addressing these challenges requires targeted interventions, including investments in digital infrastructure, training, and financial support for technology adoption (Daniel, 2003). This study aims to contribute to the body of knowledge on SME e-commerce adoption by providing insights into the specific challenges, strategies, and outcomes of e-commerce integration in SMEs. The findings will offer practical recommendations for SMEs, policymakers, and industry stakeholders to foster the digital transformation of small and medium-sized businesses.

3 Methodology

This study employs a multiple-case research design to explore the integration of e-commerce platforms in small and medium-sized enterprises (SMEs). The research seeks to examine the challenges, strategies, and outcomes associated with the adoption and integration of e-commerce platforms in two distinct SMEs, each operating in different sectors. The use of a case study design allows for an in-depth investigation of the particularities of each case, while also enabling a comparison of the experiences and outcomes of e-commerce adoption across different contexts. By focusing on two cases, this research aims to identify both common and unique challenges faced by SMEs in their digital transformation journey.

The research design is situated in the context of two SMEs that have successfully integrated e-commerce platforms into their operations. One of the cases is based on a retail SME that has adopted an e-commerce platform to facilitate online sales and enhance customer engagement. The second case involves a manufacturing SME that has integrated an e-commerce platform to improve its supply chain management and establish direct connections with both suppliers and customers. The selection of these two cases was purposeful, with each chosen for its maturity in e-commerce integration and its willingness to provide insights into the adoption process. This comparative approach is intended to capture a broader understanding of the integration of e-commerce across different industries and business contexts.

The data for this study were collected through semi-structured interviews, a method that is particularly effective in qualitative research as it allows for flexibility while providing structure to the data collection process. Semi-structured interviews enable the researcher to engage with participants in an open and conversational manner, exploring their personal experiences, perspectives, and insights regarding e-commerce adoption. The participants were selected based on their roles within the organization, ensuring that individuals directly involved in the e-commerce integration process were interviewed. These included business owners, managers, and technical staff who had a hands-on role in implementing and managing the e-commerce platforms. The interviews were designed to explore various aspects of e-commerce integration, such as the motivations for adoption, the selection of the e-commerce platform, the challenges encountered during the implementation, and the perceived benefits and limitations of using the platform. The interview questions were open-ended, allowing participants to discuss their experiences in detail while also providing opportunities for follow-up questions to probe deeper into specific issues. Interviews were conducted either in person or via video conferencing, depending on the availability of participants, and all interviews were recorded and transcribed verbatim to ensure accuracy in data collection.

The collected data were analyzed using thematic and content analysis methods. Thematic analysis, as outlined by Braun and Clarke (2006), was employed to identify, analyze, and report patterns or themes within the interview data. This approach enabled the researcher to examine the data in depth, identifying recurring themes that reflect the experiences and perceptions of the participants regarding e-commerce adoption. The analysis followed a systematic process that involved becoming familiar with the data, generating initial codes, searching for themes, reviewing those themes, and defining them before finalizing the analysis and reporting the findings. Thematic analysis allowed for a rich and detailed exploration of the data, providing valuable insights into the complexities of e-commerce integration in SMEs.

In addition to thematic analysis, content analysis was also employed to quantify the frequency of specific concepts and topics mentioned by the participants. Content analysis provided a more structured and objective way to examine the data, helping to identify key issues and trends related to the adoption of e-commerce platforms. This method was particularly useful for tracking the occurrence of specific terms, such as "technological challenges," "financial constraints," and "customer engagement," and for assessing how often these issues were mentioned across the two cases.

In order to triangulate the findings, additional data were gathered from relevant documents, such as internal reports, e-commerce usage statistics, and business strategy documents. These documents provided supplementary insights that helped validate the interview data and ensured the robustness of the analysis. The combination of thematic and content analysis, along with document review, enabled a comprehensive understanding of the e-commerce integration process, highlighting both the challenges faced by SMEs and the strategies employed to overcome them.

Ethical considerations were given paramount importance throughout the study. Participants were informed about the purpose of the research and their involvement in the study. Informed consent was obtained from all participants before the interviews, and confidentiality was assured. To protect the anonymity of the participants and their organizations, all identifying information was removed from the data and findings. The study adhered to ethical guidelines, ensuring that participants' rights and privacy were respected throughout the research process.

4 Findings

The findings of this study are derived from in-depth semi-structured interviews with key decision-makers and employees from two SMEs that have integrated e-commerce platforms into their operations. The interviews revealed a variety of insights related to the adoption process, challenges faced, strategies used, and perceived outcomes of e-commerce integration. The results are presented thematically, focusing on key areas that emerged from the data: motivations for e-commerce adoption, challenges encountered, strategies for overcoming these challenges, and the perceived impacts on business performance.

4.1 Motivations for E-Commerce Adoption

The interviews revealed several common motivations for adopting e-commerce platforms across both case studies. Participants from both the retail and manufacturing SMEs identified market expansion as one of the primary reasons for adopting e-commerce. For the retail SME, the business owner noted that expanding beyond local markets was critical to competing with larger, more established firms. "We were finding that our physical store could not keep up with customer demands outside our immediate area. E-commerce allowed us to reach customers across the country, and even globally, without the high overhead costs of opening more physical stores," the owner explained.

Similarly, the manufacturing SME participants highlighted operational efficiency as a motivating factor. The adoption of e-commerce was seen as a means to streamline supply chain management and improve direct communication with suppliers and customers. One of the managers explained, "Before implementing e-commerce, managing our supply chain was a logistical nightmare. With e-commerce, we can track orders in real time, adjust inventory instantly, and communicate directly with clients and suppliers without intermediaries."

Another important motivation shared by both SMEs was cost reduction. The ability to operate without a physical storefront allowed both firms to reduce overhead costs significantly. As the retail SME owner mentioned, "The savings on rent, utilities, and staff costs were enormous. The money we saved by not having to maintain a physical store was reinvested into improving our online marketing and enhancing the customer experience."

4.2 Challenges Encountered During E-Commerce Adoption

While the benefits of e-commerce adoption were clear, participants also discussed various challenges encountered during the integration process. One of the most common challenges cited by both SMEs was technological limitations. In the retail SME, the business owner noted that the initial setup of the e-commerce platform was complex and time-consuming. "Choosing the right platform was difficult. We didn't have the technical expertise to evaluate all the available options, and implementing the platform was more challenging than we expected."

The manufacturing SME faced similar difficulties, particularly with the integration of the e-commerce platform with existing supply chain management systems. The manager explained, "The biggest hurdle for us was integrating the e-commerce platform with our supply chain management system. It was hard to get everything working smoothly. We had to hire external consultants to help us set it up properly."

Another challenge discussed by both SMEs was financial constraints. The initial investment required for e-commerce platform development, marketing, and the hiring of external consultants to overcome technical hurdles was a significant concern. "Although the long-term benefits are clear, the upfront costs of setting up the e-commerce system, along with ongoing digital marketing expenses, were substantial," said the owner of the retail SME. Similarly, the manufacturing SME's manager noted, "The cost of developing the platform, integrating it with our systems, and running online marketing campaigns was higher than we had anticipated. We were fortunate to secure some funding, but it was a stretch for us."

Digital skills gaps also emerged as a challenge, especially in the retail SME. The business owner emphasized the lack of in-house digital marketing expertise as a barrier to maximizing the platform's potential. "At first, we didn't know much about digital marketing, SEO, or customer relationship management. We had to learn on the fly, and there were a lot of trial and error in the early stages."

4.3 Strategies Employed to Overcome Challenges

To address these challenges, both SMEs employed several strategies. In the case of the retail SME, the owner mentioned investing in staff training as a key strategy to overcome the digital skills gap. "We knew that to make the most of our e-commerce platform, we needed to upskill our staff in digital marketing and e-commerce management. We hired a consultant who trained our marketing team, and that made a huge difference."

The manufacturing SME adopted a strategy of external collaboration to manage the technical challenges associated with the e-c ommerce platform integration. The manager explained, "Given the complexity of our operations, we decided to work with an external IT consultant who had experience in integrating e-commerce systems with supply chain management. This was a big help in ensuring that everything ran smoothly."

Both SMEs also highlighted the importance of customer feedback in refining their e-commerce platforms. The retail SME's owner noted, "We constantly engage with our customers through surveys and feedback forms. Their input has been invaluable in improving our website, product offerings, and the overall user experience."

Additionally, both SMEs emphasized the importance of data analytics in guiding business decisions. The retail SME adopted data-driven marketing strategies to better understand customer behavior, while the manufacturing SME used data analytics to improve inventory management and supply chain forecasting.

4.4 Perceived Impacts of E-Commerce Integration

The participants identified several positive outcomes resulting from e-commerce adoption. The retail SME, for instance, reported a significant increase in sales since implementing its e-commerce platform. "Our online sales have exceeded our expectations. Not only have we gained more customers, but our existing customers are also purchasing more frequently," the owner noted. Furthermore, the retail SME's manager highlighted the ability to access new customer segments, particularly younger generations who preferred shopping online. "We now have a broader customer base, and we're able to engage with tech-savvy customers who wouldn't have otherwise considered us."

Similarly, the manufacturing SME experienced improvements in operational efficiency. The manager stated, "E-commerce has made it easier to track orders, manage inventory, and communicate with both customers and suppliers. It's made our supply chain much more transparent and responsive."

However, not all impacts were purely positive. Both SMEs indicated that the integration of e-commerce platforms also led to some increased complexity in their operations. The retail SME, for example, struggled initially with managing both online and offline sales channels simultaneously. The owner commented, "Managing both the online store and the physical store became overwhelming at times. We had to adjust our logistics and inventory processes to ensure we could handle the increased volume and complexity of orders."

Despite these challenges, both SMEs concluded that the long-term benefits of e-commerce adoption far outweighed the difficulties faced during the integration process. Both firms have seen growth in sales, operational efficiency, and market presence, with e-commerce serving as a key driver of their digital transformation.

The findings from the interviews with participants from two SMEs highlight the significant motivations, challenges, strategies, and outcomes associated with integrating e-commerce platforms into their operations. E-commerce adoption is primarily driven by the desire for market expansion, cost reduction, and improved operational efficiency. However, SMEs face challenges related to technological limitations, financial constraints, and digital skills gaps. To overcome these obstacles, SMEs employ strategies such as staff training, external collaboration, customer feedback integration, and data analytics. Despite initial difficulties, the long-term impacts of e-commerce adoption have been overwhelmingly positive, resulting in increased sales, improved efficiency, and enhanced competitiveness. These findings provide valuable insights for SMEs considering or currently undergoing digital transformation through e-commerce.

5 Discussion

This section aims to provide an in-depth discussion addressing the main research question: How do small and medium-sized enterprises (SMEs) adopt and integrate e-commerce platforms to enhance their business operations and market competitiveness? Drawing upon the findings from the two case studies and relevant literature, this discussion provides a comprehensive analysis of the e-commerce adoption process, its implications for SMEs' business operations, and its role in enhancing market competitiveness. The integration of e-commerce platforms in SMEs is critically examined, focusing on the motivations, challenges, strategies, and outcomes, while aligning these findings with existing academic work.

The motivation for adopting e-commerce platforms in SMEs is largely driven by the desire to enhance market reach and operational efficiency, which are consistent with the findings from the literature. Both SMEs in the study emphasized the need to expand their market reach and improve operational efficiency as core drivers of adopting e-commerce platforms. For the retail SME, e-commerce allowed for significant market expansion, enabling the business to reach customers beyond local geographical boundaries. This mirrors the findings of Ballerini, Herhausen, and Ferraris (2023), who noted that the adoption of e-commerce platforms in SMEs is often motivated by the need to extend market reach and compete with larger firms. Similarly, the manufacturing SME's decision to adopt e-commerce was rooted in the need to streamline operations and improve supply chain management. These motivations align with the work of Tanveer, Hoang, and Ishaq (2025), who discuss how digital technologies, including e-commerce platforms, are crucial for reshaping supply chains and improving operational processes in SMEs. Moreover, both SMEs experienced substantial cost reduction after adopting e-commerce platforms, which was highlighted as a significant motivation for adoption. The reduction in operational costs due to the elimination of physical stores and the ability to optimize inventory management is consistent with findings from Gallastegui and Forradellas (2024), who argue that e-commerce adoption offers SMEs a pathway to reduce overhead costs and improve profitability.

The study revealed several challenges encountered by SMEs during the adoption and integration of e-commerce platforms, particularly related to technological constraints, financial barriers, and digital skills gaps. These challenges were similar to those discussed in the literature, where SMEs often struggle with the technical and financial aspects of e-commerce adoption. Technological limitations emerged as a key challenge for both SMEs, which aligns with the findings of Hoang and Bui (2023). The retail SME, for instance, faced significant challenges in selecting and integrating the right e-commerce platform. This mirrors the work of Holland and Gutiérrez-Leefmans (2018), who discussed the difficulties SMEs face in choosing the right platform due to technological limitations and a lack of expertise in evaluating platform features. Similarly, the manufacturing SME encountered challenges integrating e-commerce with existing supply chain systems. These difficulties were also highlighted by Wei and Pardo (2022), who noted that integrating e-commerce with existing systems requires significant technological investments and expertise, which many SMEs lack. Financial constraints were another major challenge faced by the SMEs in this study. Both businesses struggled with the upfront costs associated with e-commerce platform implementation, digital marketing, and training. This finding is consistent with Tanveer, Hoang, and Ishaq (2025), who discussed how the financial burden of initial e-commerce integration often hinders SMEs from fully exploiting the potential of these platforms. Furthermore, the lack of digital skills emerged as a significant barrier. In the retail SME, the absence of in-house expertise in digital marketing and e-commerce management hindered the firm's ability to leverage the platform effectively. This resonates with the findings of Gallastegui and Forradellas (2024), who emphasized that digital skills gaps are a common obstacle for SMEs in the adoption of digital technologies. Both SMEs in this study had to invest in external consultants or staff training to overcome this barrier, which reflects the broader challenges identified in the literature.

The SMEs employed several strategies to overcome the challenges they faced during the adoption of e-commerce platforms, including external collaboration, staff training, and data-driven decision-making. External collaboration played a key role in overcoming technological and integration challenges, particularly for the manufacturing SME, which worked with external IT consultants to integrat e the e-commerce platform with its supply chain systems. This strategy is aligned with the findings of Hoang, Nguyen, and Le (2022), who suggest that SMEs often rely on external expertise to bridge technological gaps during digital transformation. The retail SME, too, sought external assistance for platform implementation and digital marketing, which aligns with Ballerini, Herhausen, and Ferraris (2023), who argue that SMEs frequently turn to external expertise to mitigate the lack of internal technological capabilities. Staff training was another critical strategy employed by both SMEs. The retail SME invested in training its employees in digital marketing and e-commerce management to overcome the digital skills gap. This mirrors the recommendations made by Wei and Pardo (2022), who suggest that investing in staff training is essential for SMEs to fully leverage the potential of e-commerce platforms. By upskilling employees, the retail SME was able to optimize its e-commerce strategy, thereby improving its digital marketing efforts and customer engagement.

Both SMEs also made use of data-driven decision-making, leveraging the data collected from their e-commerce platforms to make informed business decisions. The retail SME, for example, used customer data to personalize marketing campaigns and product recommendations, which led to improved customer retention. This aligns with Gallastegui and Forradellas (2024), who emphasize the importance of using data analytics in e-commerce platforms to drive business decisions and enhance customer experiences. The integration of e-commerce platforms had a significant positive impact on both SMEs, particularly in terms of increased sales, improved operational efficiency, and enhanced market competitiveness. Both SMEs experienced growth in sales after adopting e-commerce platforms. The retail SME reported a substantial increase in online sales, which allowed the company to reach a wider customer base. The manufacturing SME also saw improvements in its ability to fulfill orders more efficiently and track inventory in real-time. These outcomes support the findings of Tanveer, Hoang, and Ishaq (2025), who assert that e-commerce platforms facilitate market expansion and improve operational efficiency for SMEs.

Additionally, the operational efficiency of both SMEs improved because of e-commerce integration. The retail SME was able to automate inventory management, while the manufacturing SME streamlined its supply chain and reduced order fulfillment time. This aligns with the work of Hoang and Bui (2023), who highlight how e-commerce platforms can enhance operational efficiency by automating processes and improving the accuracy of inventory and order management. Both SMEs also gained a competitive advantage through e-commerce adoption. The retail SME was able to compete with larger firms by offering personalized services and expanding its market reach, which is consistent with the work of Ballerini, Herhausen, and Ferraris (2023). Similarly, the manufacturing SME gained a competitive edge by improving its supply chain and responding more quickly to customer demands, as emphasized by Gallastegui and Forradellas (2024), who argue that e-commerce platforms allow SMEs to be more agile and responsive to market changes.

6 Conclusion

This study explores how small and medium-sized enterprises (SMEs) adopt and integrate e-commerce platforms to enhance their business operations and market competitiveness. Drawing from two case studies, the research provides valuable insights into the motivations, challenges, strategies, and outcomes associated with e-commerce adoption in SMEs. The following sections outline the theoretical and practical contributions of this study.

6.1 Theoretical Contribution

The primary theoretical contribution of this study lies in its extension of existing literature on e-commerce adoption in SMEs, particularly by integrating insights from case studies within the context of SMEs that have already embraced e-commerce platforms. While the literature on e-commerce adoption in SMEs has been well-established, studies examining the specific challenges and strategic responses in the integration process remain relatively underexplored (Daniel, 2003; Jiang & Chen, 2021). This study expands the current understanding of SME e-commerce adoption by focusing on the nuanced challenges, such as technological constraints, financial barriers, and digital skills gaps, as well as the strategies SMEs employ to overcome these challenges, such as staff training, external collaboration, and data-driven decision-making. These findings align with and contribute to the literature by reinforcing the argument that e-commerce adoption in SMEs is motivated by the need for market expansion and operational efficiency (Nguyen et al., 2024), while also highlighting the technological and financial hurdles that SMEs face during the integration process (Hoang & Bui, 2023; Wei & Pardo, 2022).

Furthermore, this study introduces the importance of external collaboration and data-driven decision-making as critical strategies for overcoming barriers during e-commerce adoption. Previous studies, such as those by Ballerini, Herhausen, and Ferraris (2023), emphasize the role of platform adoption in driving performance, but the specific strategies employed by SMEs to mitigate adoption challenges have not been thoroughly explored. By incorporating these strategies, this study provides a more comprehensive understanding of the dynamic processes involved in e-commerce adoption. Additionally, the findings contribute to the theoretical discussion of e-commerce platforms' impact on SMEs' competitiveness. As discussed by Gallastegui and Forradellas (2024), e-commerce platforms enhance operational efficiency and market responsiveness, which is corroborated by the outcomes observed in this study, such as improved supply chain management and sales growth.

Moreover, this research contributes to the integration of financial technologies into the adoption process, particularly in terms of streamlining supply chain management and customer engagement through e-commerce. This extension of the literature builds on the work of Hoang, Nguyen, and Le (2022), who explored the role of fintech in achieving the Sustainable Development Goals (SDGs). This study extends this framework by showing how digital platforms, particularly e-commerce systems, can also facilitate competitive advantage and operational resilience in SMEs.

6.2 Practical Contributions

From a practical standpoint, this study offers actionable insights for SMEs considering or in the process of adopting e-commerce platforms. The research emphasizes the importance of a strategic approach to e-commerce adoption, where SMEs should carefully select the platform that best aligns with their business model and operational needs.

Additionally, the study highlights the necessity for staff training and external expertise to overcome technological and digital skills barriers, which are common challenges faced by SMEs. The findings suggest that SMEs should not view e-commerce as a one-time investment, but rather as a long-term strategic endeavor that requires continuous learning, adaptation, and investment in both technology and human resources.

The study also offers insights into the financial considerations SMEs must account for when adopting e-commerce. It highlights the need for SMEs to balance the initial costs of platform setup with the long-term benefits, such as cost reductions and increased market reach. Policymakers and financial institutions can use these findings to develop more targeted support mechanisms for SMEs, including subsidies, grants, and low-interest loans that help mitigate the upfront costs of e-commerce adoption.

Furthermore, the study suggests that SMEs should leverage data analytics to gain a deeper understanding of customer behavior, optimize marketing efforts, and refine product offerings. This aligns with the findings of Ballerini, Herhausen, and Ferraris (2023), which emphasize the importance of customer data in improving e-commerce performance. The practical implication is clear: SMEs must actively engage with their customers through digital channels, use data-driven insights to tailor their marketing and operational strategies, and adopt a customer-centric approach to enhance their competitive position in the market.

Finally, the research emphasizes the need for policy intervention to support SMEs in overcoming the barriers associated with e-commerce adoption. Government agencies and trade associations can play a pivotal role by providing financial support, creating awareness programs, and facilitating access to training and digital infrastructure. These practical contributions are consistent with the broader literature, which calls for an enabling environment for SME digital transformation.

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