

Sales Performance and Efficiency of E-Business Adoption Among Women-Owned Micro, Small, and Medium Enterprises (MSMEs) in Malaysia

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Abstract: *The Covid-19 epidemic has eloquently demonstrated the potential of micro, small, and medium enterprises (MSMEs) in embracing technology. Anchored in the resource-based view (RBV), the purpose of this study was to develop and validate an integrated model encapsulating the factors that influence e-business adoption and its effect on the efficiency and sales performance of women-owned MSMEs in Malaysia. The model was tested via a quantitative methodology, with 158 women-owned MSMEs in Malaysia as respondents. Data analysis and hypothesis testing were performed using structural equation modelling (SEM). The findings established that organisational readiness, management support, competitive pressure, and information intensity are significant factors affecting e-business adoption among women-owned MSMEs. E-business adoption's positive impact on these MSMEs' efficiency and sales performance was further confirmed. The empirically verified model in this work contributes new insights to the present understanding of how e-business adoption affects small business performance. This framework is a potentially reliable tool in designing guidelines to encourage more female entrepreneurs to adopt e-business in their organisations.*

Keywords: Female Entrepreneurship, E-business, Performance, MSMEs, Digital

1. Introduction

The Covid-19 outbreak has created a challenging economic environment, especially for micro, small, and medium enterprises (MSMEs) in Malaysia. Notably, according to the Mastercard Index of Women Entrepreneurs 2020, more than 50% of women-owned business have closed down due to impacts of the Covid-19 pandemic (Mastercard, 2020). Nonetheless, the Twelfth Malaysia Plan (12th MP) 2021-2025 places a strong focus on welfare, equitable income distribution and environmental sustainability, mainly by empowering women in the economic sphere through improved access to capital and resources opportunities like technology (Economic Planning Unit, 2021). The Malaysia Digital Economy Blueprint (MyDIGITAL), which was released in 2021, also aims to utilise digitised knowledge and information as primary elements of production and networking among individuals, businesses, devices, data, and processes (Subramaniam, 2021).

The proportion of the female population in Malaysia is reported by the Department of Statistics Malaysia (DOSM, 2021) to be 48.62%. Babulal (2017) stated that around 20% of registered

Malaysian entrepreneurs are female. Accordingly, the contribution of female entrepreneurs is widely recognised as crucial for national economic growth (Sajjad et al., 2020). Women entrepreneurs are also proven to have a positive impact on poverty reduction and job creation. Despite the link between female entrepreneurship and national development, the growth rate of female entrepreneurs is low in Malaysia due to issues such as cultural barriers, lack of capital, limited networking, and low motivation and commitment (Gupta & Mirchandani, 2018; Sajjad et al., 2020; Teoh & Chong, 2014).

In addition, women-owned businesses generally underperform compared to male-owned businesses (Crane, 2021; Fischer et al., 1993; Ghouse et al., 2021; Watson, 2006). According to Sajjad et al. (2020), female entrepreneurs are unable to perform as well as their male counterparts due to discrimination or gender bias. Hence, addressing the gender-responsive component is essential to cultivate the growth mindset of entrepreneurs and subsequently, advance sustainability, restructure the economy, and promote security, welfare, and inclusiveness (Economic Planning Unit, 2021).

It is noteworthy that the pandemic has accelerated businesses' dependence on technology adoption. With rapid developments that fundamentally alter how business is performed, the digital business revolution has made the industry environment more competitive and challenging for MSMEs. By 2025, Malaysia's digital economy, which has been booming, is anticipated to account for 22.6% of the country's gross domestic product (GDP) and generate 500,000 employment opportunities (Subramaniam, 2021). Particularly, the United Nations Sustainable Development Goals (SDG) on gender equality, decent work, economic growth, industry, innovation, infrastructure, and inequality minimization advocates the use of e-business by women-owned MSMEs in Malaysia.

Women have been associated with the term “technophobic” due to their fear of embracing technology (Michota, 2013), which causes women to lag behind in e-business adoption. Moreover, women-owned MSMEs with limited resources often neglect the importance and benefits of e-business. The use of e-business adoption as a metric to measure sales performance and efficiency is effective in increasing the sales and revenue of women-owned MSMEs in the digital economy. Furthermore, e-business adoption can assist women-owned MSMEs in streamlining their operations and minimizing expenses (Rahayu & Day, 2017). Given the new post-pandemic business landscape, e-business adoption is vital for women-owned MSMEs to realign their business transformation. Therefore, this study attempted to identify the factors that drive e-business adoption among women-owned MSMEs in Malaysia.

Based on a literature review that accounted for the characteristics and limitations of women-owned MSMEs in Malaysia, the study's determinant factors were chosen. According to Orser et al. (2019), women-owned MSMEs have limited resources in terms of financial capital, technological know-how, training, and networking. Additionally, the Covid-19 pandemic has hastened the digital shift, leaving behind many MSMEs owned by women. As a result, this study proposed a framework incorporating organisational readiness, managerial support, competitive pressure, and information intensity as the determinants of e-business adoption among women-owned MSMEs in Malaysia. Moreover, to become a high-income country by 2025, Malaysia must improve the performance of its women-owned MSMEs. Thus, whether the effectiveness and sales performance of these firms can be improved through e-business adoption must be clarified through more research.

However, a review of the literature suggests that there is relatively little e-business adoption research in Malaysia that focuses on women-owned MSMEs (Sajjad et al., 2020; Teoh & Chong, 2014). Ughetto et al. (2020) seconded this by reporting that women's role in digital technologies is underexplored. To fill these research gaps, this research framework was constructed based on the resource-based view (RBV) to answer the following research questions:

- RQ1: Do organisational readiness, management support, competitive pressure, and information intensity affect e-business adoption among women-owned MSMEs in Malaysia?
- RQ2: Does e-business adoption improve the efficiency and sales performance of women-owned MSMEs in Malaysia?

By answering the research questions above, this study makes a novel contribution to the body of knowledge on the e-business adoption of women-owned MSMEs. The findings would benefit Malaysia's National Entrepreneurship Policy 2030, which aspires to make the country's economy more sustainable, inclusive, progressive, and digitally oriented. The study also aids managers and policymakers in understanding the circumstances in which e-business adoption is feasible as well as in advancing technology in anticipation of future adoption.

This study may provide a clearer picture of the present situation for Malaysian women-owned MSMEs who have employed e-business since the epidemic. It has been claimed in this regard that studying women's entrepreneurship is an important concern in developing nations like Malaysia (Noor et al., 2022). Moreover, this study is to provide a deeper understanding of e-business adoption, particularly in the context of Malaysian women-owned MSMEs. The research focus on local context is essential as the finding from other countries cannot be generalised due differences in culture, political and policy. Furthermore, as economic growth accelerates, the development of women entrepreneurs has become an essential agenda for emerging countries.

The remainder of this paper is organised into three sections. The literature review and hypotheses on e-business adoption among women-owned MSMEs are elaborated in Section 2. Section 3 describes the study's methodology and data collection, following which the results are presented and discussed in Sections 4 and 5, respectively. Finally, Section 6 concludes the paper with the study's implications and limitations.

2. Literature Review

2.1 Resource-Based View (RBV)

The RBV was applied in this study to better understand how e-business adoption enhances resource utilisation to achieve efficiency and sales performance in women-owned MSMEs in Malaysia (Hanifah et al., 2021). Company resources, which comprise assets, infrastructure, and talent, are the primary source of competitiveness to increase performance (Barney, 1991; Popa et al., 2018). According to Zhu et al. (2020), organisations can acquire resources by combining their structured resources to create new capabilities and engaging in successful resource-structuring activity. This includes establishing e-business capabilities in various processes to improve organisational performance. In the context of MSMEs, e-business has been acknowledged as a resource that improves efficiency and performance (Li et al., 2020; Yang et al., 2022). Hence, MSMEs must adopt e-business to avoid being left behind in the age of digital transformation (Mahakittikun et al., 2020).

2.2 Research Hypotheses

2.2.1. Organisational Readiness and E-Business Adoption

Organisational readiness is highly important for women-owned MSMEs to utilise their available resources to support e-business adoption (Maroufkhani et al., 2020). Organisational readiness includes the financial and non-financial resources required by organisations to adopt specific technology (Oliveira & Martins, 2010). Organisations need to be capable and ready to adopt the complexity level of e-business (Deng et al., 2020). For example, Abed (2021) found that organisational readiness influences adoption as ready firms equip themselves with the technical and financial resources (e.g., infrastructure, skills, software, expertise) necessary for e-business adoption (Badi et al., 2021; Oliveira & Martins, 2010; Ramdani et al., 2013). Based on the above discussion, the following hypothesis was developed:

H1. Organisational readiness is positively associated with e-business adoption.

2.2.2 Management Support and E-Business Adoption

Based on previous research, management support is significantly and positively related to e-business adoption (Al-Omouh, 2020; Cruz-Jesus et al., 2019; Ramdani et al., 2013). Thong (1998) claimed that management support directly impacts e-business adoption because of management's decision-making role in the organisation. This was supported by Ifinedo's (2011) study of Canadian SMEs, wherein it was found that firms with management support have a higher intention to adopt e-business. Management support in budgeting financial and non-financial resources is an important indicator of an organisation's ability to achieve effective e-business adoption (Abbad et al., 2021). Correspondingly, Sánchez-Rodríguez et al. (2020) emphasised that management assistance provides the guidance and resources needed to boost technological investment in e-business. Given that management support is especially vital for the unique characteristics of MSMEs (Ramdani et al., 2013), the hypothesis below was put forth:

H2. Management support is positively associated with e-business adoption.

2.2.3 Competitive Pressure and E-Business Adoption

Organisations feel pressure when external partners such as competitors, suppliers, and business partners adopt e-business (Kuan & Chau, 2001). Subsequently, a psychological phenomenon known as the bandwagon effect occurs when an organisation adopts e-business because other businesses have done so (AlSharji et al., 2018). This is due to the pressure put on late adopters by the potential loss of a competitive edge among rivals (Zhu et al., 2003). Hence, competitive pressure has been found to have a positive relationship with e-business adoption (Badi et al., 2021; Kwabena et al., 2021; Ocloo et al., 2020). According to Deng et al. (2020), organisations tend to adopt e-business to maintain their competitive position in their industry. Firms are also more likely to achieve cost savings in their operations if they are more vigilant and responsive to how their competitors strategically adopt e-business (Kartiwi et al., 2018). This is consistent with the findings of Badi et al. (2021) that pressure from in the construction industry prompts construction practitioners to implement smart contracts. Moreover, Mahakittikun et al. (2020) pointed out that competitive pressure has been used to predict business performance. Accordingly, the following hypothesis was postulated:

H3. Competitive pressure is positively associated with e-business adoption.

2.2.4 Information Intensity and E-Business Adoption

Information intensity refers to accurate, updated, and reliable data accessibility (Ali et al., 2020). According to Thong (1998), information intensity requirements differ across industries according to their nature of business; for example, industries like tourism and transportation require more up-to-date information. In previous research, measures of information intensity are rare in technology adoption due to focus being limited to the few industries that require high information. However, due to digital transformation, information intensity no longer refers to just businesses of a specific nature. Additional research has thus been proposed as current results are inconsistent and counter-intuitive (Ali et al., 2020; Thong, 1998; Wang et al., 2010). Notably, the pandemic has undoubtedly changed the information intensity of SMEs in Malaysia. Therefore, this study proposed the following hypothesis:

H4. Information intensity is positively associated with e-business adoption.

2.2.5 The outcomes of e-business adoption

E-business adoption can result in improvements at various process levels in an organisation (Zhu et al., 2020). Raymond and Bergeron (2008) classified e-business capabilities into e-communication, e-commerce, e-collaboration, and e-intelligence, all of which manifest as performance improvement for MSMEs. In other words, the effects of e-business adoption are linked to the extent to which the e-platforms' increased efficiency as a whole translates into performance improvement for the organisation (Abbad et al., 2021).

According to Chen et al. (2016) and Wu et al. (2003), the efficiency brought by e-business reduces transaction costs and internal costs like maintenance. Indeed, less processing and transactions are needed in business-to-business and business-to-consumer interactions with e-business adoption (Alsheyadi, 2020). Additionally, the automated and analytical features of e-business provide real-time data about consumer behaviour across departments, thereby increasing efficiency, especially in supply chain planning (Cruz-Jesus et al., 2019). Subsequently, a firm's profitability improves when operational cost is reduced due to efficiency in the value chain process and higher return on assets (Popa et al., 2018).

According to Abebe (2014), e-business improves annual sales by simplifying and enhancing marketing capability. Further, access to an online platform in an intermediary-free environment can boost sales as it reduces waiting time and facilitates order tracking (Migdadi et al., 2016; Wu et al., 2003). The corresponding increase in customers' use of the firm's technology further improves sales performance (Acosta-Prado & Tafur-Mendoza, 2021). The improvement of front-end functionality also increases sales performance as customers receive more information, higher customisation, better account management, and expanded channels (Zhu & Kraemer, 2005). Therefore, as discussed earlier, e-business adoption is crucial to enhance the performance of women-owned MSMEs. Since it has been established that MSMEs that adopt e-business are better positioned to achieve higher business performance (Kartiwi et al., 2018), the following hypotheses were proposed:

H5. E-business adoption is positively associated with efficiency.

H6. E-business adoption is positively associated with sales performance.

The framework of this study is presented in Figure 1.

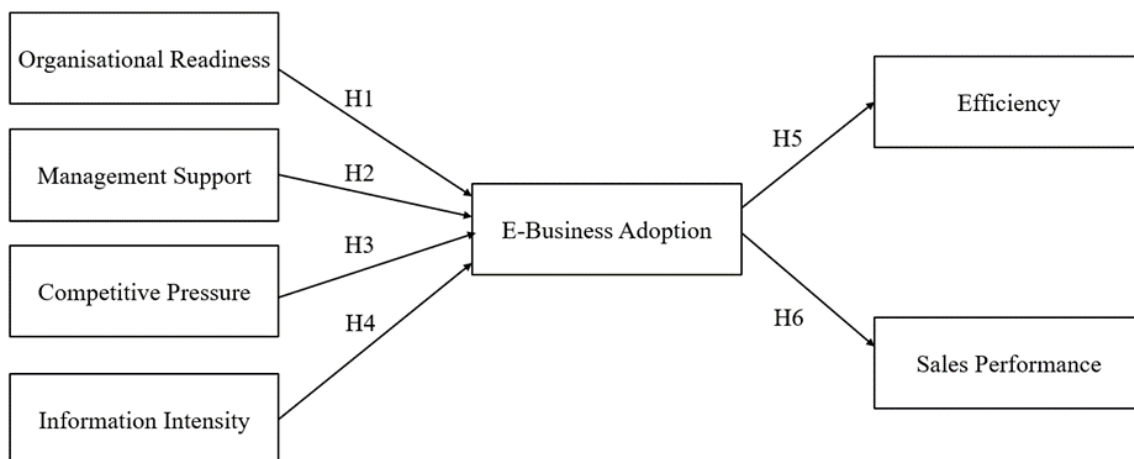


Figure 1: Research Framework

3. Method

3.1 Sample and data collection

This study's data was gathered via a self-administered electronic questionnaire survey. It was essential and valuable to acquire feedback from women-owned MSME owners given their extensive knowledge and experience in business operations. The list of women-owned MSMEs was drawn from the Malaysia External Trade Development Corporation (MATRADE). The availability of data on women-owned MSMEs was crucial due to the insufficient sample size of this population. Therefore, this research applied the census method and MATRADE agreed to coordinate the distribution of the questionnaire.

Three women-owned MSME owners were solicited to pre-test and validate the questionnaire. Concurrently, two academics with expertise in the MSME sector were invited to comment on the survey. The comments and suggestions from the MSME owners and academicians were applied accordingly in the final questionnaire version. This step was necessary before data collection from target respondents to ensure the questionnaire was suitable to evaluate the study's context and aims.

The number of predictors in this study was four. According to the GPower 3.1 software, 129 observations were required to test the null hypothesis, with a significance level of 5% and a statistical power of 80%, provided the route coefficients showed significant effects. However, this study was able to exceed this requirement with 158 usable responses. The data gathered was examined using IBM SPSS version 27 and SmartPLS version 4.0 software.

3.2 Measurement instruments

The structured questionnaire approach with a five-point Likert scale measurement was employed in this study. The measuring items, which are listed in Appendix 1, were modified to fit the study's context after being drawn from the existing literature. There were a total of 33 items in the survey, consisting of four items for organisational readiness (Maroufkhani et al., 2020), five items for management support (Al-Omouh, 2020), four items for competitive pressure (Awa et al., 2016), four items for information intensity (Ali et al., 2020), and five items each for e-business adoption, efficiency, and sales performance (Migdadi et al., 2016).

4. Findings

Following the protocol for partial least squares structural equation modelling (PLS-SEM), the measurement model evaluation involved confirmatory factor analysis (CFA) as well as assessments of internal consistency, convergent validity, and discriminant validity. The first assessment recommends to retain item loadings between 0.40 and 0.70 (Hair et al., 2017). However, in this research, only item loadings more than 0.60 were retained. Hence, four items were with loadings less than 0.60 were omitted, namely II1, EBA5, SP1, and SP4.

According to Table 1, all of the latent constructs' composite reliability (CR) coefficients varied from 0.839 to 0.925; thus, they met the internal consistency criterion of 0.7 (Hair et al., 2017). Similarly, all of their average variance extracted (AVE) values were greater than 0.5, indicating that the constructs had convergent validity (Hair et al., 2017). The square roots of the AVE values were also greater than the inter-correlation between the constructs and other constructs in the model, as indicated in Table 2. Therefore, based on the Fornell and Larcker criterion, discriminant validity was achieved (Fornell & Larcker, 1981).

Table 1: Measurement model

| Constructs | Item | Loadings | AVE | CR |
|--------------------------|------|----------|-------|-------|
| Organisational Readiness | ORD1 | 0.763 | 0.635 | 0.874 |
| | ORD2 | 0.825 | | |
| | ORD3 | 0.865 | | |
| | ORD4 | 0.729 | | |
| Management Support | MS1 | 0.643 | 0.621 | 0.907 |
| | MS2 | 0.848 | | |
| | MS3 | 0.777 | | |
| | MS4 | 0.854 | | |
| | MS5 | 0.826 | | |
| | MS6 | 0.761 | | |
| Competitive Pressure | CP1 | 0.773 | 0.667 | 0.889 |
| | CP2 | 0.878 | | |
| | CP3 | 0.812 | | |
| | CP4 | 0.801 | | |
| Information Intensity | II2 | 0.885 | 0.639 | 0.839 |
| | II3 | 0.869 | | |
| | II4 | 0.616 | | |
| E-Business Adoption | EBA1 | 0.819 | 0.722 | 0.912 |
| | EBA2 | 0.850 | | |
| | EBA3 | 0.876 | | |
| | EBA4 | 0.854 | | |
| Efficiency | EF1 | 0.864 | 0.681 | 0.894 |
| | EF2 | 0.909 | | |
| | EF3 | 0.828 | | |
| | EF4 | 0.683 | | |
| Sales Performance | SP2 | 0.847 | 0.756 | 0.925 |
| | SP3 | 0.883 | | |
| | SP5 | 0.889 | | |
| | SP6 | 0.857 | | |

Note(s): AVE= Average Variance Extracted, CR= Composite Reliability

Table 2: Fornell-Larcker Criterion

| | CP | EBA | EF | II | MS | ORD | SP |
|-----|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| CP | 0.817 ^a | | | | | | |
| EBA | 0.538 | 0.850 ^a | | | | | |
| EF | 0.339 | 0.361 | 0.825 ^a | | | | |
| II | 0.538 | 0.630 | 0.351 | 0.800 ^a | | | |
| MS | 0.454 | 0.588 | 0.387 | 0.556 | 0.788 ^a | | |
| ORD | 0.061 | 0.130 | -0.061 | 0.021 | -0.039 | 0.797 ^a | |
| SP | 0.434 | 0.494 | 0.604 | 0.531 | 0.514 | 0.002 | 0.869 ^a |

Note: ^a Square root of AVE on the diagonal

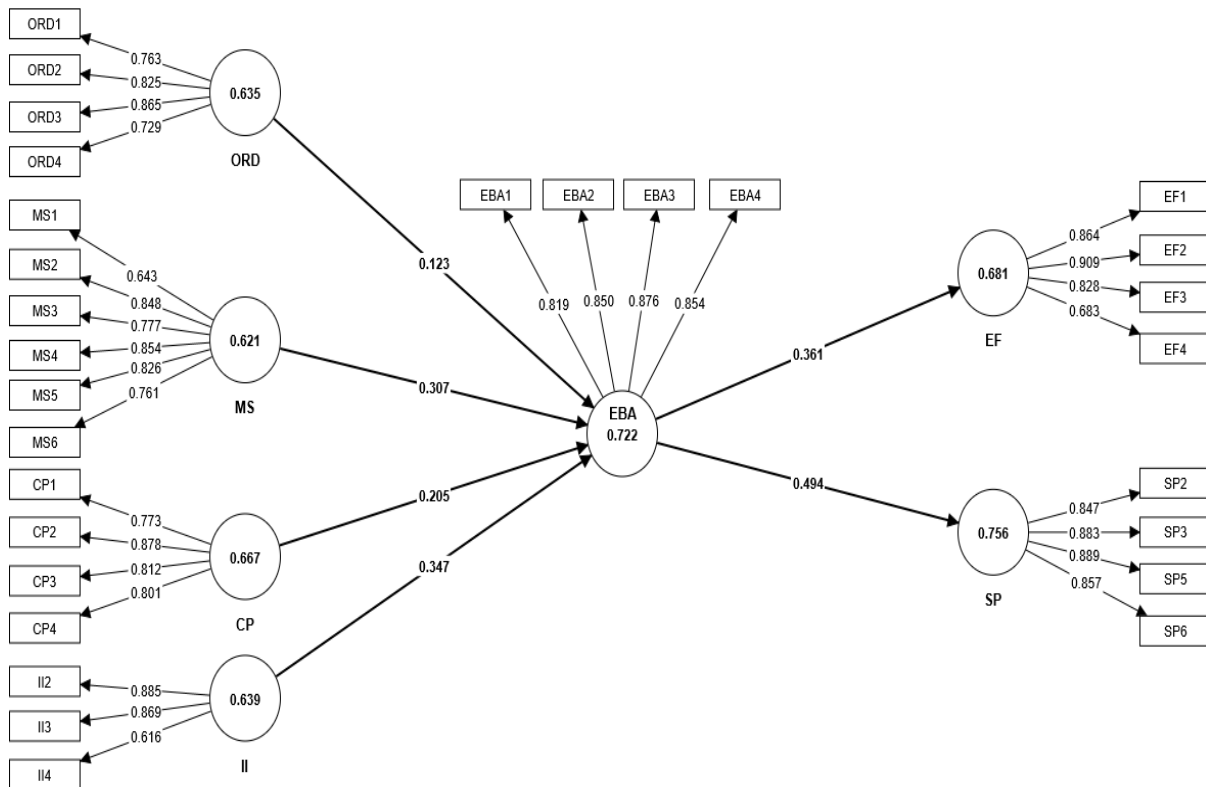
The structural model (see Figure 2) was checked for lateral collinearity before being evaluated. This study employed the Variance Inflation Factor (VIF) to assess multicollinearity issues and only proceeded if the values were less than 5.0 (Hair et al., 2017). As shown in Table 3, all the constructs had VIF values between 1.000 to 1.700.

The SmartPLS version 4.0 bootstrapping function was utilised to test the significance level and t-values for all the hypotheses. Table 3 shows that all six relationships reported t-values above 1.645 and were significant at the 1% level. The determinants, namely organisational readiness ($\beta = 0.123$, $p < 0.05$), management support ($\beta = 0.307$, $p < 0.001$), competitive pressure ($\beta = 0.205$, $p < 0.01$), and information intensity ($\beta = 0.347$, $p < 0.001$), were found to be positively related to e-business adoption. In term of outcomes, e-business adoption demonstrated a positive impact on the efficiency ($\beta = 0.361$, $p < 0.001$) and sales performance ($\beta = 0.494$, $p < 0.001$) of women-owned MSMEs in Malaysia.

Table 3: Summary of hypotheses testing

| Hypothesis | Relationship | Std Beta | Std Error | t-value | Supported | VIF |
|------------|---------------|----------|-----------|----------|-----------|-------|
| H1 | ORD → EBA (+) | 0.123 | 0.062 | 1.996* | Yes | 1.010 |
| H2 | MS → EBA (+) | 0.307 | 0.067 | 4.614*** | Yes | 1.531 |
| H3 | CP → EBA (+) | 0.205 | 0.075 | 2.724** | Yes | 1.487 |
| H4 | II → EBA (+) | 0.347 | 0.073 | 4.740*** | Yes | 1.700 |
| H5 | EBA → EF (+) | 0.361 | 0.070 | 5.133*** | Yes | 1.000 |
| H6 | EBA → SP (+) | 0.494 | 0.069 | 7.119*** | Yes | 1.000 |

Note(s): * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



Note(s): ORD = Organisational Readiness, MS = Management Support, CP= Competitive Pressure, II = Information Intensity, EBA = E-business Adoption, EF = Efficiency, SP = Sales Performance

Figure 2: Structural Model

5. Discussion

The results indicate a positive correlation between organisational readiness and e-business adoption (H1), which is in line with previous studies' (Deng et al., 2020; Ramdani et al., 2009) findings that an organisation's readiness is determined by the availability of resources such as finance, technology, and knowledge. In MSMEs, this positive relationship is also influenced by the growth of digital infrastructure, particularly high bandwidth and high-speed internet connections. In this regard, the MyDIGITAL strategy, which aims to upgrade Malaysia's digital infrastructure with greater internet connectivity and cheaper prices, helps make these organisations more ready for e-business adoption.

Management support was found to positively impact e-business adoption (H2). This is consistent with other studies indicating that management support affects the uptake of e-business (Abbad et al., 2021; Ali & Osmanaj, 2020; Deng et al., 2020). Management support is particularly crucial for MSMEs, where management plays a greater role than its counterpart in larger firms (Sánchez-Rodríguez et al., 2020). Management is in charge of making decisions on the allocation of resources that impact e-business adoption in MSMEs. Despite the advantages of e-business adoption, management support in acknowledging the change of the organisation's structure and business process is vital to achieve efficiency and increase sales performance (Shi & Yan, 2016).

Next, the adoption of e-business is positively correlated with competitive pressure (H3), strongly corroborating previous studies (Deng et al., 2020; Kuan & Chau, 2001). Organisations may perceive the use of e-business as improving their ability to serve customers in the setting of intense competition (Badi et al., 2021; Kwabena et al., 2021). However, this contradicts

Abbad et al.'s (2021) finding that competitive pressure is not associated with e-business adoption. Meanwhile, Zhu et al. (2003) reported that competitive pressure is greater for e-business adopters than non-adopters. Nonetheless, based on the current finding, women-owned MSMEs may consider adopting e-business to improve their performance in the competitive digital business environment.

The results indicate that one of the key determinants of e-business adoption among women-owned MSMEs in Malaysia is information intensity. This contradicts with the findings of Wang et al. (2010) and Ali et al. (2020) that no relationship exists between information intensity and e-business adoption. However, the shift to a digital economy has forced organisations into an information-intensive environment. Hence, information intensity no longer impacts only information-intensive products or services (Thong, 1998; Wang et al., 2010), but impacts all types of business. Adding to this, the business environment has changed drastically as a result of the Covid-19 pandemic.

The final two hypotheses determined the impact of e-business adoption on women-owned MSMEs' outcomes in terms of effectiveness and sales performance. This study demonstrates that the adoption of e-business has a significant effect on their efficiency (H5) and sales performance (H6). This result is in line with that of Popa et al. (2018) that e-business increases efficiency via cost reduction. Additionally, Wu et al. (2003) and Li et al. (2020) revealed that e-business may assist organisations in effectively managing data and reacting to market changes. In term of sales performance, Migdadi et al.'s (2016) study confirmed that e-business adoption increase sales volume by widening customer reach. Thus, this study's findings support the idea that e-business adoption enhances the efficiency and sales performance of women-owned MSMEs in Malaysia.

6. Conclusion

This study investigated the key factors driving women-owned MSMEs in Malaysia to implement e-business and subsequently achieve efficiency and sales performance goals. The construction of the theoretical framework based on the RBV followed a thorough evaluation of previous literature. Data was collected from 158 female MSMEs owners in Malaysia and analysed using PLS-SEM to verify the framework. The findings demonstrated that organisational readiness, management support, competitive pressure, and information intensity positively affect e-business adoption and are the key factors of e-business adoption among women-owned MSMEs in Malaysia. The structural paradigm of e-business adoption was thus improved to support the causality between the chosen variables and outcomes. Importantly, MSMEs may utilise the potential benefits of e-business applications by understanding their capabilities. Finally, it appears that e-business has enormous potential to enhance business interactions among MSMEs not only in Malaysia but globally.

6.1 Theoretical Implications

First, the majority of the current e-business literature focuses on SMEs, with less emphasis placed on women-owned MSMEs. This study thus sought to fill the gaps in the e-business literature pertaining to the scarce research on the impact of e-business adoption on the performance of women-owned MSMEs. The findings provide knowledge from the viewpoint of female MSME owners as well as in the Malaysian context, where women are still underrepresented in the economy. Second, this study was designed based on the RBV to evaluate the link between e-business adoption and firm performance among women-owned MSMEs, which are relatively small and resource-constrained. Based on this theory, e-business

adoption has been identified as an important resource for organisational performance. This study thus supports and extends the value of the RBV theory to examine performance at the MSME level.

6.2 Managerial Implications

This gender-based research on MSMEs has the potential to further the current understanding of e-business adoption and offers practical advice for women entrepreneurs. This is consistent with the goal to empower women entrepreneurs in The National Digital Transformation Programme and the Malaysia Digital Economy Blueprint. As shown in this study, for women-owned MSMEs to succeed, the outcomes of e-business adoption in terms of efficiency and sales performance are imperative. Female MSME owners should therefore enhance their organisational readiness and management support while embracing competition and information, as e-business has emerged as an essential tool in the age of digital transformation. Towards becoming a high-income nation by 2025, this study aids government organisations and policymakers in creating a development strategy to encourage growth among women-owned MSMEs.

6.3 Limitations and future research

This research was based solely on women-owned MSMEs in Malaysia, despite its theoretical contributions and practical implications. As a result, other countries with different MSME definitions, cultures, educational systems, political systems, and geographic contexts are not represented by the proposed framework. Another drawback is that this study only considered organisational readiness, management support, competitive pressure, and information intensity as e-business adoption factors that impact efficiency and sales performance.

Future studies should emphasise e-business technology innovation in light of current digitalisation developments. Upcoming research can also examine the significance of women-owned MSMEs adopting the Malaysia Digital Economy Blueprint to improve their competitive advantage, operational efficiency, and sustainability. Studies on entrepreneur ecosystems, which encompass business networking, support agencies, and the government, are also urgently needed to determine the most effective strategies to encourage the transition of women-owned MSMEs in the digital economy.

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Appendix 1

Adapted items used to measure the constructs

Organisational Readiness

| | |
|------|---|
| ORD1 | Lacking capital/financial resources has prevented my company from fully exploiting e-business |
| ORD2 | Lacking needed IT infrastructure has prevented my company from exploiting e-business |
| ORD3 | Lacking analytics capability prevents the business from fully exploiting e-business |
| ORD4 | Lacking skilled resources prevents my business from fully exploiting e-business |

Management Support

| | |
|-----|---|
| MS1 | Management has extensive knowledge of e-business capabilities |
| MS2 | Management perceives the advantages that e-business can bring for the future of the company |
| MS3 | Management believes that e-business adoption is top-priority |
| MS4 | Management is committed to mobilising essential resources for applying new e-business initiatives |
| MS5 | E-business entrepreneurship is strategically aligned to business goals and objectives |
| MS6 | Management often encourages employees to keep up with the latest technology in e-business application |

Competitive Pressure

| | |
|-----|--|
| CP1 | My company is doing relatively well in operational necessity |
| CP2 | My company is doing relatively well in strategic necessity |

CP3 My company is doing relatively well with vendor or third-party support

CP4 My company's opponents adopt e-business

Information Intensity

II1 Companies in the same industry as my company rely on each other for information regarding services

II2 My company has access to sufficient information on how to use e-business

II3 Companies in the same sector as my company can access sufficient information to support a change in the service provided

II4 My company is dependent on up-to-date information

E-Business Adoption

EBA1 My company has implemented e-business in all our business processes

EBA2 E-business has had a positive impact on my company's business operations

EBA3 Relative to the potential of e-business for my business, my e-business implementation is extensive

EBA4 E-business has substantially changed my company's business processes

EBA5 There are some business laws to deal with the security and privacy concerns over e-business

Efficiency

EF1 The cost of production and transaction has been substantially reduced in my company

EF2 The cost of general management activities has been substantially reduced in my company

EF3 The cost of coordinating with suppliers, customers and business partners has been substantially reduced in my company

EF4 The cost of marketing the product (e.g., advertising and promotion costs) has been substantially reduced in my company

EF5 The cost of acquiring new customers has been substantially reduced in my company

Sales Performance

SP1 The market share of products has increased in my company

SP2 The sales volume of products has increased in my company

SP3 The prices have changed in my company

SP4 The number of new customers that we are able to acquire has increased in my company

SP5 The number of existing customers that we are able to retain has increased in my company

Note(s): ORD = Organisational Readiness, MS = Management Support, CP= Competitive Pressure, II = Information Intensity, EBA = E-business Adoption, EF = Efficiency, SP = Sales Performance