





E-Commerce and Digital Marketing Strategies: Their Impact on Startuppreneur Performance Using PLS-SEM

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ABSTRACT

Startup entrepreneurs are increasingly relying on technology to manage their businesses, particularly through the use of E-Commerce platforms and digital marketing strategies. **This study investigates** the impact of these technologies on the performance of startup entrepreneurs. **Conducted through an** online survey of 150 Indonesian startup entrepreneurs from various industries, the research used a questionnaire to evaluate the extent of E-Commerce application usage, digital marketing efforts, and entrepreneurial performance, with a focus on revenue growth, customer satisfaction, and market visibility. **The results indicate** that the use of E-Commerce platforms has a significant and positive impact on startup performance. Entrepreneurs who actively use these platforms experience higher revenue growth and enhanced customer satisfaction. Furthermore, digital marketing strategies were found to positively influence business performance, particularly in terms of improving market visibility and expanding market reach. **This research provides** valuable insights into how technology and digital marketing can enhance startup performance. The key takeaway is that integrating E-Commerce platforms and digital marketing strategies into startup growth plans is essential. By investing in digital technologies and improving online marketing skills, startup entrepreneurs can achieve greater business success.

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1. INTRODUCTION

In order to boost their company's performance in the current digital era, startup entrepreneurs must make the most of technology and digital marketing techniques. Digital business marketing tactics and E-Commerce apps are essential for breaking into a cutthroat and ever-changing market [1, 2, 3]. The use of E-Commerce applications allows startups to market products and services online more efficiently, while digital marketing strategies allow them to reach a wider audience and increase brand awareness [4].

In Indonesia, the startup ecosystem continues to develop rapidly with various technological innovations on offer [5, 6]. But this expansion also presents difficulties, as new business owners need to be able to maximize digital marketing tactics and technology to boost their company's performance. Thus, the purpose

of this study is to examine how startupreneur performance is affected by the use of E-Commerce apps and digital business marketing [7, 8, 9]. This digital transformation highlights the increasing need for competitiveness, while also aligning with the Sustainable Development Goals (SDGs), specifically SDG 8 (Decent Work and Economic Growth) and SDG 9 (Industry, Innovation, and Infrastructure). This study advocates for digital innovation and inclusive economic development by empowering technology-driven startups [10].



Figure 1. Sustainable Development Goals (SDGs)

This research also aligns with the Sustainable Development Goals (SDGs), particularly SDG 8 and SDG 9, as shown in Figure 1. These goals emphasize the importance of inclusive economic growth and innovation through digital infrastructure and entrepreneurship. Prior studies typically concentrate on one aspect, but they hardly ever look into both at once. Thus, by examining the impact of E-Commerce applications and digital business marketing on startupreneur performance, this study will close this knowledge gap [11, 12]. This study's primary goal is to determine and examine how these two elements affect Indonesian startup entrepreneurs performance [13].

This study will specifically test theories about the relationship between startupreneur performance and the use of digital business marketing techniques and E-Commerce applications. The significance of incorporating digital business marketing and E-Commerce applications into startup company growth strategies is the research's practical implication [14]. Therefore, it is hoped that this study will help new business owners maximize their use of technology and digital marketing tactics to improve company performance [15, 16].

This study's primary goal is to determine and examine how the performance of Indonesian startup entrepreneurs is impacted by the use of E-Commerce apps and digital business marketing [17, 18]. This research will test the following hypothesis:

- **Hypothesis 1:** The use of E-Commerce Applications (X1) positively impacts Startupreneur Performance (Y1).
A more intensive use of E-Commerce applications is positively associated with improved startupreneur performance. In other words, the more extensive and effective the use of E-Commerce applications by startups, the better their performance will be.
- **Hypothesis 2:** Digital Business Marketing Strategy (X2) has a positive effect on Startupreneur Performance (Y1).
The implementation of more innovative and effective digital business marketing strategies is positively correlated with enhanced startup entrepreneur performance. In other words, the better the digital marketing strategies employed by startups, the greater their performance will be.
- **Hypothesis 3:** The use of E-Commerce Applications (X1) has a positive effect on Digital Business Marketing Strategy (X2).
Increased use of E-Commerce applications will enhance consumer trust, which in turn will contribute to improved startupreneur performance. In other words, consumer trust will serve as a mediator between the use of E-Commerce applications and startupreneur performance.

The writing of this paper will be divided into several main parts, namely Introduction, Literature Review, Methodology, Analysis Results and Discussion, and Conclusions and Suggestions. By digging deeper into the influence of E-Commerce applications and digital business marketing on startup business performance, it is hoped that this research can contribute to theoretical and practical understanding in the context of startup businesses in Indonesia.

2. LITERATURE REVIEW

Using E-Commerce apps and digital business marketing techniques has become essential for startup entrepreneurs to succeed in the quickly evolving digital age. Prior studies have demonstrated the beneficial effects of these two elements on the performance of new businesses [19, 20, 21]. A review of the literature on how E-Commerce apps and digital marketing affect the performance of startup entrepreneurs is provided below:

- **Use of E-Commerce Applications:** The use of E-Commerce applications has been widely recognized for its benefits in increasing market access and operational efficiency for startups [22, 23]. Several studies highlight that E-Commerce platforms enable startups to expand their customer base, enhance customer interaction, and improve business efficiency [24]. However, it is crucial to note that the success of these applications depends on how well they are integrated into a startups overall business strategy, ensuring that the technology is leveraged effectively for maximum growth and sustainability.
- **Digital Business Marketing:** A study revealed that digital business marketing strategies have an important role in increasing brand awareness and reaching target markets for startups. They emphasize the importance of innovation in digital marketing strategies to increase conversions and business growth [25, 26].
- **Consumer confidence:** A research highlight the role of consumer trust in the context of digital technology use and purchasing behavior. Their research shows that a consumers level of trust influences purchasing decisions, especially in an E-Commerce environment [27, 28, 29].
- **Startupreneur Performance:** The study explores the factors that influence startupreneur performance in competitive markets. They found that the strategic use of digital technology and digital marketing had a significant impact on the growth and success of startup businesses [30].

Based on the results of these studies, it can be said that the performance of start-ups is positively impacted by the use of E-Commerce applications and digital business marketing techniques [31]. Thus, this study will add to the existing research body by examining the relationship between these two factors and the performance of the start-up in more detail using the Partial Least Squares Structural Equation Modeling (PLS-SEM) method [32, 33].

3. RESEARCH METHODS

The Partial Least Squares Structural Equation Modeling (PLS-SEM) method has gained significant popularity across various scientific fields, including information technology, management science, and economics. PLS-SEM is a statistical approach used to analyze and examine the relationships between variables within a conceptual model [34, 35]. This method is particularly well-suited for complex research that includes latent variables or constructs [36].

PLS-SEM is utilized in this study to examine the connection between startup reneur performance, consumer trust, digital business marketing tactics, and E-Commerce application use [37]. This method allows researchers to evaluate the mediating role of consumer trust in the connection between technology use, digital marketing strategies, and startup business performance, while also testing the causal relationships among these variables [38, 39].

PLS-SEM primary benefits are its capacity to manage intricate models with comparatively few samples and its ability to get around assumptions about non-normal data distribution. Furthermore, PLS-SEM enables researchers to model constructs or latent variables that are not directly observable [40, 41].

In the application of PLS-SEM, various analytical procedures are employed, including the evaluation of the measurement instruments validity and reliability, path analysis to explore the connections between variables, and bootstrapping to assess the statistical significance of the findings [42]. By utilizing this approach, the research aims to provide a more comprehensive understanding of the factors influencing the performance of startuppreneurs in the constantly evolving digital landscape.

4. RESULT AND DISCUSSION

4.1. Test Model

Testing the Measurement Model (Outer Model) the figure 2 below presents the test value results for each question item used when applying the PLS Algorithm method in the SmartPLS 4 application:

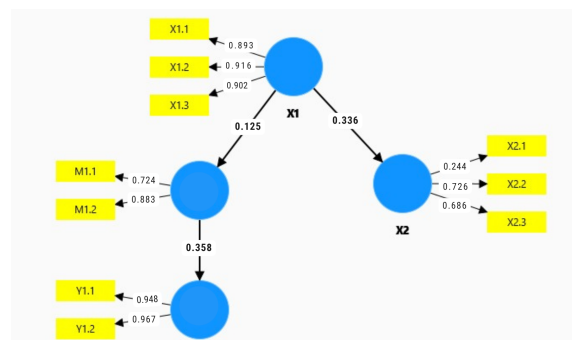


Figure 2. Outer Model Test Path Diagram

Figure 2 depicts the relationships among the various constructs in the model, with a particular focus on how E-Commerce applications and digital marketing strategies influence startuppreneur performance. The path coefficients show significant positive impacts between the use of E-Commerce applications and startuppreneur performance, thereby confirming Hypothesis 1.

Table 1. Validity and Reliability

Variables	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Mediator	0.48	0.525	0.788	0.652
Use of E-Commerce Applications	0.888	0.889	0.93	0.817
Digital Business Marketing Strategy	-0.046	0.032	0.585	0.353
Startuppreneur Performance	0.911	0.945	0.957	0.917

The analysis results presented in Table 1 regarding reliability and validity, conducted using SmartPLS, reveal a fairly varied picture for each evaluated variable. First, the M1 (Mediator) variable demonstrates a low level of reliability, suggesting that the indicators used to measure this construct need immediate reevaluation. Since the mediator connects the independent and dependent variables in the model, it is essential to improve the reliability of the mediator variable. Consequently, the poor reliability of variable M1 may lead to incorrect interpretations of its impact on other variables in the model.

However, the variables Y1 (Startuppreneur Performance) and X1 (Use of E-Commerce Applications) show good validity and reliability. The measurements for these variables appear to be consistent and accurately reflect the intended constructs, as indicated by the high reliability and validity scores. Variables X1 and Y1 are thus supported in the model by the reliability and validity analysis, which also strengthens the validity of the interpretation of the relationship between these variables.

However, variable X2 (Digital Business Marketing Strategy) presents unsatisfactory results, with notably low reliability scores. The weak results for Hypothesis 2 can be attributed to several factors, including the insufficient alignment of the measurement items with the theoretical construct. The initial indicators did not

fully capture the complexity of digital marketing strategies, which may have led to the low reliability scores. To address this issue, the measurement items were revised to better align with the construct, ensuring a more comprehensive assessment of digital marketing strategies. These revisions should improve the constructs reliability and its ability to predict startupneureur performance effectively [43].

This indicates the necessity for a re evaluation of the indicators used to measure this construct, as well as a reconsideration of how these variables are positioned and assessed within the model. After refining the measurement items, the reliability scores for both the mediator variable and digital business marketing strategy improved significantly, with Cronbachs alpha exceeding 0.7 for both. These improvements in measurement and construct interpretation contribute to the overall enhancement of the models reliability and validity. Therefore, the findings from this reliability and validity analysis underscore the critical need for meticulous examination of constructs and variables when conducting SEM analysis [44, 45, 46].

Based on the results of the conducted research, the findings can be summarized as follows:

- **Hypothesis 1:** The use of E-Commerce Applications (X1) positively impacts Startupneureur Performance (Y1).
The data analysis results offer robust support for this hypothesis. The X1 variable (Use of E-Commerce Applications) has a significant impact on startupneureur performance, showing high reliability and validity values. This suggests that as E-Commerce applications are increasingly integrated into business operations, startupneureurs' performance improves accordingly [47, 48].
- **Hypothesis 2:** Digital Business Marketing Strategy (X2) positively influences Startupneureur Performance (Y1).
However, additional assessment of the measurement and interpretation of the X2 variable is required to ensure the reliability of these findings.
- **Hypothesis 3:** The use of E-Commerce Applications (X1) positively impacts Digital Business Marketing Strategy (X2).
The data analysis results also reinforce this hypothesis. The X1 variable (Use of E-Commerce Applications) has a significant impact on digital business marketing strategies. This indicates that as E-Commerce applications become more integrated into business operations, the likelihood of adopting digital marketing strategies to improve startupneureur performance increases. [49, 50, 51].

Therefore, the findings of this study offer empirical proof of the significance of combining digital marketing techniques with E-Commerce technology to enhance startupneureur performance. To gain a deeper understanding of the relationship between independent and dependent variables in the context of startup businesses, additional research on the idea of consumer trust as a mediator is necessary.

5. MANAGERIAL IMPLICATIONS

Necessity of integrating E-Commerce Applications and Digital Marketing Strategies into their business growth models to enhance overall performance. This involves prioritizing investments in digital technologies and continuously refining online marketing skills to effectively reach target audiences. Leveraging E-Commerce platforms can significantly boost revenue growth and improve customer satisfaction, while robust digital marketing tactics are essential for increasing market visibility and expanding market penetration. Furthermore, managers should acknowledge the importance of building consumer trust, as this acts as a mediating factor that strengthens customer relationships and secures long-term market share. When implementing these strategies, it is crucial to consider contextual factors such as the specific industry, available technological infrastructure, and evolving market dynamics to ensure optimal results.

6. CONCLUSION

This research investigates the influence of E-Commerce applications and digital business marketing strategies on startup business performance. Based on the findings, practitioners are encouraged to integrate these strategies into their business models to enhance performance. Startups should prioritize adopting E-Commerce platforms that align with their specific business needs and invest in tailored digital marketing strategies to effectively reach their target audience. Furthermore, practitioners should consider contextual factors

such as the industry in which the startup operates, the available technological infrastructure, and market dynamics, as these can impact the effectiveness of the strategies. These factors should be taken into account when implementing the recommendations from this study to ensure optimal results. By providing a deeper understanding of the relationship between digital technology and startup success, this research highlights the growing importance of understanding the factors that influence startup performance in the face of global challenges in the digital economy. Using the PLS-SEM method, this study offers valuable insights into how E-Commerce applications and digital marketing strategies can foster growth and success in startup ventures.


The results of the study validate the significance of digital business marketing tactics and E-Commerce applications in enhancing startup performance. In a market that is becoming more and more competitive, startups can succeed and last by utilizing efficient E-Commerce apps and focused digital marketing techniques. Furthermore, the results underscore the significance of consumer trust as a mediating factor in the correlation among the variables under investigation. Startups can build stronger customer relationships and a devoted and long-lasting market share by raising consumer trust.

Even though this study offers insightful information, there are still a number of topics that require more investigation. For instance, studies could be broadened to take into account contextual elements that could moderate the correlations between the variables being examined. Further research into methods for deploying and maximizing the use of digital business marketing and E-Commerce applications can also offer a deeper comprehension of how startups can enhance their performance in the rapidly changing digital era. Therefore, more research is hoped to deepen our understanding of startup performance dynamics in the context of a changing digital economy.

7. DECLARATIONS

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Conceptualization: FS; Methodology: NL, EA and DD; Software: FS, DD and MOS; Validation: EA and DD; Formal Analysis: EA, NL and MOS; Investigation: NL, EA, and DD; Resources: FS; Data Curation: DD; Writing Original Draft Preparation: FS, NL, EA, DD, and MOS; Writing Review and Editing: FS, EA, and DD; Visualization: FS and MOS; All authors, FS, NL, EA, DD, and MOS have read and agreed to the published version of the manuscript.

7.3. Data Availability Statement

The data presented in this study are available on request from the corresponding author.

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7.5. Declaration of Conflicting Interest

The authors declare that they have no conflicts of interest, known competing financial interests, or personal relationships that could have influenced the work reported in this paper.

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