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The Effect of the Adoption of E-Commerce and Digital Marketing on the Firm and Sustainability Performance of Companies

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Abstract

This research aims to investigate how e-commerce and digital marketing impact the performance and sustainability of businesses. To test our hypotheses, we collected data from 144 participants employed in small and medium-sized enterprises in Iran. We analyzed this data using Partial Least Squares Structural Equation Modeling (PLS-SEM). Our findings indicate that both e-commerce and digital marketing have a positive and significant influence on firm performance. Additionally, they also have a positive and significant impact on sustainability. Moreover, our results reveal that there is a positive and significant correlation between firm performance and sustainability. This suggests that adopting e-commerce and digital marketing strategies can lead to sustainability, benefiting not only the company's economic growth but also its environmental and social contributions.

Keywords: E-Commerce, Digital Marketing, Firm Performance, Sustainability

1. Introduction

E-commerce has been steadily expanding in numerous developed nations, with analysts projecting a potential market penetration increase of up to 25% by 2026 (Taylor, 2019). In today's digital age, e-commerce plays a crucial role in economic landscapes, alongside internet and smartphone technologies ((Abumalloh, Ibrahim, & Nilashi, 2020; Nilashi, Jannach, bin Ibrahim, Esfahani, & Ahmadi, 2016)Guven, 2020; Raharja et al., 2019). Its evolution has yielded profoundly positive impacts on society (Sudiatmika & Purwanti, 2020). As economic globalization and information technology progress, electronic commerce is increasingly shaping people's lives. It transforms traditional business models, offering expanded marketing channels and reduced operational costs for enterprises. Crucially, it enhances coordination along supply chains and fosters inter-enterprise collaboration (Mata et al., 1995). Compared to traditional models, e-commerce boasts advantages such as streamlined distribution, lower costs, and operational flexibility (Huang & Benyoucef, 2013). While classical theories of the information society may not explicitly address e-commerce, it emerges as a natural consequence of societal information development. In today's context, Information and

Communications Technology (ICT) serves as a critical production resource, underpinning e-commerce and driving socio-economic progress. E-commerce represents a qualitative leap forward, facilitating multifunctional service provision and meeting consumer needs (Tran, 2021).

Consumer interest in purchasing items in e-commerce is significantly influenced by digital marketing. Effective digital marketing strategies can foster strong customer relationships, as positive outcomes are often the result of consistent superior performance over time (Yunus et al., 2022). Digital marketing encompasses a variety of tactics utilizing digital communication channels, such as websites, search engine marketing, digital advertising, social media, email, and mobile platforms, aimed at acquiring, retaining, and nurturing customer relationships (Karjaluoto et al., 2015; Keller, 2009). Leveraging the internet's capabilities, digital marketing campaigns utilize websites, search engine optimization, digital advertising, social media platforms, email communication, mobile applications, and electronic relationship management to engage customers and yield various benefits (Keller, 2009; Wymbs, 2011).

Ahmed et al. (2022) suggest that digital marketing strategies utilizing electronic media may involve advertising through television or radio, while those leveraging internet platforms include marketing through social media or e-commerce channels. The evolution of information technology and the adoption of digital marketing techniques are anticipated to mark a significant shift in product marketing methodologies, transitioning from traditional marketing approaches to digital strategies. This transformation is expected to impact not only marketing elements but also all facets of business operations, spanning from large-scale enterprises to national corporations and small-scale individual businesses (Alwan & Alshurideh, 2022).

As e-commerce businesses continue to proliferate, offering a wide array of products and facilitating price comparisons, customers have heightened their expectations, now prioritizing green or sustainable e-commerce practices (Aras & Crowther, 2009). Establishing a strong business brand has become imperative in not only attracting but also retaining customers, particularly by considering these three factors during shopping experiences (Pålsson et al., 2017). This approach not only fosters enduring customer relationships but also addresses barriers that e-commerce enterprises have yet to surmount (Kikovska-Georgievska, 2013). The rapid and extensive technological advancements witnessed over the past decade have sparked a revolution in various industries, including retail. Globally, there has been a remarkable surge in the e-commerce market, characterized by sales conducted through electronic channels. The World Economic Forum foresees this trend persisting, with online commerce projected to encompass more than 40% of all retail sales by 2026 on average (NielsenReport, 2021).

As companies worldwide engage in e-commerce, it becomes imperative to ensure that their operations prioritize sustainability to avoid jeopardizing the planet's well-being (Dabija et al., 2016). Preserving the environment and preventing ecological destruction are essential to safeguarding the continuation of humanity (Ammenberg & Hjelm, 2013). Failure to achieve sustainable development can lead to adverse consequences, including ecosystem depletion. Therefore, companies must integrate user-friendly features to enhance customer relationships while minimizing environmental impact. The expansion of e-commerce has led to a surge in deliveries to customers, resulting in increased CO2 emissions and heightened traffic congestion in urban areas. Presently, business-to-consumer (B2C) e-commerce deliveries constitute 61% of total e-commerce shipments, exacerbating environmental pollution (Arnold et al., 2018). This trend is expected to persist due to the growing number of online shoppers and retailers. The continuous emergence of new online businesses intensifies the strain on goods distribution, posing environmental risks if left unchecked (Kovács & Kot, 2017). Addressing these challenges is crucial for the sustainable growth of e-commerce and the preservation of our planet's health.

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The rapid growth of e-businesses underscores their potential to contribute to the sustainability efforts of companies. Consequently, companies bear the responsibility to preserve the environment, prevent its degradation, and ensure global preservation. The lack of research on the impact of e-commerce and digital marketing adoption on the financial performance and sustainability of Micro, Small, and Medium Enterprises (MSMEs) prompted this study, which aims to fill this gap and enrich the existing knowledge base in several ways. Drawing on insights from the Resource-Based View (RBV), this research conceptualizes the role of e-commerce and digital marketing mechanisms in enhancing organizational performance and sustainability. Empirical findings from our study extend the applicability of the RBV framework within the context of an emerging economy. By focusing on MSMEs and their adoption of various technological innovations, particularly during the COVID-19 pandemic, we gained valuable insights, considering the significant role MSMEs play in driving growth in emerging economies. Furthermore, our research identified direct relationships between e-commerce adoption, MSMEs' performance, sustainability, and digital marketing adoption. These findings offer valuable insights for policymakers and business managers, suggesting the integration of innovation and digital platforms into their operations to achieve enhanced financial outcomes and sustainability. Thus, this study contributes to the literature on e-commerce, digital marketing, and sustainability by highlighting the pivotal role of e-commerce and digital marketing adoption in driving robust financial performance and subsequent sustainability efforts.

2. Hypothesis Development

2.1. Resource-Based View (RBV) theory

Relying on the RBV theory established by Barney (1991; 2001), strategic management literature has consistently demonstrated that firms can gain a competitive advantage by leveraging both tangible and intangible resources, which must be effectively recombined and coordinated through strategic capabilities that may exhibit dynamic characteristics (Amit & Schoemaker, 1993; McEvily & Zaheer, 1999; Peteraf et al., 2013). This framework is frequently utilized to elucidate variations in firm marketing strategies and subsequent competitiveness (Kozlenkova et al., 2014). According to the RBV, a firm's competitiveness is contingent upon its ability to access, control, and organize resources, viewing the firm essentially as a bundle of these resources (Barney, 1991; Penrose, 2009). Resources, categorized as physical, organizational, financial, and human, play a pivotal role in shaping a firm's marketing strategies (Barney & Hesterly, 2019).

Moreover, previous e-commerce literature has extensively drawn upon the RBV to conceptualize e-commerce as a critical resource capable of enhancing firm performance (Hussain et al., 2020). Studies such as that by Voola et al. (2012) have applied the RBV to explore the complementary effects of marketing and technological capabilities on e-commerce adoption and subsequent company performance. The adoption of e-commerce can significantly augment a company's competitive advantage by reducing expenses, boosting revenue, and expanding market share, thus generating greater economic rent (Perrigot & Pénard, 2013). E-commerce capabilities are often deeply integrated into a firm's resource base and operational activities, varying according to the unique resource endowments of different enterprises (Malone & Laubacher, 1999). It is argued that e-commerce provides firms with irreplaceable resources such as customer data and shared information (Straub & Klein, 2001), while digitally transformed e-businesses can facilitate value creation through information sharing and online community engagement (Zhu, 2004).

Similarly, digital marketing capabilities are recognized as unique organizational resources that can enhance a firm's competitive advantage and sustainability performance (Hagen et al., 2022). Therefore, drawing upon the RBV of firms, our study seeks to evaluate the role of e-commerce adoption and digital marketing in enhancing both financial performance and sustainability.

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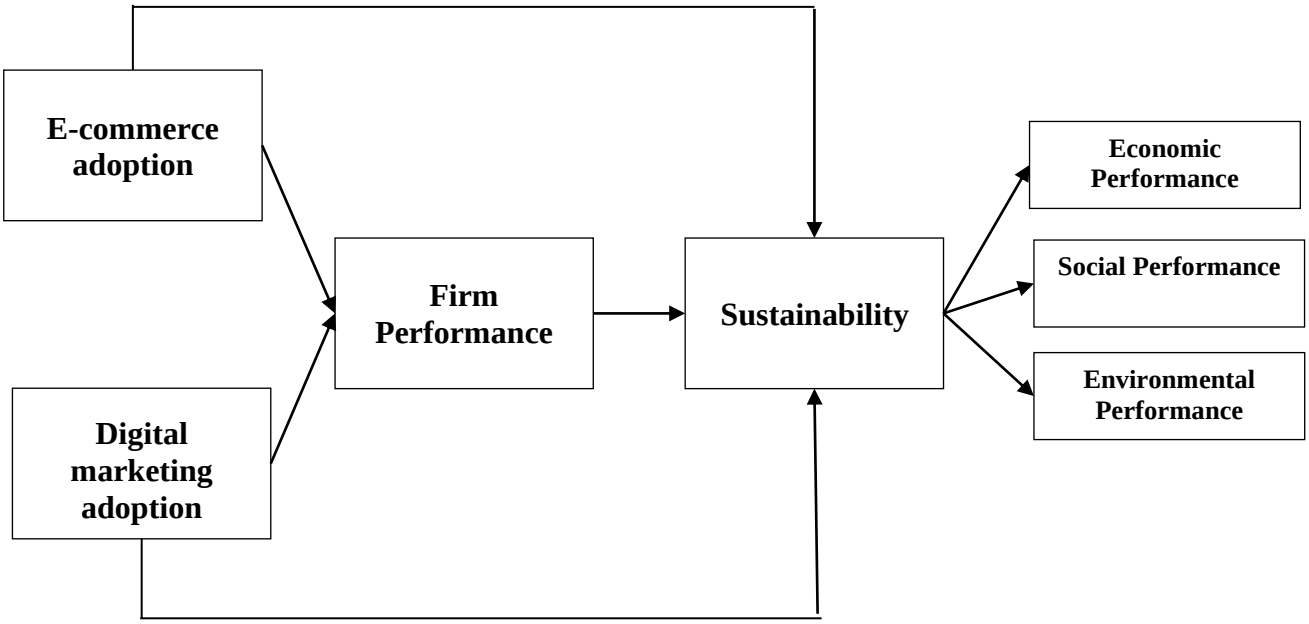

Fig. 1 Research Framework

2.2. E-Commerce and Firm Performance

E-commerce is widely recognized as a catalyst for enhancing business performance and gaining a competitive edge. According to the RBV perspective, when e-commerce capabilities are integrated with other organizational resources and human capabilities, they may contribute to the attainment of valuable, rare, imperfect imitability, and non-substitutable (VRIN) attributes, ultimately leading to superior performance and competitive advantage (Yang et al., 2022). Empirical evidence from various studies supports this notion. For instance, Kraemer et al. (2005) conducted a multinational study and found that e-commerce adoption positively influences firm performance across multiple dimensions, including efficiency, coordination, and commerce aspects such as sales and market positions. Similarly, Ramanathan et al. (2012) demonstrated that e-commerce implementation, both in operational and marketing contexts, has a beneficial impact on business performance metrics such as sales growth, customer base expansion, customer satisfaction, process enhancement, and competitive advantage. Therefore, based on the aforementioned discussion, the first hypothesis posited is:

H1: E-commerce has a positive effect on firm performance.

2.3. Digital Marketing and Firm Performance

Drawing from previous research, it is evident that digital marketing enables businesses to broaden their reach, evaluate marketing endeavors, and adapt strategies based on data-driven insights (WSI, 2013). It presents a cost-effective avenue for promoting products and services, with the potential for higher return on investment (ROI) compared to traditional marketing methods (Bala & Verma, 2018; Li et al., 2023). Additionally, social media has become integral to companies' marketing strategies, with a notable correlation observed between customers' social media usage and their brand loyalty; heightened usage correlates with increased loyalty, which in turn translates to enhanced sales performance (Anastasiei et al., 2022).

Nevertheless, research by Pollák and Markovič (2021) suggests that many organizations remain hesitant to invest in digital marketing-based marketing communications, viewing it as merely supplementary to traditional marketing (Pollák & Markovič, 2021). Despite this, existing research underscores the importance of robust digital marketing capabilities for firms to thrive in today's dynamic and fiercely competitive business landscape. In light of the above, this study proposes the following hypothesis:

H2: Digital marketing has a positive effect on firm performance.

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2.4. E-Commerce and Sustainability

Sustainability is an important topic in the previous research (Asadi et al., 2019; Asadi, Nilashi, Samad, Rupani, et al., 2021; Asadi et al., 2020; Ghobakhloo, Iranmanesh, Morales, Nilashi, & Amran, 2023; Mardani et al., 2017; Nilashi & Abumalloh, 2023; Nilashi, Abumalloh, Mohd, et al., 2023; Nilashi et al., 2021; Nilashi et al., 2018; Nilashi, Mardani, et al., 2019; Nilashi, Rupani, et al., 2019; Nilashi et al., 2020; Samad et al., 2021; Elaheh Yadegaridehkordi, Foroughi, Iranmanesh, Nilashi, & Ghobakhloo, 2023; Elaheh Yadegaridehkordi, Hourmand, et al., 2020; E Yadegaridehkordi & Nilashi, 2022; Zabihi et al., 2015). E-commerce presents an avenue for MSMEs to participate in commerce competitively, thereby fostering social and economic sustainability (Cao et al., 2020). Research examining the environmental impact of e-commerce and traditional in-store shopping has demonstrated that brick-and-mortar retailing can lead to significant reductions in CO2 emissions, ranging from 70% to even 84% in some cases (Liyi & Chun, 2011; Van Loon et al., 2015; Carling et al., 2015). Various sustainability aspects in e-commerce have garnered scholarly attention, including investigations into packaging waste, cross-border e-commerce sustainability, cyber-security, and the holistic examination of environmental, social, and economic dimensions (Escursell et al., 2021; Xiao et al., 2019; D'Adamo et al., 2021; Oláh et al., 2019). Additionally, the literature has explored multiple facets contributing to the understanding of consumer behavior and sustainability in e-commerce, such as transportation, last-mile distribution, dual-channel operations, carbon emissions, energy consumption, and innovative packaging solutions, among others (Siragusa et al., 2022; Nogueira et al., 2021; He et al., 2016; Priyan et al., 2022). Chen and Zhang (2015) contend that the adoption of e-commerce technologies could equip MSMEs with a sustainable competitive advantage, provided they effectively harness these tools. Based on this comprehensive review, the proposed hypothesis is:

H3: E-commerce has a positive effect on sustainability.

2.5. Digital Marketing and Sustainability

According to Chaffey and Ellis-Chadwick (2019), digital marketing extends beyond simple website usage, encompassing a synergy between online platforms, digital marketing methodologies, and the integration of content across theme-oriented portals and institutional websites. In contemporary times, digital marketing serves as the premier medium for comprehending customer behavior and interaction with businesses over the internet, playing a pivotal role in communicating and promoting companies' sustainable endeavors (Saura et al., 2020). Chaffey and Ellis-Chadwick (2019) argue that a multitude of businesses, spanning retail, manufacturing, wholesale, and various other sectors, are adopting sophisticated digital marketing practices as an integral component of their overarching sustainable marketing strategies. Given the escalating prominence of sustainability concerns, many modern MSMEs from developed economies have successfully integrated sustainability initiatives into all facets of their marketing endeavors, including traditional and digital marketing strategies, communications, and other approaches (Dumitriu et al., 2019). Tolstoy et al. (2022) support this perspective by indicating that digital marketing serves as a catalyst for enhancing the performance of SMEs. In light of these insights, the proposed hypothesis is:

H4: Digital marketing has a positive effect on sustainability.

2.6. Firm Performance and Sustainability

The efficiency, profitability, and various operating and financial ratios typically serve as benchmarks for assessing a firm's performance (Govindan et al., 2020; Tan & Wang, 2010). Academic literature has extensively scrutinized the impact of corporate sustainability practices on the performance of service firms and industries (Gupta & Gupta, 2020; Laskar, 2018). Engaging in sustainability-related initiatives not only mitigates environmental risks but also garners favor from stakeholders (Guoyou et al., 2013). Chopra and Wu (2016) discovered a positive correlation between firms' environmental efforts

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and their operating performance, leading to enhanced reputation and stakeholder approval. Furthermore, firms excelling in environmental practices often experience heightened customer loyalty and increased demand for their products due to growing environmental consciousness, ultimately resulting in improved revenues and market share (Muflih, 2021). Based on the aforementioned points, the proposed hypothesis is:

H5: Firm Performance has a positive effect on sustainability.

3. Research Methods

3.1. Measures

The study's population comprises SMEs in Iran. Initially, 200 questionnaires were distributed directly to potential respondents, resulting in 150 returned surveys. After filtering out incomplete responses, 6 questionnaires were deemed unusable. Thus, the final sample size for analysis consisted of 144 SMEs. Data collection for this study was conducted online using self-structured questionnaires via Google Forms, with respondents required to complete all items. The survey questionnaire encompassed four variables, with items formulated by the researchers themselves. Respondents rated survey items on a five-point Likert scale, ranging from "strongly agree" (1) to "strongly disagree" (5). Specifically, e-commerce and digital marketing variables were assessed using 4 and 5 items, respectively, sourced from Fuadah et al. (2022) and Ritz et al. (2019). Additionally, 5 items were employed to gauge firm performance, and sustainability performance (economic, environmental, social) was evaluated using 15 measurement items derived from prior studies (Khan & Quaddus, 2015). Characteristics of the respondents utilized in the study are presented in Table 1.

Table 1. Respondents' Information.

Description		Frequency	Percentage
Gender	**Male**	120	83.3
	Female	24	16.7
Age	Under 30	25	17.4
	31–40 years old	76	52.8
	Over 41 years old	43	29.9
Education of Respondents	Intermediate/Diploma	11	7.6
	Associate degree	44	30.6
	Bachelor	66	45.8
	Masters	23	16
work experience	Less than 5 year	13	9
	5-10 years	114	79.2
	Over 11	17	11.8

4. Data analysis and results

The research data analysis employed Structural Equation Modeling (SEM) using Partial Least Squares (PLS) with SmartPLS 4 software. One of the key advantages of using the least squares method is its ability to analyze models with relatively small sample sizes. It is widely used in the previous works in technology context in different fields (Abumalloh et al., 2021; Abumalloh et al., 2023; Al-Emran, AlQudah, Abbasi, Al-Sharafi, & Iranmanesh, 2023; Asadi, Nilashi, Samad, Abdullah, et al., 2021; Foroughi, Iranmanesh, et al., 2023; Foroughi, Nhan, et al., 2023; Foroughi, Yadegaridehkordi, et al., 2023; Iranmanesh, Ghobakhloo, Foroughi, Nilashi, & Yadegaridehkordi, 2023; Nilashi, Abumalloh, Almulihi, et al., 2023; Nilashi, Abumalloh, Alrizq, et al., 2022; Nilashi, Abumalloh, Samad, et al., 2023; Nilashi, Abumalloh, Zibarzani, et al., 2022; Nilashi, Baabdullah, et al., 2023; Saeidi et al., 2019; Samad et al., 2021; Samad, Nilashi, & Ibrahim, 2019; Elaheh Yadegaridehkordi, Nilashi, Nasir, & Ibrahim, 2018; Elaheh Yadegaridehkordi, Nilashi, et al., 2020; Zibarzani et al., 2022). SmartPLS 4 software enables testing of SEM models with various scale formats, including scale, Likert, and other scale models. The PLS-SEM analysis comprised two main models: the measurement model and the structural model. The measurement model encompassed validity testing, reliability testing, and significance testing. These tests were conducted to ensure the accuracy, consistency,

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and statistical significance of the variables and constructs within the model.

4.1. Assessment of the measurement model

The assessment of the measurement model primarily involves evaluating the reliability and validity of the construct measures. Typically, item loadings should exceed 0.7 as a rule of thumb. For assessing internal consistency, Composite Reliability (CR) and Cronbach's Alpha values were utilized. The CR and Cronbach's Alpha values for our research constructs surpassed the threshold of 0.70, indicating satisfactory internal consistency (Hair et al., 2011). Convergent validity was also assessed using Average Variance Extracted (AVE), following the standard suggested by Bagozzi et al. (1991). According to Bagozzi et al. (1991), in a well-fitting model, the AVE value should exceed 0.50 (Table 2). This analysis ensures the reliability and validity of the measurement model by confirming the consistency and accuracy of the constructs and their corresponding measures. To assess the distinctiveness of indicators for a construct from indicators of other constructs by empirical standards, two measures of discriminant validity were applied: the Fornell-Larcker criterion and the Heterotrait–Monotrait ratio of correlations (HTMT). The Fornell-Larcker criterion, proposed by Fornell and Larcker (1981), involves comparing the square root of the AVE of each construct with its correlation with other constructs (Chin, 2010). The results are presented in Table 3. Additionally, the HTMT criteria were utilized to verify discriminant validity, following the approach described by Sarstedt et al. (2019). The table displays the HTMT values of all structures. The results of both the Fornell-Larcker criterion and the HTMT measures are presented in Table 3. These analyses ensure that the constructs are distinct from one another, providing evidence of discriminant validity.

Table 2. Loading Factor, CR, AVE, and Cronbach's Alpha

Variable		Items	Factor Loadings	AVE	Cronbach's Alpha	CR
E-Commerce		ECOM1	0.853	0.579	0.752	0.844
		ECOM2	0.805			
		ECOM3	0.729			
		ECOM4	0.638			
Firm Performance		FP1	0.719	0.512	0.765	0.839
		FP2	0.705			
		FP3	0.758			
		FP4	0.765			
		FP5	0.622			
Digital Marketing		DM1	0.749	0.511	0.771	0.838
		DM2	0.621			
		DM3	0.821			
		DM4	0.754			
		DM5	0.607			
Sustainability	Economic	EC1	0.747	0.522	0.773	0.845
		EC2	0.681			
		EC3	0.703			
		EC4	0.719			
		EC5	0.759			
	Environmental	EN1	0.738	0.537	0.784	0.852
		EN2	0.835			
		EN3	0.675			
		EN4	0.709			
		EN5	0.696			
	Social	SO1	0.659	0.628	0.849	0.893
		SO2	0.825			
		SO3	0.866			
		SO4	0.791			
		SO5	0.807			

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Table 3. Discriminant Validity.

Fornell-Larcker criterion						
	DM	FP	ECOM	EC	EN	SO
DM	0.715					
FP	0.460	0.715				
ECOM	0.573	0.463	0.761			
EC	0.410	0.456	0.474	0.723		
EN	0.419	0.369	0.319	0.574	0.733	
SO	0.595	0.534	0.538	0.541	0.555	0.793
Heterotrait-monotrait ratio (HTMT)						
	DM	FP	ECOM	EC	EN	SO
DM						
FP	0.545					
ECOM	0.729	0.574				
EC	0.476	0.577	0.630			
EN	0.479	0.449	0.407	0.679		
SO	0.665	0.644	0.669	0.652	0.671	

Note: DM: Digital Marketing; FP: Firm Performance; ECOM: e-commerce; EC: Economic; EN: environmental; SO: Social

4.2. Assessment of the structural model

To ascertain the statistical significance of the path coefficient and to test the proposed hypotheses, PLS bootstrapping was employed by resampling 1000 times, following the recommendation by Hair et al. (2016). For a two-tailed test with a significance level of 0.05, the critical t-value is 1.96. The t-values resulting from the bootstrapping procedure are tabulated and depicted in Table 4 and Figure 2. These values provide insights into the significance of the relationships between variables and allow for the evaluation of the proposed hypotheses.

Table 4. Hypothesis testing

Hypotheses	Path	β	t-value	p-value	Conclusion
H1	e-commerce -> Firm Performance	0.296	2.465	0.014**	Supported
H2	Digital Marketing -> Firm Performance	0.291	2.855	0.004**	Supported
H3	e-commerce -> Sustainability	0.221	2.039	0.042**	Supported
H4	Digital Marketing -> Sustainability	0.314	3.441	0.001**	Supported
H5	Firm Performance -> Sustainability	0.304	3.281	0.001**	Supported

** $P < 0.05$

The predictive accuracy of the model was assessed through the coefficient of determination (R^2) value. According to the classification proposed by Hair et al. (2016) as a rule of thumb in marketing studies, R^2 values of 0.75, 0.50, or 0.25 for endogenous variables can be described as substantial, moderate, or weak, respectively. For the endogenous constructs of firm performance and sustainability, the R^2 values were estimated to be 0.271 and 0.469, respectively. Based on the classification, the R^2 value of 0.271 for firm performance falls within the weak category, while the R^2 value of 0.469 for sustainability falls within the moderate category. These values provide insights into the explanatory power of the model for predicting these endogenous variables.

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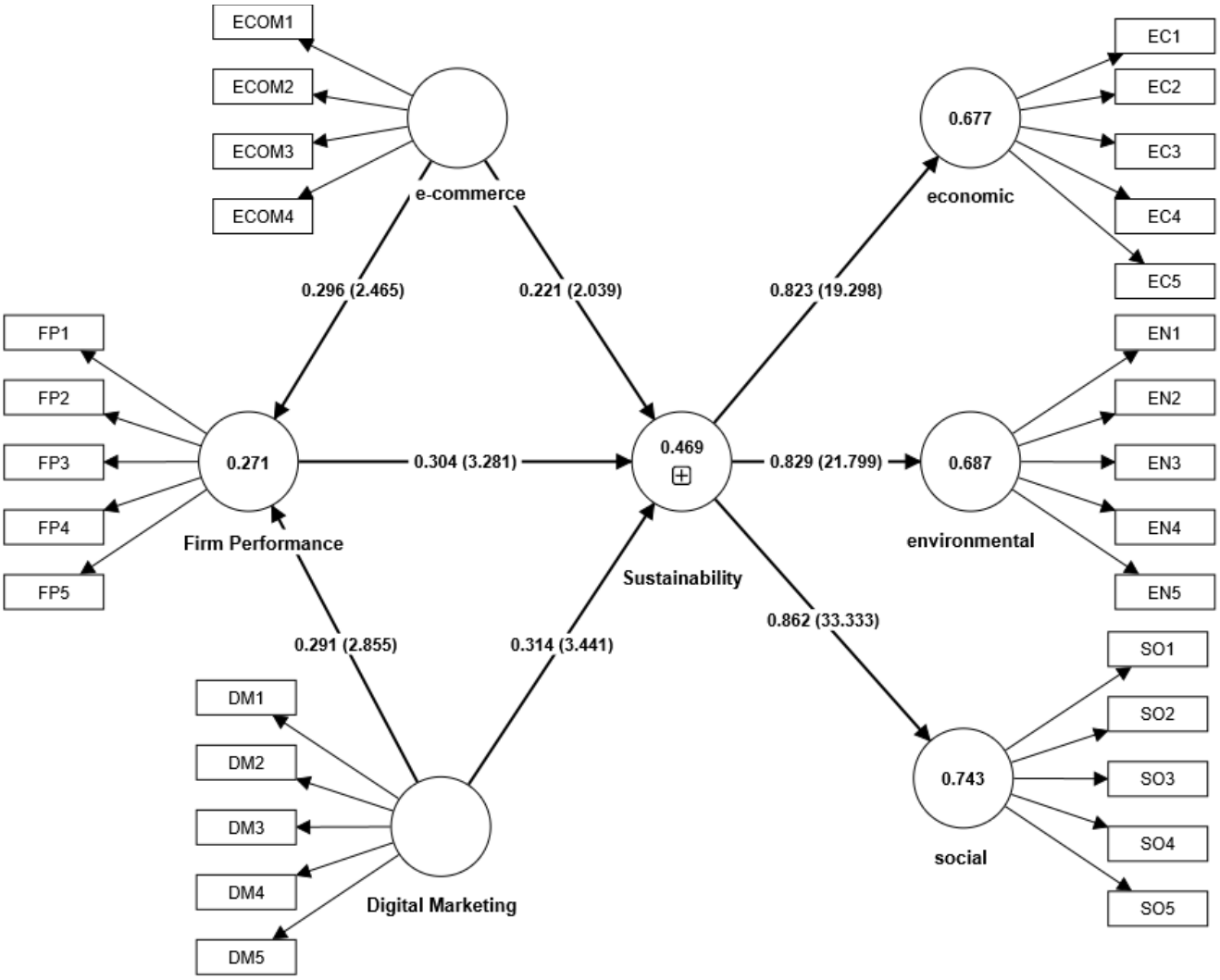

Fig. 2. Measurement Model

4.3. Results of Hypotheses Testing

The statistical outcomes validate all five direct research hypotheses, as presented in Table 4. E-commerce (β = 0.296; t = 2.465; p = 0.014) and digital marketing (β = 0.291; t = 2.855; p = 0.004) significantly positively influence firm performance. The analysis results demonstrate that e-commerce and digital marketing exert a positive and significant effect on firm performance. For SMEs, e-commerce can offer benefits in expanding market reach, enhancing customer service, fostering relationships, facilitating communications, and integrating supply chains (Ndayizigamiye, 2012). These advantages ultimately contribute to improving business financial performance. Concrete benefits of e-commerce include increased revenue, customer acquisition, cross-selling opportunities, and access to new markets (Ojo & Sadiq, 2022). According to Bâra et al. (2023), SMEs' entry into e-commerce can bolster Indonesia's economic growth by providing a platform for SMEs to market their products and expand market access. According to Juwaini et al. (2022), digital marketing aids companies in promoting and marketing their products and services. Digital marketing can also open new markets that were previously inaccessible due to limitations in time, communication methods, or distance (Alwan & Alshurideh, 2022). Understanding market performance or the success of marketed products is crucial for every company. Marketing performance serves as an essential aspect of company performance because a company's success can be gauged based on its marketing performance to date.

E-commerce (β = 0.221; t = 2.039; p = 0.042) and digital marketing (β = 0.314; t = 3.441; p = 0.001) significantly positively influence

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sustainability. The findings indicate that e-commerce adoption fosters organizational sustainability by reducing business waste and energy costs, thereby enhancing environmental performance and ensuring corporate sustainability. This finding aligns with Mangiaracina et al. (2015) and Oláh et al. (2019), who reported a significant association between e-commerce usage and sustainability. Due to its efficiency and effectiveness, e-commerce contributes to financial growth, increased profitability, expanded customer bases, and enhanced value added to the output, all of which contribute to a more sustainable production process (Oláh et al., 2019). According to Giantari et al. (2022), digital marketing enables businesses to reach a larger audience than traditional methods. Additionally, digital marketing is more cost-effective and measurable, thereby fostering business sustainability. According to Ahmed et al. (2022), digital marketing has a positive and significant effect on business sustainability.

Finally, firm performance significantly positively influences sustainability ($\beta = 0.304$; $t = 3.281$; $p = 0.001$). Artiach et al. (2010) supported this conclusion, demonstrating that organizations with stronger growth and financial success are more inclined to invest in sustainable business practices. According to Gray et al. (1995) and Bebbington et al. (2008), the implementation of sustainability initiatives enables firms to enhance their social image, thereby enhancing corporate performance in terms of reputation and minimizing reputational risks. Moreover, sustainability contributes to corporate performance by increasing market value, creating investment appeal, and making firms more attractive. Additionally, firms can fulfill their responsibilities to stakeholders by being socially responsible. Therefore, incorporating environmental and social initiatives into the corporate profile of firms strengthens the relationship between the firm and stakeholders, thereby enhancing the ability to generate information about the firm's endeavors and influencing the perceptions and expectations of stakeholders.

5. Conclusions

Based on the research results, it is concluded that e-commerce and digital marketing have a positive and significant relationship with firm performance, and both e-commerce and digital marketing have a positive and significant relationship with sustainability. Furthermore, the results indicate that firm performance also has a positive and significant relationship with sustainability. E-commerce and digital marketing contribute to sustainability, enabling companies to realize not only economic gains but also environmental and social benefits. There is a growing need for customers to demand more sustainable products and environmentally friendly practices from organizations. Organizations can promote sustainability by offering economically motivating factors such as low costs, quality products, and reduced transportation charges. Engaging stakeholders in the process of sustainability is crucial for making a significant difference. Organizations need to educate customers about the benefits of choosing sustainable products and how their choices can impact environmental, economic, and social sustainability. This can lead to a positive perception among consumers and influence their purchasing behavior towards companies that support sustainable e-commerce practices. Based on these findings, it is concluded that SMEs primarily focus on market positioning and customer acquisition through e-commerce and digital marketing utilization. The impact of such utilization is more pronounced in improving the financial performance of SMEs, as it enables them to expand their market reach to a global scale, which was previously limited compared to larger SMEs. Overall, the findings suggest that e-commerce and digital marketing play a crucial role in enhancing both firm performance and sustainability, particularly for SMEs aiming to compete on a larger scale.

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