



THE EFFECT OF E-COMMERCE ADOPTION AND SEO ON BUSINESS SUSTAINABILITY THROUGH MARKETING PERFORMANCE: A STUDY OF ZARA E-COMMERCE CONSUMERS IN MAKASSAR CITY

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ABSTRACT

The transformation of the digital trading ecosystem has pushed internationally recognized brands to restructure their strategic approaches, particularly by integrating e-commerce adoption and search engine optimization (SEO) as primary instruments for sustaining business continuity amid the ever-evolving dynamics of the online market. This study aims to examine and measure the extent to which these two variables shape marketing performance and its implications for business sustainability, using active consumers of the Zara e-commerce platform in Makassar City as the unit of analysis. A quantitative survey-based approach was applied, involving 207 respondents selected through non-probability sampling based on their transaction experience on the platform. The data were collected using a Likert-scale questionnaire and then analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with the aid of SmartPLS 4.0 software. The findings reveal that e-commerce adoption and SEO implementation each have a positive and significant effect on marketing performance; marketing performance itself has a real contribution to business sustainability; and, more importantly, marketing performance is confirmed to act as an effective mediating variable that bridges the influence of both e-commerce adoption and SEO on overall business sustainability.

1. INTRODUCTION

The acceleration of technological innovation in recent decades has fundamentally changed the way people interact, transact, and manage economic activities. In the industrial context, the wave of digitalization has pushed business actors to integrate technology into the core of their operations in response to ever-increasing demands for efficiency and competitiveness. Digital marketing, which encompasses a wide range of promotional activities across the internet ecosystem, from search engine optimization to e-commerce platforms, is now recognized as a strategic element in building long-term business advantage (Panda & Mishra, 2022). The massive shift of consumer orientation toward online channels further underscores the urgency of digital adaptation for companies, where delays in responding to this change may significantly erode business resilience (Shafi et al., 2020). In the contemporary retail landscape, mastering digital marketing strategies can no longer be treated as a secondary option; it has become a fundamental prerequisite for the continuity and relevance of businesses in an era of technology-based competition.

In the operational dimension, e-commerce adoption has been shown to contribute substantially to increased business productivity through automation mechanisms that directly and considerably reduce coordination and transaction costs (Tasya et al., 2022). The existence of e-commerce also reflects the high-intensity pace of technological transformation in the global trading ecosystem. Data show that more than 168.3 million active e-commerce users are recorded in Indonesia, a reality that opens significant market expansion opportunities for business actors in reaching wider consumer segments (Ausat et al., 2022).

The proliferation of e-commerce platforms in the digital trading ecosystem has intensified competition for brand visibility, making the ability to be discovered organically by consumers an increasingly crucial

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competitive variable. Within this framework, Search Engine Optimization (SEO) serves as a strategic digital marketing instrument that enables businesses to accumulate organic traffic while consolidating brand position on search engine results pages. Empirical evidence indicates that keyword optimization and technical SEO elements can potentially increase a website's organic traffic volume by approximately 30%, which directly strengthens business performance in a measurable way (Sechele et al., 2024). Beyond conventional promotional functions, structured digital marketing strategies also help build more meaningful relationships with customers through the distribution of relevant content and sustained engagement (Sudirjo et al., 2023). The integration of SEO and e-commerce platforms ultimately forms an adaptive marketing ecosystem, enabling companies to respond precisely to market shifts while driving sustainable growth in marketing performance (Wardana & Mukharomah, 2023; Lusianty & Rojuaniah, 2023).

Marketing performance serves as a strategic link between the execution of digital initiatives and a company's capacity to sustain long-term business sustainability. Marketing success parameters, which include market share expansion, customer retention, and brand equity, directly supply the financial resources that companies need to operationalize more socially and ecologically responsible business practices (Wardana & Mukharomah, 2023). In the fashion retail industry, solid marketing performance allows companies to accumulate consumer trust through supply chain transparency and ethical brand communication, which cumulatively strengthens the brand's sustainability position in global competition. Therefore, optimizing marketing performance does not merely represent the achievement of business targets; it functions as a fundamental mechanism that builds a company's capacity to grow in a balanced way across the economic, social, and ecological domains (Munandar et al., 2025).

The fashion industry occupies the most progressive position in the wave of digital adoption, driven by the combination of high visual aesthetic demands and increasingly compressed production cycles. The transition toward the "Fashion 4.0" paradigm allows companies to redesign their business architecture to be more adaptive and data-driven (Bertola & Teunissen, 2018), while the application of three-dimensional virtual and digital technology (3DVD) has been shown to significantly shorten lead times in the design and prototyping stages (Casciani et al., 2022). The characteristics of Generation Z, a cohort that grew up in a digital ecosystem, make them highly receptive to interactive features such as algorithm-based recommendations and live shopping, while also opening new dimensions through digital fashion as a medium of identity expression in virtual spaces without dependence on physical consumption (Damayanti et al., 2025; Chan et al., 2023). In this context, ZARA optimizes its digital infrastructure to strengthen marketing performance through a highly responsive supply chain management, making it a capability that determines business resilience in an evolving global retail ecosystem.

Existing studies provide a growing body of evidence on how digital tools relate to business outcomes. E-commerce adoption by companies and small and medium enterprises has been examined through technological, organizational, and external environmental dimensions (Ausat, Astuti & Wilopo, 2022), and its determinants and effect on performance have been studied among fashion MSMEs in Pekanbaru (Auliandari, Suriyanti & Azmi, 2022). Research on SEO and digital marketing strategies has focused on enhancing the performance of retail SMEs (Sechele et al., 2024). The links among digital marketing, e-commerce, marketing performance, and business sustainability have been tested in a souvenir business in Solo (Wardana & Mukharomah, 2023), while the effect of e-commerce adoption and digital marketing adoption on sustainability through competitive advantage has been examined in food and beverage MSMEs in Jakarta (Lusianty & Rojuaniah, 2023). The convergence of digital marketing strategies and e-commerce platform optimization has transformed into the main architecture that supports marketing performance and business continuity in the Fashion 4.0 paradigm, going beyond the merely supportive role that has long been attached to it (Panda & Mishra, 2022; Shafi et al., 2020; Novita et al., 2023). In the landscape of the global fashion industry, a company's capability to align technology-based operational efficiency with virtual aesthetic expectations forms a competitive differentiation that is not easily replicated by competitors (Bertola & Teunissen, 2018; Casciani et al., 2022; Chan et al., 2023).

The phenomenon addressed in this study can be observed in the online shopping behavior of Generation Z in Makassar, particularly toward fast fashion brands such as Zara. As a generation socialized in the digital ecosystem, this group places access efficiency and transaction speed as top priorities in the

online shopping experience, making brand visibility in search engines through SEO optimization a determining factor at the early stage of product exploration (Wiro & Wiratmoko, 2025). In the Makassar area, this segment's online purchase intention is significantly influenced by price competitiveness and by trust accumulated through digital reviews, reflecting a consumer profile that is both critical and adaptive to platform innovation (Hemastuti, 2022). In the fast fashion segment such as Zara, impulsive buying behavior is often triggered by hedonic stimulation mediated by exposure to marketing content on social media (Purwanto et al., 2025). Cumulatively, the effectiveness of digital marketing strategies and the solidity of brand image on e-commerce platforms not only influence momentary purchase decisions but also build long-term consumer loyalty that directly affects the company's marketing performance in a structural manner (Aslam et al., 2025).

This condition can be utilized strategically by ZARA through a structured digital approach, namely by directing consumer flows toward its official e-commerce channel as part of its efforts to optimize platform-based revenue. The effectiveness of this strategy is further reinforced by the role of digital marketing instruments as a supporting ecosystem that synergistically integrates brand visibility with e-commerce platform accessibility (Novita et al., 2023). This reality is increasingly confirmed by the phenomenon of Generation Z consumer behavior in Makassar City, where mastery of technical aspects such as SEO and a deep understanding of digital consumption patterns become determining variables in capitalizing on the preferences of a consumer segment that is simultaneously critical and impulsive (Sechele et al., 2024; Wiro & Wiratmoko, 2025; Purwanto et al., 2025).

However, the existing evidence remains concentrated on small and medium enterprises, and it is still limited in explaining how e-commerce adoption and SEO shape marketing performance and, through it, business sustainability from the perspective of consumers of an international fast fashion brand in a regional city such as Makassar. Accordingly, this study aims to examine and measure the extent to which e-commerce adoption and SEO shape marketing performance, as well as the implications of marketing performance for business sustainability, using active consumers of the ZARA e-commerce platform in Makassar City as the unit of analysis. Marketing performance is positioned as a mediating variable that bridges the influence of e-commerce adoption and SEO on business sustainability.

2. METHODS

The presence of e-commerce represents one of the most concrete manifestations of the acceleration of technological transformation in the contemporary trading landscape. E-commerce adoption by companies and small and medium enterprises is influenced by three main dimensions, namely technology, organization, and the external business environment (Ausat, Astuti & Wilopo, 2022). In its capacity as a marketing instrument, e-commerce facilitates the simultaneous integration of various online services while strengthening a company's ability to acquire and retain its customer base in a more structured manner (Pangesti & Adyaksana, 2021). Although around 14 million MSMEs are recorded as having used e-commerce platforms, penetration remains limited to around 21 percent of all existing business actors (Antara, 2022, as cited in Auliandari, Suriyanti & Azmi, 2022). The continuous development of digital infrastructure further establishes e-commerce as a central element in modern business architecture at the global level (Nugroho, 2020; Hoang et al., 2021). The internet-based transaction mechanism it offers enables faster information exchange and more efficient interaction between business actors and consumers within a single connected ecosystem (Nasution et al., 2020; Orinaldi, 2020). Moreover, e-commerce's contribution to operational efficiency is realized through its ability to integrate the entire chain of business activities, from marketing and payment processing to product distribution, in a single coordinated digital system (Octavia et al., 2020; Effendi & Subroto, 2021).

The surge in the number of sellers on e-commerce platforms reflects the exponential growth of the digital ecosystem, particularly since early 2020, when the number of active sellers increased from around 6 million to 7.8 million in a relatively short period (Hamdun et al., 2022). Conceptually, e-commerce refers to trading activities that use digital infrastructure as a medium for transactions and promotion, covering various business relationship models from business-to-business (B2B) to business-to-consumer (B2C)

(Siagian, 2021). This expansion is also reflected in the global transaction volume, which reached approximately USD 4.9 trillion in 2021, indicating that e-commerce adoption has become a cross-country phenomenon that continues to strengthen (Prasetyo, 2023). Findings from the Pew Research Center further reinforce this argument, showing that consumers who transact online tend to report higher levels of satisfaction than those who still rely on conventional shopping channels (Prasetyo, 2023).

Search Engine Optimization (SEO)

Search Engine Optimization (SEO) has developed into a strategic instrument that is inseparable from the modern digital marketing ecosystem. Effective SEO implementation plays a role in amplifying brand visibility in the digital space, which directly contributes to strengthening brand awareness and stimulating consumers' purchase intention toward the marketed products (Khairunnisa & Ariyanto, 2023). In the context of e-commerce platforms, SEO-based optimization is a critical mechanism for driving sales growth, realized through the application of calculated keywords and the expansion of online store presence across various marketplaces as an integrated promotional channel (Shita et al., 2022). The validity of this strategy is empirically confirmed by the Bima Utomo Waterpark case study, in which the application of SEO techniques raised the site's optimization score from 58/100 and placed its target keyword on the fourth page of search results in just one month (Sinaga & Hadinata). These findings affirm that the combination of technical website optimization and precise keyword selection can significantly accelerate the popularity and effectiveness of business marketing in the digital realm (Prasetyo et al., 2025).

Technically, SEO works by placing a website in a more strategic position on search engine results pages based on the relevance of targeted keywords or phrases (Isbandi et al., 2023). One fundamental component of SEO architecture is on-page optimization, which covers the configuration of a site's internal elements such as contextual keyword integration, persuasive meta descriptions, well-organized URL structures, and the production of informative content that is of high value to users (Aristya et al., 2024). From a consumer behavior perspective, organic search results tend to receive a higher level of trust than paid advertisements because they are perceived as more authentic and relevant recommendations (Murtopo et al., 2024). A top position on search engines also serves as a credibility signal that strengthens consumer trust in a brand organically (Murtopo et al., 2024). Thus, mastery and structured implementation of SEO enable business actors to consolidate their digital presence more competitively while building a foundation for resilient and sustainable business growth in the online market ecosystem (Hadiana, 2023).

Marketing Performance

Marketing performance is a multidimensional construct that cannot be reduced to sales volume alone, but encompasses a broader spectrum of indicators such as customer retention, customer lifetime value, and sustainably built satisfaction. The effectiveness of a marketing strategy is determined by a company's capacity to optimize service personalization, product recommendation relevance, and the use of customer data as the basis for measurable decision-making (Praditya, 2024). In terms of its measurement framework, marketing performance can be evaluated at three hierarchical levels, namely the process level, the output level, and the outcome level, which collectively reflect the real impact of marketing activities on overall business performance (Hussein, 2019, as cited in Purwanto & Perkasa, 2022). Nevertheless, there is still room for exploration that has not been adequately mapped regarding the interaction among marketing innovation, market orientation, and marketing capability in shaping optimal marketing performance, so a more comprehensive study of these variables is relevant to develop (Arifin & Ali, 2023). Low marketing performance in a number of business entities generally stems from suboptimal promotion and limited digital literacy, where digital access acts as a moderating variable that determines how large the impact of social media promotion is on overall marketing performance (Supriatna et al., 2022).

In the context of global industrial recovery after crises, the synergy between digital marketing strategies and a commitment to environmental responsibility has been shown to be a significant accelerator of economic growth (Orden-Mejía et al., 2022, as cited in Wijaya et al., 2025). From a tactical perspective, structured promotion strategies have been shown to catalyze measurable improvements in marketing performance, which can be operationalized through digital advertising optimization, sales promotion campaigns, and various forms of online platform-based marketing communication (Yasa et al., 2020, as cited in Purwanto & Perkasa, 2022). Furthermore, building sustainable customer relationships based on customer insight and expanding market insight are fundamental elements of a marketing strategy oriented

toward improving long-term performance (Mulyana et al., 2020, as cited in Purwanto & Perkasa, 2022). Mapping the relationships among these variables ultimately provides an analytical framework that organizational leaders can use to evaluate the achievement of performance targets more systematically and on a data-driven basis.

Business Sustainability

Business sustainability is a strategic construct that goes beyond mere operational continuity and reflects the capacity of a business system to maintain its productivity consistently over a long period of time (Wardana & Mukharomah, 2023). In a more comprehensive framework, business sustainability requires that every activity and production process of the company be carried out with consideration of the social dimension (people) and environmental preservation, without sacrificing profitability as the foundation of business continuity (Wardana & Mukharomah, 2023). This sustainability orientation essentially represents a structured effort to achieve measurable long-term performance, in which business entities that do not manage this orientation systematically tend to stagnate and lose a clear direction for growth (Tarumanagara Yogyakarta & Puspitaningtyas, 2017).

The development of the contemporary concept of business sustainability has moved beyond conventional environmental issues such as natural resource management and now covers a much broader spectrum, including social and economic dimensions simultaneously (Bahram, 2023, as cited in Judijanto et al., 2024). Aspects such as social justice, community responsibility, and corporate integrity are now an integral part of the sustainability standards applied by modern companies. This paradigm shifts business orientation from mere profit accumulation toward a more holistic accountability model, in which the company's impact on society and the surrounding ecosystem is treated as a performance variable as important as financial indicators (Bahram, 2023, as cited in Judijanto et al., 2024).

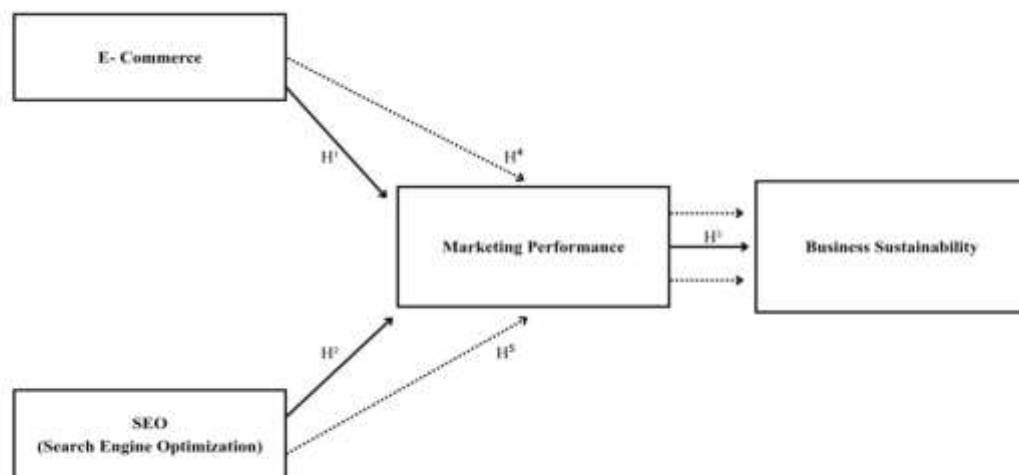


Figure 1. Conceptual Framework

Hypotheses

The following presents the five (5) hypotheses of this study, based on the literature review and the research model developed, namely:

H1 : E-commerce adoption has a positive and significant effect on Marketing Performance. (The better the technology adoption, the higher the marketing performance).

H2 : Search Engine Optimization (SEO) has a positive and significant effect on Marketing Performance. (Search engine optimization increases visibility and conversion).

H3 : Marketing Performance has a positive and significant effect on Business Sustainability. (Stable marketing performance ensures long-term business continuity).

H4 : E-commerce adoption affects Business Sustainability through Marketing Performance.

H5 : SEO affects Business Sustainability through Marketing Performance.

RESEARCH METHOD

This study was designed with a descriptive quantitative approach as the main methodological framework, to map and identify the effect of e-commerce adoption and Search Engine Optimization (SEO) on business sustainability through the mediating role of marketing performance. The research location was set in Makassar City, South Sulawesi, on the consideration that this city is the largest trade and economic epicenter in the Eastern Indonesia region, characterized by a significant intensity of e-commerce platform use. The unit of analysis was active consumers of the Zara e-commerce platform who reside or work in the area, with the entire research process lasting five months, from the instrument development stage to final reporting. The data collection instrument was a five-point Likert-scale questionnaire, distributed in a hybrid manner through direct distribution and the Google Forms platform to maximize respondent reach. A total of 207 respondents were collected through non-probability sampling based on transaction experience on the Zara e-commerce platform, ensuring the relevance and representativeness of the data obtained.

Data analysis was carried out using Partial Least Squares Structural Equation Modeling (PLS-SEM) with the support of SmartPLS version 4.0 software, an approach chosen for its capability to accommodate simultaneous testing among latent variables while facilitating mediation effect analysis in a single integrated model. The research constructs were built on two independent variables, e-commerce adoption (X1) and SEO (X2), with marketing performance (M) as the mediating variable and business sustainability (Y) as the dependent variable. Five main hypotheses were formulated to test the effect of e-commerce adoption on marketing performance, the effect of SEO on marketing performance, the effect of marketing performance on business sustainability, and the mediating role of marketing performance in the relationship of e-commerce adoption and SEO with business sustainability. Testing was carried out through two systematic evaluation stages, namely outer model assessment to verify construct validity and reliability, followed by inner model evaluation to test the hypotheses based on the resulting path coefficients and t-statistics.

3. RESULTS AND DISCUSSIONS

Table 1 : Validity And Reliability

Construct	Loading Factor	AVE	Composite Reliability	Cronbach's Alpha
Marketing Performance		0.778	0.934	0.905
M1	0.880			
M2	0.887			
M3	0.876			
M4	0.885			
E-Commerce		0.794	0.951	0.935
X1.2	0.911			
X1.3	0.886			
X1.4	0.876			
X1.5	0.895			
SEO (Search Engine Optimization)		0.814	0.946	0.924
X2.1	0.909			
X2.2	0.891			
X2.3	0.879			
X2.4	0.929			
Business Sustainability		0.790	0.938	0.911

Y1	0.911
Y2	0.914
Y3	0.858
Y4	0.871

The measurement model evaluation began with convergent validity testing, which aims to verify that each indicator accurately represents its latent construct within the PLS-SEM framework (Hair et al., 2019). Convergent validity assessment refers to two main criteria, namely loading factor with a threshold of 0.708 and Average Variance Extracted (AVE) with a minimum value of 0.50 (Hair et al., 2022). All indicators of the Marketing Performance construct yielded loading factor values exceeding this threshold, with details of M1 = 0.880; M2 = 0.887; M3 = 0.876; and M4 = 0.885, indicating strong indicator representation of the construct (Sarstedt et al., 2021). The E-Commerce construct showed similar performance with values of X1.2 = 0.911; X1.3 = 0.886; X1.4 = 0.876; and X1.5 = 0.895, which confirms a substantial indicator contribution (Becker et al., 2023). For the SEO construct, the loading factor values of indicators X2.1 to X2.4 were 0.909; 0.891; 0.879; and 0.929, respectively, reflecting high representational consistency toward the latent variable (Cheung et al., 2023). The Business Sustainability construct also met this criterion with values of Y1 = 0.911; Y2 = 0.914; Y3 = 0.858; and Y4 = 0.871, all of which were above the required threshold (Haji-Othman & Yusuff, 2022).

Convergent validity was further confirmed by examining AVE values, which measure the proportion of indicator variance explained by the latent construct (Fornell & Larcker, 1981). The Marketing Performance construct obtained an AVE of 0.778, meaning that around 77.8% of the indicator variance is explained by the construct (Hair et al., 2022). The AVE of the E-Commerce construct, 0.794, indicates a solid level of convergence, while the SEO construct recorded the highest value among all constructs at 0.814, reflecting a superior strength of indicator representation (Sarstedt et al., 2022; Becker et al., 2023). The Business Sustainability construct completes this picture with an AVE of 0.790, which consistently exceeds the required minimum (Cheung et al., 2023). Overall, all constructs in the research model were confirmed to meet the convergent validity criteria required in PLS-SEM analysis (Hair et al., 2019).

Reliability testing was conducted to verify the internal consistency of each construct in the model, referring to two main indicators, namely Composite Reliability (CR) and Cronbach's Alpha (Mathushan & Gamage, 2022). The CR values of all constructs ranged from 0.934 to 0.951, while Cronbach's Alpha ranged from 0.905 to 0.935, both exceeding the required minimum threshold of 0.70 (Hair et al., 2022; Haji-Othman & Yusuff, 2022). Specifically, the Marketing Performance construct recorded CR = 0.934 and α = 0.905; E-Commerce obtained CR = 0.951 and α = 0.935; SEO yielded CR = 0.946 and α = 0.924; and Business Sustainability recorded CR = 0.938 and α = 0.911 (Sarstedt et al., 2021). The consistency of the values across all constructs confirms that the research instrument has a very adequate level of reliability and can be used as the basis for a credible structural analysis (Hair et al., 2019; Becker et al., 2023).

Table 2 : Validity Discriminant

Variable	E-Commerce	Marketing Performance	SEO (Search Engine Optimization)	Sustainability
E-Commerce	(0.891)			
Marketing	0.934	(0.882)		
SEO (Search Engine Optimization)	0.950	0.919	(0.902)	
Sustainability	0.952	0.932	0.948	(0.889)

Discriminant validity is a critical component in measurement model evaluation that verifies the uniqueness of each construct and minimizes the possibility of conceptual overlap among latent variables (Rasoolimanesh, 2022). This test was conducted using the Fornell-Larcker criterion, which compares the square root of each construct's AVE with its correlations with the other constructs in the model (Fornell & Larcker, 1981). The square roots of AVE obtained for each construct were as follows: E-Commerce = 0.891; Marketing Performance = 0.882; SEO = 0.902; and Business Sustainability = 0.889, which together form the

diagonal values in the correlation matrix (Hair et al., 2019; Sarstedt et al., 2021). Discriminant validity is confirmed when these diagonal values consistently exceed all corresponding inter-construct correlations (Cheung et al., 2023; Becker et al., 2023).

The comparison results show a condition that needs to be examined carefully. The correlations among constructs in this model were at a substantial level: E-Commerce correlated 0.934 with Marketing Performance, 0.950 with SEO, and 0.952 with Business Sustainability (Hair et al., 2022). The correlations between Marketing Performance and SEO (0.919) and between Marketing Performance and Business Sustainability (0.932) also exceeded the diagonal values of the respective constructs (Sarstedt et al., 2022). The correlation between SEO and Business Sustainability, which reached 0.948, completes this pattern (Cheung et al., 2023). Overall, all inter-construct correlation values exceeded the corresponding square roots of AVE, indicating that the Fornell-Larcker criterion was not met in this research model (Rönkkö & Cho, 2022; Henseler et al., 2015). This condition reflects a very high level of intercorrelation among constructs, so the research conclusions need to be interpreted with adequate methodological care (Hair et al., 2019).

The high intercorrelation among constructs indicates potential conceptual overlap among latent variables that needs to be anticipated in interpreting the results (Rasoolimanesh, 2022; Cheung et al., 2023). As a methodological response to this condition, the Heterotrait-Monotrait Ratio (HTMT) approach is recommended as a complementary evaluation instrument, given its higher sensitivity in detecting discriminant validity problems compared with the Fornell-Larcker criterion (Henseler et al., 2015; Rönkkö & Cho, 2022). Although this limitation needs to be acknowledged transparently, the research model retains its empirical value as long as the interpretation is carried out within limits that take the existing level of intercorrelation into account (Hair et al., 2022; Becker et al., 2023).

Table 3 : Hypothesis Testing

Hypothesis	Result	Reject/ Accepted
H 1: E-commerce Adoption → Marketing Performance	$\beta = 0.626$; $\rho = 0.00$	H1 is Accepted
H 2: Search Engine Optimization (SEO) → Marketing Performance	$\beta = 0.932$; $\rho = 0.04$	H2 is Accepted
H 3: Marketing Performance → Business Sustainability	$\beta = 0.324$; $\rho = 0.00$	H3 is Accepted
H4 : E-commerce Adoption → Marketing Performance → Business Sustainability	$\beta = 0.584$; $\rho = 0.00$	H4 is Accepted
H5 : Search Engine Optimization (SEO) → Marketing Performance → Business Sustainability	$\beta = 0.302$; $\rho = 0.00$	H5 is Accepted

Hypothesis testing was carried out within the PLS-SEM structural model analysis framework to map and identify the relationships among the hypothesized variables (Hair & Alamer, 2022). Based on the evaluation of the path coefficients and significance values obtained, all five hypotheses formulated in this study were statistically confirmed, as summarized in Table 3 (Hair et al., 2019). Mediation effect testing produced findings that enrich the understanding of the indirect influence mechanisms in the model. Marketing performance was confirmed to significantly mediate the relationship between e-commerce adoption and business sustainability ($\beta = 0.584$; $\rho = 0.00$), and also to mediate the influence of SEO on business sustainability ($\beta = 0.302$; $\rho = 0.00$). This mediation pattern reveals that the impact of e-commerce adoption and SEO on business sustainability is not merely direct, but is largely transmitted through the strengthening of marketing performance as an intermediary variable that plays a crucial role in the causal chain of this structural model (Hair et al., 2019).

4. CONCLUSION

The transformation of the digital trading ecosystem has pushed global brands such as Zara to recalibrate their strategic approaches to maintaining relevance and business continuity amid intensifying online competition. The findings of this study confirm that e-commerce adoption contributes positively and significantly to marketing performance, revealing that the acceleration of consumers' acceptance and use

of digital platforms is directly correlated with measurable improvements in marketing effectiveness. In parallel, SEO implementation is confirmed as a strategic instrument that amplifies brand visibility in the digital search space, facilitating consumers' access to Zara products and, in turn, accelerating marketing performance organically. Consolidated marketing performance is then shown to be a positive determinant of business sustainability, affirming that the consistency and measurability of marketing achievements are a structural prerequisite for business resilience over the long term. Moreover, marketing performance is also confirmed to function as a mediator that transmits the influence of both e-commerce adoption and SEO on business sustainability, revealing that the impact of these two digital strategies is not direct but is substantively mediated by the solidity of marketing performance as an intermediary variable. Overall, these findings affirm that optimizing digital strategies, whether through e-commerce adoption or SEO implementation, will have significant implications for business sustainability when integrated with the strengthening of systematic and measurable marketing performance.

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Despite the empirical contributions produced, this study has several limitations that open room for exploration in future research agendas. Geographically, expanding the scope of the study to other economic centers in Indonesia such as Surabaya, Bandung, and Medan would allow cross-regional comparison that produces a more representative map of e-commerce consumer behavior at the national level. This expansion would also strengthen the generalizability of the findings, which is currently limited to the context of Makassar City. In terms of variables, integrating additional constructs such as customer experience, brand loyalty, digital content personalization, and after-sales service quality could enrich the understanding of more holistic determinants of business sustainability, considering that the resilience of digital businesses is determined not only by presence on e-commerce platforms or search engine visibility, but also by a company's capacity to build customer relationships of long-term value. From a methodological perspective, applying a qualitative approach such as in-depth interviews with loyal Zara consumers could be a significant complement for uncovering layers of meaning not captured by quantitative instruments, thereby producing a more contextual understanding of how digital strategy mechanisms sustain the sustainability of global brands in local markets.

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