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-RESEARCH ARTICLE-

THE EFFECT OF OPERATION MANAGEMENT AND OPEN INNOVATION ON WOMEN-OWNED SMALL AND MEDIUM ENTERPRISES PERFORMANCE IN VIETNAM

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Vol: 16 **No:** 2 **Year:** 2024 **ISSN:** 2146-0744 (Online) (**pp.**384-401) **Doi:** 10.34109/ijebeg.2024160219

—Abstract—
Operation management and open innovation are critical determinants of a firm's competitive advantage and its progression towards organisational success. Consequently, these factors warrant scholarly attention due to their substantial influence on organisational outcomes. Considering this, the present study examines the impact of open innovation and operation management on the performance of women-owned SMEs within the Vietnamese context, thereby addressing a key gap in the existing literature. The study further contributes to the field by investigating the mediating role of competitive advantage. As the focus is on women-owned enterprises, data were exclusively collected from individuals associated with such businesses. Employing the PLS-SEM approach, the findings reveal a significant and positive relationship between open innovation, operation management, and SME performance. Furthermore, the study confirms a significant mediating effect, providing policymakers with insights into enhancing SME performance through effective operation management and open innovation.

Keywords: Operation Management, Open Innovation, Competitive Advantage, Women-Owned SMEs Performance

INTRODUCTION

The role of women in entrepreneurship has experienced significant growth, particularly in the context of small and medium-sized enterprises (SMEs). This trend is especially prominent in Vietnam, where women own a substantial proportion of SMEs that contribute significantly to the national economy. This study preliminarily investigates the role of operation management and open innovation in enhancing the performance of these enterprises, highlighting their distinctive attributes and growth potential. Operation management encompasses a range of activities aimed at improving organisational efficiency and effectiveness, including process optimisation, quality assurance, and supply chain management (Bag et al., 2020). Conversely, open innovation focuses on leveraging external ideas and methodologies to augment internal innovation processes (Hashimy et al., 2021). This research posits that both operation management and open innovation play strategic roles in enhancing the performance, competitiveness, productivity, and growth rates of women-owned SMEs in Vietnam. According to Vuong et al. (2019), Vietnam's economy has undergone a significant transformation over the past decade, shifting from a centrally planned system to a predominantly market-based economy. This transition has fostered an entrepreneurial culture, with SMEs emerging as the primary drivers of economic activity. Within this context, women-owned businesses have become a notable category.

However, women entrepreneurs face distinct challenges, including financial constraints, market access limitations, and restricted networking opportunities. On the other hand,

Vol: 16 **No:** 2 **Year:** 2024 **ISSN:** 2146-0744 (Online) (**pp.**384-401) **Doi:** 10.34109/ijebeg.2024160219

Hashimy et al. (2021) argue that applying open innovation principles can empower women entrepreneurs by enhancing their capacity for innovation, particularly as they often face limited access to learning resources and insufficient technological skills. Consequently, this study underscores the complementary roles of operation management and open innovation in ensuring organisational success within Vietnamese women-owned SMEs. The findings aim to inform and improve existing policies, providing stronger support for women-led SMEs and fostering their growth in the national economy. This study focuses on the manufacturing industry due to its critical role in contributing to Vietnam's GDP and employment generation. The primary group under investigation comprises women-owned manufacturing SMEs, as the manufacturing sector has traditionally been regarded as male-dominated. These enterprises predominantly operate in textiles, garments, and consumer products—sectors that are recognised as key competitive export areas for Vietnam. The significant contribution of the manufacturing sector is illustrated in Figure 1.

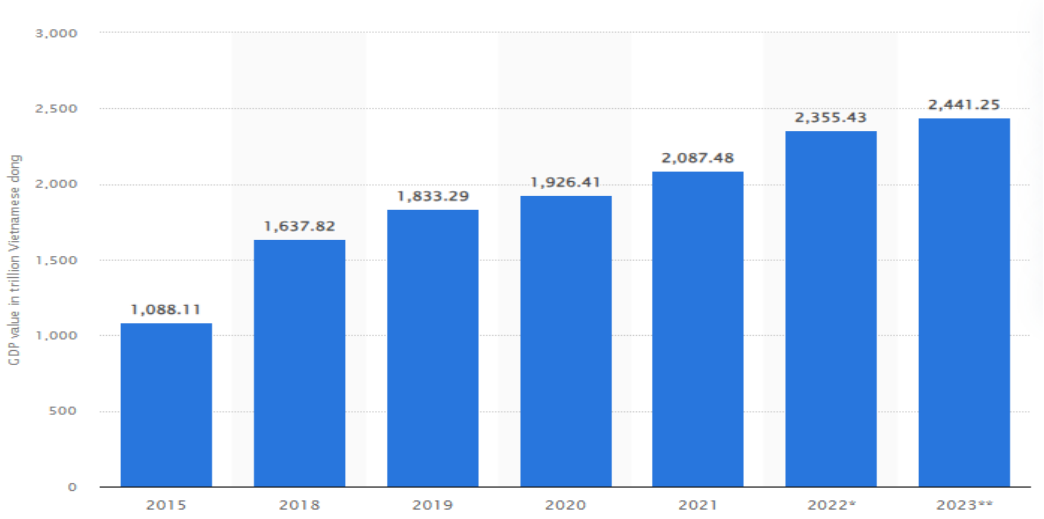

Figure 1: GDP from Manufacturing Sector in Vietnam

To compete successfully in the manufacturing industry, business organisations must enhance operational efficiency and adopt innovative practices (Giusi Gaeta, 2024). Key strategies of operation management include process management, quality control, and supply chain optimisation. Competitive advantage acts as a mediator between operation management, open innovation, and firm performance. For women-owned SMEs, achieving and sustaining competitive advantage can be particularly challenging due to limited resources and market barriers (Orser et al., 2021). Effective operation management plays a crucial role in addressing these challenges by generating operational and cost advantages that distinguish a firm from its competitors. For instance, Orser et al. (2021) argue that efficient production systems and robust quality assurance measures enhance product quality and consistency, ultimately improving

Vol: 16 **No:** 2 **Year:** 2024 **ISSN:** 2146-0744 (Online) (**pp.**384-401) **Doi:** 10.34109/ijebeg.2024160219

customer satisfaction and loyalty. Open innovation complements these advantages by enabling firms to leverage external environments—such as technologies, markets, and partnerships—beyond their organisational boundaries.

Open innovation is particularly valuable for women entrepreneurs, as it provides opportunities to overcome limitations in internal competencies and resources (Hashimy et al., 2021). Through collaboration with external entities, research organisations, suppliers, or even competitors, women entrepreneurs can add value to their processes. Such cooperation accelerates innovation outcomes while minimising associated risks and costs. By considering the mediating role of competitive advantage, this study provides a comprehensive analysis of women-owned SMEs, enabling them to develop effective strategies for planning and decision-making. This integrated approach, which combines operation management, open innovation, and competitive advantage, is pivotal in enhancing business performance and ensuring the sustainability of women-led enterprises in a competitive market.

This study examines how operation management and open innovation affect Vietnamese women-owned SMEs. The research tries to describe how these two characteristics boost these firms' competitiveness, productivity, and growth. The study also examines how competitive advantage moderates this link and how improved operation management and open innovation might boost business success for women entrepreneurs in manufacturing. Several literature gaps are addressed by this study. First, it examines women-owned SMEs in Vietnam, a topic with little research, to highlight their challenges and contributions. Second, it integrates operation management and open innovation, which are usually studied separately, to expand knowledge. Finally, it addresses the understudied moderating function of competitive advantage. The study fills gaps in the literature by offering a complete examination of the factors affecting women-owned manufacturing firms' performance. The study then reviews relevant literature, outlines the research approach, and analyses empirical findings. Practical implications and recommendations from the study provide academics, policymakers, and practitioners with useful insights.

LITERATURE REVIEW

A substantial positive relationship exists between operations management and the performance of women-owned SMEs, as it enhances organisational procedures for improved efficiency. According to Zhou and Li (2020), operations management requires organisations to optimise performance and minimise costs while ensuring quality. Effective supply chain management, a critical aspect of operations management, significantly impacts SMEs, as it ensures efficient inventory flow and timely product delivery at competitive prices (Khan et al., 2019). Women-owned SMEs often face barriers such as insufficient capital, limited connections, and scarce

Vol: 16 **No:** 2 **Year:** 2024 **ISSN:** 2146-0744 (Online) (**pp.**384-401) **Doi:** 10.34109/ijebeg.2024160219

networking opportunities. Proper operations management addresses these challenges by streamlining processes to reduce costs, eliminate waste, and enhance operational capability (Rosca et al., 2020). This results in increased profitability and business sustainability. Quality control, another key factor, positively influences women-owned SMEs by fostering customer loyalty and satisfaction, essential for repeat patronage and long-term viability (Khan et al., 2021). Kamberidou (2020) highlights that effective operations management maximises the use of limited resources, improving key performance indicators such as efficiency, cycle times, product quality, and client satisfaction. Therefore, we propose that,

H1: *Operation management has a positive effect on women-owned SMEs performance.*

Open innovation significantly enhances the performance of women-owned SMEs by fostering business cooperation for growth and development. It involves adopting external ideas, technologies, or partnerships to overcome internal barriers and expand the enterprise's innovation scope (Jabeen et al., 2019). Women entrepreneurs in SMEs often face challenges such as insufficient capital, unskilled employees, and inadequate marketing channels. Open innovation addresses these issues by leveraging external knowledge assets to boost innovation and productivity (Singh et al., 2019). By employing open innovation, women-owned SMEs can introduce new products and services tailored to consumer needs, enhancing customer satisfaction and loyalty, which are critical to business success (Jabeen et al., 2019). Setini et al., (2020) highlight opportunities for collaboration with external facilities, suppliers, other businesses, and research institutions, enabling access to advanced technologies, materials, and methods that improve organisational efficiency and product quality. Such cooperation reduces risks and costs associated with innovation by sharing information and resources, leading to more effective outcomes. Additionally, open innovation allows women-owned SMEs to stay informed about market trends and emerging opportunities, enabling swift and effective responses to changes and enhancing competitiveness (Setini et al., 2020). The benefits are evident in improved products, processes, and access to new markets, supporting sustainable growth and development. Therefore, we make a hypothesis that,

H2: *Open innovation have a positive effect on women-owned SMEs performance.*

Competitive advantage serves as a moderating variable between operations management and the performance of women-owned SMEs. Operations management focuses on optimising specific business aspects, including production, quality assurance, and supply chains, to enhance effectiveness (Ivanov et al., 2021). Such improvements lead to cost efficiencies, higher product standards, and superior services, which are crucial for women-owned SMEs that often face constraints such as limited tools and selling platforms. According to Bauer and Friesl (2024), successful implementation of operations management practices creates synergies that form the

Vol: 16 **No:** 2 **Year:** 2024 **ISSN:** 2146-0744 (Online) (**pp.**384-401) **Doi:** 10.34109/ijebeg.2024160219

foundation of competitive advantage. Competitive advantage refers to the distinctive attributes that position a business ahead of competitors, including cost reduction, product diversification, and responsiveness to market dynamics (Ahmed et al., 2022). Women-owned SMEs leveraging advanced operations management can achieve competitive advantages that enhance market positioning and improve performance. This advantage enables better pricing negotiations, customer retention, and increased profitability and growth. Dawa et al. (2021) emphasise that competitive advantage reinforces the success of operations management by ensuring performance gains are fully reflected in the evaluation of women-owned SMEs. Operational efficiencies and capabilities are transformed into strategic advantages, vital for competitive positioning in dynamic markets. This mediating role highlights the importance of linking operational improvements with strategic positioning to unlock untapped business potential and drive success. Therefore, we propose that,

H3: *Competitive advantage mediates the relationship between operation management and women-owned SMEs performance.*

Competitive advantage also serves as a mediator between open innovation and the performance of women-owned SMEs. Open innovation, as defined by Öberg and Alexander (2019), involves integrating external knowledge, technologies, and ideas into an organisation's innovation practices to overcome internal barriers and enhance innovation capacity. This concept is particularly beneficial for women-owned SMEs, which often operate in contexts with limited access to resources, customers, and knowledge (Figueira et al., 2023). Through such collaborations, these enterprises can foster innovation, upgrade services, and improve efficiency, thereby strengthening their competitive advantage. In this context, competitive advantage refers to the unique attributes or "edge" a business possesses that distinguish it from competitors. Key elements include producing quality products, maintaining low costs, and demonstrating agility in responding to market changes. Expósito et al. (2019) argue that women-managed SMEs engaging in open innovation can develop a competitive advantage by quickly assimilating external ideas and incorporating them into their organisational processes. This capability enables the production of innovative, consumer-oriented goods and services, allowing these businesses to carve out market niches, attract customers, and achieve superior returns and growth.

As a mediator, competitive advantage facilitates the strategic objectives of open innovation in enhancing the performance of women-owned SMEs (Zeb & Ihsan, 2020). The practical benefits of collaborations and innovations fostered by open innovation are channelled into improved business outcomes, positioning these firms more effectively in the market. This mediation process underscores the importance of integrating external knowledge and resources to achieve market success and sustainability. Therefore, leveraging open innovation to build competitive advantage is crucial for the

Vol: 16 **No:** 2 **Year:** 2024 **ISSN:** 2146-0744 (Online) (**pp.**384-401) **Doi:** 10.34109/ijebeg.2024160219

sustainability and growth of women-owned SMEs, particularly in dynamic and uncertain markets. By enabling these enterprises to address resource constraints and develop unique market positions, open innovation becomes a strategic tool for long-term competitiveness and development. Therefore, we hypothesise that,

H4: *Competitive advantage mediates the relationship between open innovation and women-owned SMEs performance.*

METHODS AND MATERIAL

A structured survey instrument was used to measure the study variables, and the target population consisted of employees of women-owned SMEs in Vietnam. The study looks at the impact of open innovation and operation management on the performance of women-owned SMEs, with competitive advantage acting as a mediator. For operation management, a six-item scale was used, adapted from (Joshi et al., 2003). Open innovation was assessed using a seven-item scale, drawn from (Hameed et al., 2018). The measure of competitive advantage was based on a six-item scale from (Singh et al., 2019). Finally, the performance of women-owned SMEs was evaluated using a scale from the study of (Benjo & Mwasiaji, 2023). These scales provided a comprehensive framework for assessing the key factors influencing the performance of women-owned SMEs in Vietnam as shown in table 1. The study sampled participants randomly. Respondents received 519 questionnaires via a virtual platform. A 56% response rate was achieved with 291 valid responses. The study used PLS-SEM to analyse measurement and structural models. PLS is effective for primary data analysis, especially with complex models, according to (Hair Jr et al., 2020). This method provided a solid framework for assessing operation management, open innovation, competitive advantage, and women-owned SME performance (see figure 2).

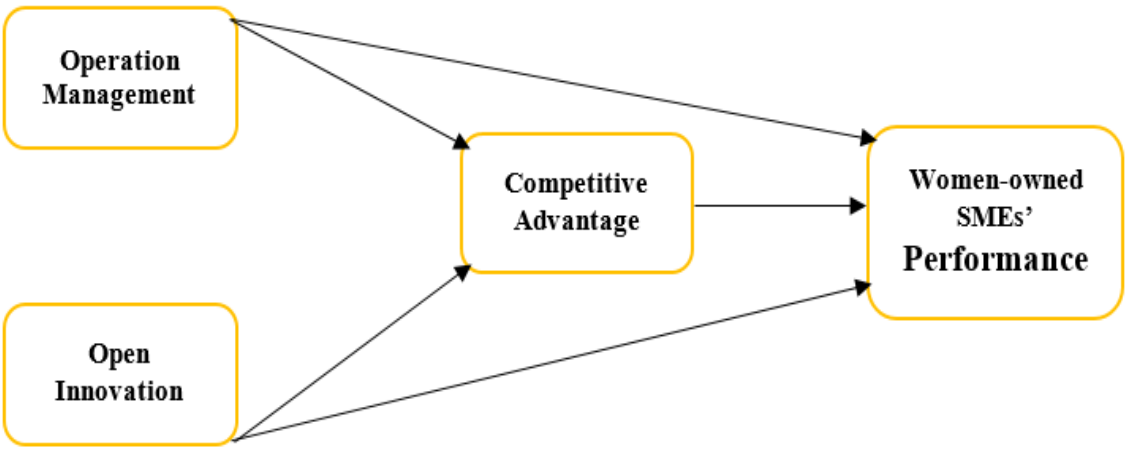

Figure 2: Research Framework

Vol: 16 **No:** 2 **Year:** 2024 **ISSN:** 2146-0744 (Online) (**pp.**384-401) **Doi:** 10.34109/ijebeg.2024160219

Table 1: Variables and Measurements

Items	Statements	Sources
Operation Management		
OM1	"Ensuring conformance of final product to design specifications."	(Joshi et al., 2003)
OM2	"Ensuring consistency in manufacturing."	
OM3	"Ensuring accuracy in manufacturing."	
OM4	"Manufacturing durable and reliable products."	
OM5	"Meeting and exceeding customer needs and preferences."	
OM6	"Making design changes in the product as desired by customer."	
Open Innovation		
OI1	"I choose to engage in open innovation model, believed that it is a way to commercialize the idea."	(Hameed et al., 2018)
OI2	"Collaboration efforts with individuals outside the firm to work on a project are the best description of open innovation."	
OI3	"I choose to engage in open innovation model believe that outsourcing of expertise would benefit."	
OI4	"New ideas are always welcomed for open innovation in our organization."	
OI5	"In my opinion, out-or-in licensing of intellectual property is the best description of open innovation."	
OI6	"In my opinion sharing of internal and external knowledge enhances the open innovation."	
OI7	"In my opinion licensing of latest ideas promotes open innovation."	
Competitive Advantage		
CA1	"My organization's products are better than its competitors."	(Singh et al., 2019)
CA2	"R&D capabilities are better than its competitors."	
CA3	"Managerial capabilities are better than its competitors."	
CA4	"Profitability is better than its competitors."	
CA5	"Image is better than its competitors."	
CA6	"Competitive advantage is better than its competitors."	
Women-owned SMEs' Performance		
WSMEP1	"New branches/expansion."	(Benjo & Mwasiaji, 2023)
WSMEP2	"Customer satisfaction."	
WSMEP3	"Volume of sales."	
WSMEP4	"Profitability."	
WSMEP5	"Business assets."	
WSMEP6	"Number of customers."	
WSMEP7	"SME position in the market"	

RESEARCH FINDINGS

The convergent validity of the study was assessed using Cronbach's alpha and CR. As shown in Table 2, both CR and alpha values exceeded 0.7, meeting the accepted threshold for reliability. Additionally, the AVE values and factor loadings were all greater than 0.5, further confirming the convergent validity of the model. These results

Vol: 16 **No:** 2 **Year:** 2024 **ISSN:** 2146-0744 (Online) (**pp.**384-401) **Doi:** 10.34109/ijebeg.2024160219

indicate that the measurement model demonstrates satisfactory reliability and validity, ensuring that the constructs used in the study are appropriately measured. The discriminant validity of the model was assessed using the Fornell-Larcker criterion and HTMT ratio.

Table 2: Convergent Validity

Constructs	Items	Loadings	Alpha	CR	AVE
Competitive Advantage	CA1	0.881	0.806	0.862	0.557
	CA2	0.779			
	CA3	0.711			
	CA5	0.667			
	CA6	0.673			
Open Innovation	OI1	0.914	0.916	0.934	0.672
	OI2	0.654			
	OI3	0.726			
	OI4	0.940			
	OI5	0.749			
	OI6	0.880			
	OI7	0.835			
Operation Management	OM1	0.707	0.857	0.891	0.577
	OM2	0.753			
	OM3	0.740			
	OM4	0.766			
	OM5	0.788			
	OM6	0.800			
Women-owned SMEs' Performance	WSMEP1	0.705	0.849	0.883	0.522
	WSMEP2	0.629			
	WSMEP3	0.620			
	WSMEP4	0.683			
	WSMEP5	0.792			
	WSMEP6	0.782			
	WSMEP7	0.819			

As shown in Table 3 and Table 4, each construct's value was lower than its own, confirming validity. Additionally, Table 5 indicates low correlations in HTMT values, further confirming that discriminant validity is not an issue. These results ensure the robustness of the measurement model.

Table 3: Fornell Larcker

	CA	OI	OM	WSMEP
CA	0.747			
OI	0.437	0.820		
OM	0.612	0.619	0.759	
WSMEP	0.672	0.546	0.725	0.723

Vol: 16 **No:** 2 **Year:** 2024 **ISSN:** 2146-0744 (Online) (**pp.**384-401) **Doi:** 10.34109/ijebeg.2024160219

Table 4: Cross-Loadings

	CA	OI	OM	WSMEP
CA1	**0.881**	0.414	0.752	0.697
CA2	**0.779**	0.343	0.602	0.641
CA3	**0.711**	0.280	0.693	0.400
CA5	**0.667**	0.232	0.410	0.290
CA6	**0.673**	0.331	0.481	0.337
OI1	0.324	**0.914**	0.492	0.439
OI2	0.416	**0.654**	0.494	0.431
OI3	0.428	**0.726**	0.647	0.559
OI4	0.364	**0.940**	0.521	0.471
OI5	0.288	**0.749**	0.402	0.396
OI6	0.339	**0.880**	0.482	0.393
OI7	0.255	**0.835**	0.390	0.337
OM1	0.436	0.623	**0.707**	0.497
OM2	0.654	0.394	**0.753**	0.635
OM3	0.413	0.597	**0.740**	0.508
OM4	0.487	0.625	**0.766**	0.533
OM5	0.762	0.319	**0.788**	0.519
OM6	0.708	0.394	**0.800**	0.591
WSMEP1	0.357	0.450	0.388	**0.705**
WSMEP2	0.307	0.372	0.347	**0.629**
WSMEP3	0.315	0.353	0.424	**0.620**
WSMEP4	0.627	0.453	0.615	**0.683**
WSMEP5	0.716	0.414	0.695	**0.792**
WSMEP6	0.454	0.400	0.558	**0.782**
WSMEP7	0.415	0.299	0.483	**0.819**

Table 5: Heterotrait Monotrait Ratio

	CA	OI	OM	WSMEP
CA				
OI	0.482			
OM	0.806	0.707		
WSMEP	0.713	0.597	0.803	

Vol: 16 **No:** 2 **Year:** 2024 **ISSN:** 2146-0744 (Online) (**pp.**384-401) **Doi:** 10.34109/ijebeg.2024160219

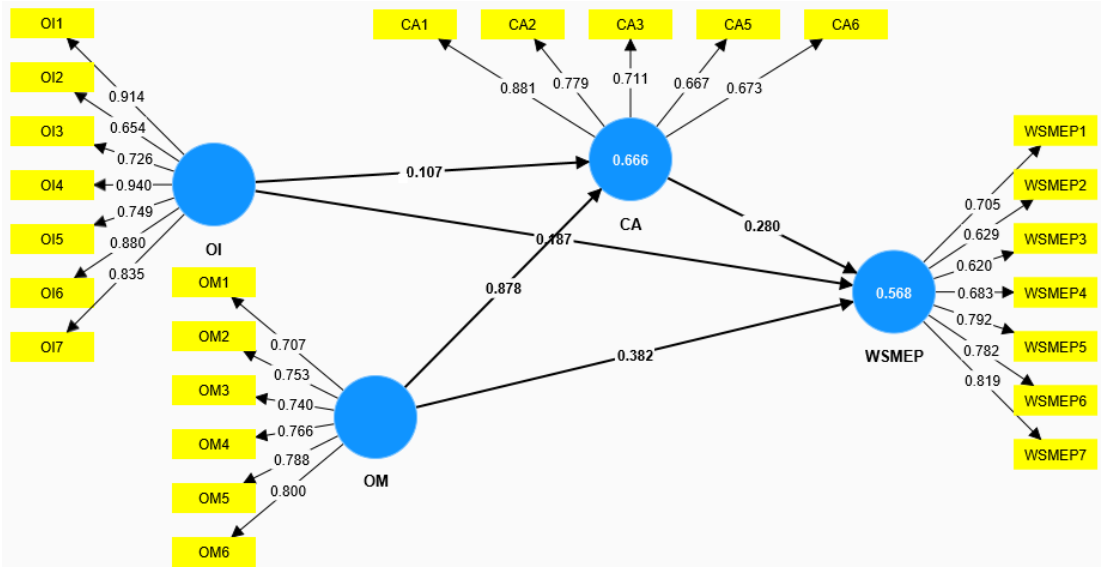

Figure 3: Measurement Assessment Model

The results revealed that both operation management and open innovation have a positive impact on the performance of women-owned SMEs, thus supporting hypotheses H1 and H2. Additionally, the findings indicated that competitive advantage significantly mediates the relationship between operation management, open innovation, and the performance of women-owned SMEs, confirming hypotheses H3 and H4. These outcomes are presented in Table 6, which illustrates the significant direct and mediating effects within the model (See figure 3 and figure 4).

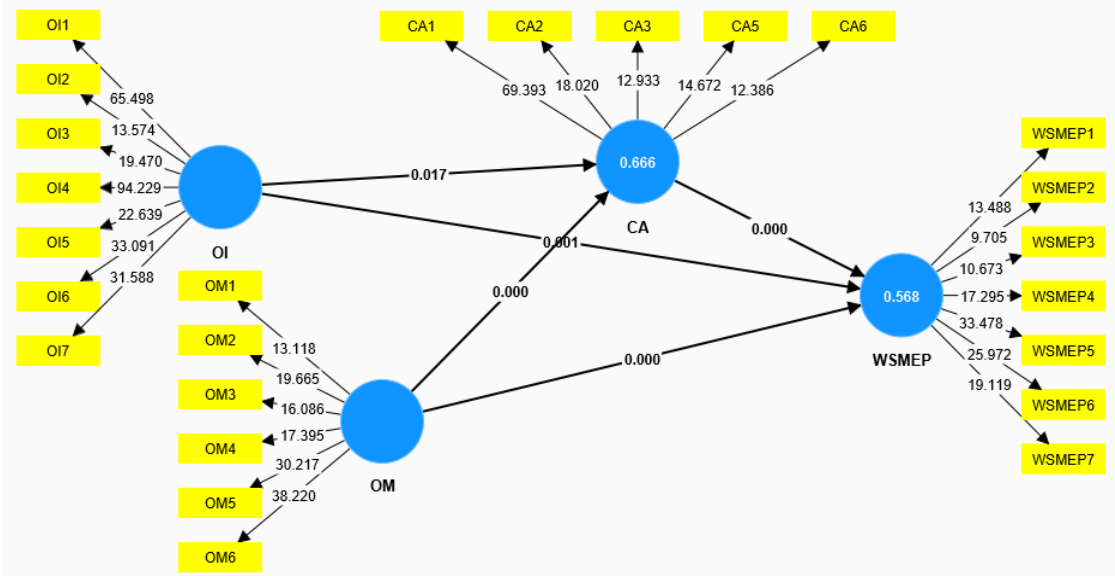

Figure 4: Structural Assessment Model

Vol: 16 **No:** 2 **Year:** 2024 **ISSN:** 2146-0744 (Online) (**pp.**384-401) **Doi:** 10.34109/ijebeg.2024160219

Table 6: Path Analysis

Relationships	Beta	Standard Deviation	T Statistics	P Values
CA -> WSMEP	0.280	0.074	3.804	0.000
OI -> CA	0.107	0.045	2.386	0.017
OI -> WSMEP	0.187	0.055	3.418	0.001
OM -> CA	0.878	0.033	26.661	0.000
OM -> WSMEP	0.382	0.103	3.696	0.000
OI -> CA -> WSMEP	0.030	0.014	2.143	0.045
OM -> CA -> WSMEP	0.246	0.066	3.756	0.000

DISCUSSION

This research examines how operation management and open innovation affect the performance of women-owned SMEs, with a focus on the mediating role of competitive advantage in the context of Vietnam. It provides valuable insights into the factors influencing the performance of these enterprises in a developing economy. By exploring the relationship between operation management and open innovation, the study offers a deeper understanding of the opportunities and challenges faced by women-owned SMEs in today's competitive market. The findings emphasise that effective operational practices, such as resource optimisation, streamlined processes, and quality control, are key to improving performance. Additionally, open innovation, which involves utilising external knowledge, technologies, partnerships, and collaboration with customers and other external parties, is instrumental in fostering innovation and gaining a competitive edge for these businesses.

The manufacturing industry, a key sector in Vietnam, serves as the contextual setting for investigating the performance of women-owned SMEs. Previous studies, such as those by Bal and Erkan (2019), have pointed out that due to the highly competitive nature and rapidly evolving technologies within this industry, constant improvements and effective operation management are necessary to maintain competitiveness in the market. The study also acknowledges that women-owned manufacturing businesses face additional challenges compared to those owned by men, including issues related to health, access to resources, networks, and markets. These factors underscore the unique hurdles women entrepreneurs must overcome to succeed in the manufacturing sector.

By implementing effective operation management techniques and embracing the open innovation concept, women-owned SMEs can overcome various barriers, enhance their production processes, and deliver high-quality products, as suggested by (Mubarak et al., 2021). This paper explores operation management and open innovation as critical concepts in the manufacturing sector, which are essential for improving efficiency and overall performance. Competitive advantage is another significant variable in this study, acting as a mediating factor between the independent variables (operation management

Vol: 16 **No:** 2 **Year:** 2024 **ISSN:** 2146-0744 (Online) (**pp.**384-401) **Doi:** 10.34109/ijebeg.2024160219

and open innovation) and the outcome variable—performance of women-owned SMEs. Studies such as those by Farida and Setiawan (2022) highlight that when competitive advantage is well-developed, these enterprises can offer superior products or services compared to competitors, attract more customers, and achieve organic growth. The paper argues that operation management and open innovation contribute to creating competitive advantage by improving organizational operations and innovation capabilities. This, in turn, allows SMEs to outcompete rivals for resources, perform better in the market, and potentially achieve higher returns, which help them withstand market fluctuations. Competitive advantage, as a mediator, emphasises the critical role of management practices in realising an organisation's strategic goals, driven by effective operational and innovative initiatives.

This paper has established that operation management plays a significant role in enhancing the performance of women-owned SMEs in Vietnam. The best practices in operation management, which focus on achieving efficiency in resource utilisation, optimising production processes, and improving the quality of products and services, are crucial for gaining operational efficiency and reducing costs (Tortorella et al., 2019). The study finds that these improvements are particularly important for women-owned SMEs, as many of these businesses operate with limited resources and face intense competition. The gender-based analysis in the study reveals that women entrepreneurs are more likely to achieve higher productivity, better control of operational costs, and improved products and services when operation management is prioritised. As a result, these enterprises have the potential to enhance their market standing, increase their customer base, and achieve organic growth. Shalizi (2021) suggests that establishing dedicated departments for operation management can provide women-owned SMEs with a solid platform to implement sustainable operational changes that address both immediate challenges and long-term strategic goals. Another critical factor affecting the performance of women-owned SMEs is the concept of open innovation. By adopting open innovation principles, these enterprises can access new ideas, technologies, and market opportunities that may exceed their internal capabilities. This study asserts that open innovation fosters creativity, accelerates the development of new products and services, and enhances adaptability in response to changes in the external environment.

The findings of Nguyen et al. (2020) further highlight that open innovation enables Vietnamese women-owned SMEs to address resource deficiencies beyond the boundaries of the organisation. Such cross-industry partnerships not only stimulate innovation but also assist these enterprises in identifying new opportunities, enhancing customer satisfaction, and ultimately strengthening their market position and operational efficiency. Implementing open innovation is particularly advantageous for women-owned SMEs, as these businesses cannot afford to remain static or rely solely on past successes while operating in a constantly evolving market environment (Figueira et al., 2023). Open innovation provides a dynamic approach that allows them

Vol: 16 **No:** 2 **Year:** 2024 **ISSN:** 2146-0744 (Online) (**pp.**384-401) **Doi:** 10.34109/ijebeg.2024160219

to stay competitive and responsive to external changes. This study underscores the importance of effective operation management and open innovation in building a sustainable competitive advantage by improving both operational efficiency and innovation. The competitive advantage of women-owned SMEs is demonstrated in their ability to offer distinct customer value, achieve significant cost savings, and differentiate their products, all of which help them outperform competitors. Competitive advantage acts as a crucial link between operation management, open innovation, and the achievement of organisational goals, such as enhanced performance, increased profitability, and long-term growth, as suggested by (Ahmed et al., 2022; Expósito et al., 2019).

An alternative approach to creating differentiation between operational and innovative activities and their market outcomes, in a highly competitive environment, focuses on developing a strong competitive advantage based on women's ownership of SMEs. There exists a close relationship between operation management, competitive advantage, and firm performance. This paper establishes that sound and efficient operation management practices lay the foundation for creating competitive advantages, as they improve efficiency, reduce costs, and enhance product quality. Women-owned SMEs that excel in operational efficiency can distinguish themselves from competitors and attract customers who seek higher operational performance, thus capturing a larger market share.

IMPLICATIONS

The findings of this study on the relationship between operation management, open innovation, and the performance of women-owned SMEs in Vietnam hold significant implications for entrepreneurs, company owners, policymakers, and business support organisations. For women entrepreneurs, the study highlights the importance of implementing efficient operation management strategies and adopting open innovation concepts to enhance competitiveness and performance. Policymakers are encouraged to support women-owned SMEs by creating policies that facilitate access to resources, training, and networking opportunities, thereby enabling these enterprises to thrive. Business support organisations can play a pivotal role by fostering partnerships among SMEs, allowing them to share resources and ideas, which can further enhance innovation and operational efficiency. Moreover, the study suggests that both investments in operational improvements and the development of innovation capabilities are essential for achieving long-term growth objectives. Addressing these aspects enables women-owned SMEs to overcome existing challenges, foster sustainable development, and make a positive impact on the broader economy. In conclusion, the study advocates for the use of operation management and open innovation as key tools for supporting women entrepreneurs in achieving and maintaining success.

LIMITATIONS

It is important to acknowledge the limitations of this research. First, the study focuses on women-owned SMEs in Vietnam, which may limit the generalisability of the findings to other contexts where the economic, cultural, and legal environments differ from those of Vietnam. Second, the data collected from business owners may be subject to bias, as respondents may over-report their operational management practices and innovation activities. Third, the cross-sectional design of the study means that it is not possible to definitively establish the long-term impacts of operation management and open innovation on business processes or to confirm direct cause-and-effect relationships between the factors under investigation. Finally, the study primarily focuses on the manufacturing industry, potentially overlooking the unique challenges and characteristics of women-owned SMEs operating in other sectors. Future research should consider longitudinal studies to track changes over time, include a broader range of sectors, and incorporate comparative analyses across different countries to provide deeper insights into the dynamics influencing the performance of women-owned SMEs.

REFERENCES

Ahmed, D., Yuantao, X., & Saeed Bhutta, U. (2022). Insurers' risk management as a business process: a prospective competitive advantage or not? *European Journal of Management and Business Economics*, *31*(3), 345-366. https://doi.org/10.1108/EJMBE-08-2021-0221

Bag, S., Wood, L. C., Xu, L., Dhamija, P., & Kayikci, Y. (2020). Big data analytics as an operational excellence approach to enhance sustainable supply chain performance. *Resources, conservation and recycling*, *153*, 104559. https://doi.org/10.1016/j.resconrec.2019.104559

Bal, H. Ç., & Erkan, Ç. (2019). Industry 4.0 and competitiveness. *Procedia computer science*, *158*, 625-631. https://doi.org/10.1016/j.procs.2019.09.096

Bauer, F., & Friesl, M. (2024). Synergy evaluation in mergers and acquisitions: an attention-based view. *Journal of Management Studies*, *61*(1), 37-68. https://doi.org/10.1111/joms.12804

Benjo, J., & Mwasiaji, E. (2023). Innovation practices in women owned small and medium business enterprises in Bomet County, Kenya. *International Academic Journal of Innovation, Leadership and Entrepreneurship*, *2*(4), 28-51. https://iajournals.org/articles/iajile_v2_i4_28_51.pdf

Dawa, S., Namatovu, R., Mulira, F., Kyejjusa, S., Arinaitwe, M., & Arinaitwe, A. (2021). Entrepreneurial competences and growth of female-owned enterprises: The mediation role of absorptive capacity. *International Journal of Gender and Entrepreneurship*, *13*(1), 30-49. https://doi.org/10.1108/IJGE-02-2020-0028

Expósito, A., Fernández-Serrano, J., & Liñán, F. (2019). The impact of open innovation on SMEs' innovation outcomes: New empirical evidence from a

multidimensional approach. *Journal of Organizational Change Management*, *32*(5), 558-577. https://doi.org/10.1108/JOCM-09-2018-0253

Farida, I., & Setiawan, D. (2022). Business strategies and competitive advantage: the role of performance and innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, *8*(3), 163. https://doi.org/10.3390/joitmc8030163

Figueira, S., de Oliveira, R. T., Verreynne, M.-L., Nguyen, T., Indulska, M., & Tanveer, A. (2023). Entrepreneurs: Gender and gendered institutions' effects in open innovation. *Industrial Marketing Management*, *111*, 109-126. https://doi.org/10.1016/j.indmarman.2023.04.002

Giusi Gaeta, E. (2024). Women in Entrepreneurial Finance: The Academic Perspective. In *Women in Alternative Finance: Exploring the Benefits of Equity Crowdfunding* (pp. 5-54). Springer. https://doi.org/10.1007/978-3-031-43467-9_2

Hair Jr, J. F., Howard, M. C., & Nitzl, C. (2020). Assessing measurement model quality in PLS-SEM using confirmatory composite analysis. *Journal of business research*, *109*, 101-110. https://doi.org/10.1016/j.jbusres.2019.11.069

Hameed, W. U., Basheer, M. F., Iqbal, J., Anwar, A., & Ahmad, H. K. (2018). Determinants of Firm's open innovation performance and the role of R & D department: an empirical evidence from Malaysian SME's. *Journal of Global Entrepreneurship Research*, *8*(1), 1-20. https://doi.org/10.1186/s40497-018-0112-8

Hashimy, L., Treiblmaier, H., & Jain, G. (2021). Distributed ledger technology as a catalyst for open innovation adoption among small and medium-sized enterprises. *The Journal of High Technology Management Research*, *32*(1), 100405. https://doi.org/10.1016/j.hitech.2021.100405

Ivanov, D., Tsipoulanidis, A., & Schönberger, J. (2021). *Global supply chain and operations management*. Springer. https://doi.org/10.1007/978-3-319-94313-8

Jabeen, F., Faisal, M. N., Al Matroushi, H., & Farouk, S. (2019). Determinants of innovation decisions among Emirati female-owned small and medium enterprises. *International Journal of Gender and Entrepreneurship*, *11*(4), 408-434. https://doi.org/10.1108/IJGE-02-2019-0033

Joshi, M. P., Kathuria, R., & Porth, S. J. (2003). Alignment of strategic priorities and performance: an integration of operations and strategic management perspectives. *Journal of Operations Management*, *21*(3), 353-369. https://doi.org/10.1016/S0272-6963(03)00003-2

Kamberidou, I. (2020). "Distinguished" women entrepreneurs in the digital economy and the multitasking whirlpool. *Journal of Innovation and Entrepreneurship*, *9*(1), 3. https://doi.org/10.1186/s13731-020-0114-y

Khan, R. U., Salamzadeh, Y., Shah, S. Z. A., & Hussain, M. (2021). Factors affecting women entrepreneurs' success: a study of small-and medium-sized enterprises in emerging market of Pakistan. *Journal of Innovation and Entrepreneurship*, *10*, 1-21. https://doi.org/10.1186/s13731-021-00145-9

Khan, S. A. R., Yu, Z., Rehman Khan, S. A., & Yu, Z. (2019). Introduction to supply chain management. *Strategic Supply Chain Management*, 1-22. https://doi.org/10.1007/978-3-030-15058-7_1

Mubarak, M. F., Tiwari, S., Petraite, M., Mubarik, M., & Raja Mohd Rasi, R. Z. (2021). How Industry 4.0 technologies and open innovation can improve green innovation performance? *Management of Environmental Quality: An International Journal*, *32*(5), 1007-1022. https://doi.org/10.1108/MEQ-11-2020-0266

Nguyen, H. A., Phuong, T. T., Le, T. T. B., & Vo, L. P. (2020). Vietnamese women entrepreneurs' motivations, challenges, and success factors. *Advances in Developing Human Resources*, *22*(2), 215-226. https://doi.org/10.1177/1523422320907050

Öberg, C., & Alexander, A. T. (2019). The openness of open innovation in ecosystems–Integrating innovation and management literature on knowledge linkages. *Journal of Innovation & Knowledge*, *4*(4), 211-218. https://doi.org/10.1016/j.jik.2017.10.005

Orser, B., Liao, X., Riding, A. L., Duong, Q., & Catimel, J. (2021). Gender-responsive public procurement: strategies to support women-owned enterprises. *Journal of Public Procurement*, *21*(3), 260-284. https://doi.org/10.1108/JOPP-11-2019-0078

Rosca, E., Agarwal, N., & Brem, A. (2020). Women entrepreneurs as agents of change: A comparative analysis of social entrepreneurship processes in emerging markets. *Technological forecasting and social change*, *157*, 120067. https://doi.org/10.1016/j.techfore.2020.120067

Setini, M., Yasa, N. N. K., Supartha, I. W. G., Giantari, I. G. A. K., & Rajiani, I. (2020). The passway of women entrepreneurship: Starting from social capital with open innovation, through to knowledge sharing and innovative performance. *Journal of Open Innovation: Technology, Market, and Complexity*, *6*(2), 25. https://doi.org/10.3390/joitmc6020025

Shalizi, S. (2021). *Women-Owned SMEs in Emerging Markets: The Missing Link in Global Supply Chains*. Routledge. https://doi.org/10.4324/9781003120971

Singh, S. K., Chen, J., Del Giudice, M., & El-Kassar, A.-N. (2019). Environmental ethics, environmental performance, and competitive advantage: Role of environmental training. *Technological forecasting and social change*, *146*, 203-211. https://doi.org/10.1016/j.techfore.2019.05.032

Tortorella, G. L., Giglio, R., & Van Dun, D. H. (2019). Industry 4.0 adoption as a moderator of the impact of lean production practices on operational performance improvement. *International journal of operations & production management*, *39*(6/7/8), 860-886. https://doi.org/10.1108/IJOPM-01-2019-0005

Vuong, T. T., Semerák, V., & Vuong, Q. H. (2019). The Vietnamese economy at the crossroads. *Southeast Asia and the ASEAN economic community*, 91-143. https://doi.org/10.1007/978-3-030-19722-3_3

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Zeb, A., & Ihsan, A. (2020). Innovation and the entrepreneurial performance in women-owned small and medium-sized enterprises in Pakistan. Women's Studies International Forum, (Vol. 79, p. 102342). Pergamon. https://doi.org/10.1016/j.wsif.2020.102342

Zhou, H., & Li, L. (2020). The impact of supply chain practices and quality management on firm performance: Evidence from China's small and medium manufacturing enterprises. *International Journal of Production Economics*, *230*, 107816. https://doi.org/10.1016/j.ijpe.2020.107816