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**Data-Driven Digital Marketing Strategies and Their Impact on Entrepreneurial
Performance**

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Abstract

Using data-driven marketing techniques effectively is becoming more important for entrepreneurial success in today's digital economy. This research delves into the relationship between DDMC and EP, focusing on how DMSE and CE mediate this relationship. The research used a quantitative methodology and surveyed 384 marketing professionals from SMEs to examine their experiences with data-driven digital marketing. The many correlations were investigated using SEM. Based on the results, it seems that DDMC and DMSE are positively related. The findings also show that DMSE and customer engagement are positively related, which has a good effect on entrepreneurial performance. Thru a positive indirect mechanism, the significance of data-driven marketing skills on performance is underscored. By clarifying data-driven digital marketing, the research provides useful insights with real-world implications.

Keywords:

Data-Driven Marketing Capability (DDMC), Entrepreneurial Performance (EP), Digital Marketing Strategy Effectiveness (DMSE), Customer Engagement (CE), and Digital Transformation.

1 Introduction

Today's consumers are more intelligent, powerful, and sophisticated due to the quick development of technology and easy access to information. They oppose uniformity in favor of individualization, in which businesses address each person's requirements independently (Patwa & Saleem, 2021). Consequently, customers are less receptive to marketing communications that fail to resonate with their personal requirements. Moreover, modern consumer displays continuously evolving purchasing behaviours, necessitating the accurate identification of the target customers, with a thorough understanding of their purchasing habits (Nadler & McGuigan, 2018). As a results, understanding the psychological and emotional factors that influence consumer decision-making in competitive marketplaces has become a crucial concern for organizations.

In response to these developments, marketing analytics and digitalization have become key aspects in modern marketing practices (Rosário & Dias, 2023). Marketing professionals and marketing agencies have come to see these practices as crucial ingredients in the marketing research mix and need these in the formulation of marketing strategies. They use the practices to develop marketing models which assist them in learning and understanding the responses from customers as well as other marketing strategies. Because businesses understand the value of using data to assist well-informed decision-making and product development, as digitalization and marketing analytics have been incorporated into marketing procedures, the use of Data-driven advertising has increased.

The rapid development of information technology in the quickly evolving digital age has significantly changed everyone's way of life and business strategies (Hong, 2024) (Zhong et al., 2024). Furthermore, the enormous influence of the Internet's widespread usage has made it possible for information to be shared and exchanged on a scale that is both unprecedented in history and happening very quickly, allowing us immediate access to a great deal of information worldwide. In this case, for businesses, it is both a challenge and a great opportunity. (jun Gu et al., 2024) In the current cutthroat corporate climate, it is a constant task for businesses to innovate and upgrade marketing models for success (Liu et al., 2024). However, the development of increasingly more sophisticated information technology, such as artificial intelligence, big data technology, etc., makes it possible for accurate data-driven marketing models to become a critical element in every commercial rivalry for a competitive edge (Xu et al., 2024) (Li et al., 2018).

The systematic use of customer data to assist in the creation and execution of marketing plans is known as "data-driven marketing." This necessitates the collection of complex data using both online and offline platforms, which is then analyzed to get a deeper understanding of the clients. The data collected from the process of analysis of the intricate details is what assists the marketers in knowing the psyche and buying behaviors of the customers, which in turn allows the marketing department to create highly personalised strategies. This process, therefore, leads businesses to reach out to their targeted audiences, thereby leaving them in a state of loyalty and trust, which in turn leads to a higher number of sales and a consistent flow of revenues.

Supporting this perspective, (Braverman, 2015), reveals that 80% of international marketing experts agree that data is essential to the execution of their own marketing and advertising plans. Furthermore, 77.4% of respondents said they were confident in data-driven marketing's ability to work.

In this atmosphere of abundant data, organizational data resources have emerged as strategic assets that underpin effective decision- making and value creation (Wang et al., 2024). Thru efficient data collection, analysis, and extraction, businesses may get a deeper understanding of their customers' inner lives, requirements, habits, and preferences (Bo et al., 2024). These insights provide businesses a strong basis for creating more precise and successful marketing strategies, as well as for building deeper and more meaningful connections with their customers. Therefore, conducting in-depth research on data-driven marketing strategies is essential to advancing both theoretical understanding and practical application in contemporary business environments (Zhou, 2024b) (Zhou, 2024a).

Despite the substantial benefits associated with data-driven marketing, scholars have raised concerns regarding the potential risks related to data-driven marketing practices (Bleier et al., 2020). Some of the mentioned risks and dangers related to data-driven marketing practices are related to consumer privacy issues, data breaches, issues based on algorithmic bias, access to data by third-party marketers, and data usage. Although, the importance of data-driven marketing continues to grow, existing academic research in this domain remains fragmented. This emphasizes the need of doing a more thorough analysis of how data-driven internet marketing techniques affect entrepreneurial outcomes.

2 Literature Review

Data-driven optimization of marketing strategies has become an essential method in the big data era to improve the competitiveness of the enterprises. (Jihua & Lin, 2024) reviewed the theory and other past studies are introduced. The importance of data

gathering and analysis in machine learning and data mining for determining market segmentation and customer preferences has received particular attention. It argues that there is a need to design tailored marketing strategies.

Technological advancements, specifically in digital marketing have also been shown to significantly improve the efficiency of SMEs. A study by (Sharabati et al., 2024) evaluated the effects of digital marketing on SMEs and found that, since it enhances their economic performance and market visibility, digital marketing is critical to their success and digital transformation. Interaction between the customers and the organization through digital marketing allows the organization to customize the experience and products in order to improve the sales approach. Similarly, (Ali, 2023) Provided key findings in digital marketing practices for the success of SMEs. The function of IT infrastructure as a mediator between organizational marketing performance and data-driven digital marketing strategies. A quantitative approach was used, with a questionnaire distributed to 84 marketing managers in Jordan-based delivery services companies. The results verify that the link between data-driven strategies and marketing success is mediated by IT infrastructure.

More research has been done on integrating data science into SMEs' digital marketing strategies, (Saura et al., 2023) investigated how leveraging traditional marketing principles in the Internet age. The findings discussed both theoretical and practical implications for SMEs' online marketing performance and the evolving role of data sciences.

Understanding consumer behaviour remains fundamental prerequisite for effective marketing planning in dynamic business environment. (Patwa & Saleem, 2021) Emphasized the importance of DDM for businesses identity, retention, as well as attracting the ideal clients, which eventually results in increasing corporate value via customer-centricity. In a similar empirical study, (Aljumah et al., 2024) investigated how SMEs in the United Arab Emirates performed in relation to data-driven digital marketing. Using SEM, the research focused on the mediating functions of CRM and BDAC. The results showed that data-driven digital marketing is strongly associated with BDAC and CRM and has a positive effect on SME success.

2.1 Data-Driven Marketing Capability and Digital Marketing Strategy Effectiveness

an organization's capacity to gather, integrate, analyze, and use data to support marketing strategy execution and decision-making is known as data-driven marketing capability, or DMC. Strong data-driven skills are crucial for increasing the efficacy of marketing strategies by using

data to meet consumer demands, as many studies have shown. In study (Hossain et al., 2023), customer analytics capability was identified as a means to accomplish h data-driven market effectiveness because of a lack of empirical evidence concerning retail management technology. The outcome of this study found customer analytics to play a major role in promoting market effectiveness.

Building on dynamic capabilities theory, (Brewis et al., 2023) explained big data capability is configured for strategic marketing. To assist enterprises in realizing the potential of big data, a new Big Data Capabilities Model is presented. Similarly, (Gilang Pratama, Endang Ruswanti, 2025) explored how DMC influences firm performance in the face of an ever-changing technological environment and changing consumer behavior. The findings demonstrated a robust positive correlation between DMC and business success, with major drivers including customer interaction, Cross-channel integration, creativity, and data-driven decision-making. Businesses using DMC shown improved marketing results, including increased revenue and client loyalty.

Furthermore, (Solfa, 2023) examined, with an emphasis on the UAE, the effects of digital marketing tactics and e-business skills on company performance throughout the growth of the e-commerce sector. In order to adequately support their digital marketing activities, e-commerce enterprises should invest in establishing e-business skills, since the results indicated that the factors are significantly connected to one another. The following hypothesis is put out in light of the evaluated literature:

H1: Data-Driven Marketing Capability has an effect on Digital Marketing Strategy Effectiveness.

2.2 Digital Marketing Strategy Effectiveness (DMSE) and Customer Engagement

Customer engagement is essential for successful establishment of digital business; however, the impacts of customer engagement on start-ups remains underexplored (Zacharias et al., 2025). Customer engagement is studied in the context of the impacts of factors related to digitalization, including Data Security, Transparency, Consumer Reviews, and Effective Communication. Through the use of the PLS-SEM model on the findings from the 125 start-ups that participated in the study through the use of the survey method, the paper established that the factors increase customer engagement, which is the mediator between the factors and business performance.

Additionally, current research demonstrates that successful digital marketing tactics greatly improve consumer interaction and brand promotion. Study (Kamyabi, M., Özgüt, H., & Ahmed, 2025) applied PLS-SEM, and found that the employee position serves as a

moderating variable affecting service expectations and perceptions. Similarly, (Safitri & Komaryatin, 2025) investigated how digital marketing has affected the marketing performance of SMEs within Jepara Regency. The study revealed while digital marketing alone directly does not directly enhance performance but in a case where there is high customer engagement, the performance increases. Additionally, (Walker, 2021) spoke about the shift from traditional marketing to internet marketing and the importance of online marketing in modern company. The research highlighted the critical role that analytics and big data play in analyzing customer behavior and improving marketing effectiveness. The combined instance of these research shows that consumer engagement is significantly impacted by the efficacy of a digital marketing approach, leading to the development of the following hypothesis:

H2: Digital Marketing Strategy Effectiveness has effect on Customer Engagement.

2.3 Customer Engagement and Entrepreneurial Performance

Customer engagement is very important in boosting the performance of entrepreneurs and SMEs by cultivating loyalty and support. The study (Mamun et al., 2018) discussed how customer involvement and the success of Malaysian manufacturing SMEs are impacted by entrepreneurial and market orientation. Results showed that both orientations have strong positive effects on consumer engagement, which influence SME performance.

Further evidence, is provided by (Chandler et al., 2024), examined the effects of diverse customer engagement patterns in new ventures' including ECA, PSI, CFI, and technology-based innovation (TDI). The results demonstrated that each engagement pattern provides distinct financial results, underscoring new ventures' strategy selection needs during start-up.

Similarly, (Dan Duku Dankwa, 2025) examined how consumer interaction and digitization affected SMEs' performance. The results revealed significant positive effects of various digitalization types communication- integrating, general-use, and market-oriented on SME performance, with customer engagement enhancing these effects through interactive digital tools. In addition, (Gao, 2025) investigated the relationship between the adoption of digital marketing, consumer engagement, digital transformation ability, and business performance during a period of unpredictable economic changes. The result showed that consumer engagement has a strong effect on businesses' ability to undergo digital transformations, thereby mediating businesses' enhanced performance. The following theory is put out in light of the studied literature:

H3: Customer Engagement has a effect on Entrepreneurial Performance.

2.4 Research Gap

Although prior studies have extensively examined data-driven marketing, digital marketing approaches, customer engagement activities, and their impacts on firm performance has been studied in prior research. Most studies focus on isolated relationships, such as internet marketing strategies, consumer engagement initiatives, and data-driven marketing and performance. Furthermore, the efficiency of the sequential mediating factors of online marketing tactics and consumer involvement in transforming the potential of data-driven marketing techniques into the performance of entrepreneurship has not received much attention. Moreover, empirical evidence from emerging economies remains scarce, despite their unique digital maturity constraints and market dynamics. This study addresses these gaps by proposing and empirically validating an integrated model that explains how data-driven capabilities enhance entrepreneurial performance via effective digital marketing strategies and strengthened customer engagement.

The ensuing distinct aims have been acknowledged to conclude the investigation and bridge this research void. The explicit aims are detailed as follows:

2.5 Objectives of the Study

1. To analyze the effect of Data-Driven Marketing Capability on Digital Marketing Strategy Effectiveness.
2. To assess the influence of Digital Marketing Strategy Effectiveness on Customer Engagement.
3. To examine the influence of Customer Engagement on Entrepreneurial Execution.

3 Material and method

3.1 Research Design

The study techniques used in this study to determine the. Data-driven digital marketing tactics' effects on business performance. To guaranty statistical correctness and reliability, an organized strategy is used to collect and evaluate information derived from a representative cohort of 384 participants. Key variables were assessed using primary data obtained via a standardized questionnaire with five-point Likert scales, DDMC, Digital Marketing Strategy (DMSE), Customer Engagement (CE), and Entrepreneurial Performance (EP). The respondents included entrepreneurs, marketing managers, and

digital marketing specialists who were actively engaged in the decision-making processes of SMEs. Data analysis was performed using the SPSS. Regression analysis, CR, AVE, reliability analysis, the presented hypotheses were evaluated using descriptive statistics to analyze the interconnections between the important variables.

3.2 Conceptual Model

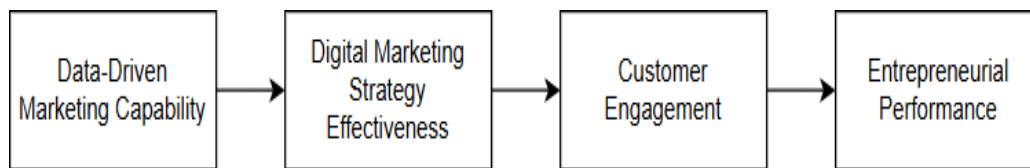


Figure 1 Theoretical Diagram

3.3 Sample Selection

To produce a representative sample for significant statistical The research used a sample of 384 participants for analysis. A random stratified selection method was used to choose research participants from SMES that operate in digitally intensive business environments. In stratified random sampling, stratification was done based on organization size, level of digital marketing adoption, and geographical locations.

3.4 Data Collection

A quantitative approach was adopted for this study, where systematic data collection procedures have been performed to ensure accuracy and reliability. In this regard, primary data was obtained using a structured questionnaire that included statements with five-point Likert-scale questions spanning from strongly disagree to strongly agree, in order to measure perceptions of Data driven Marketing Capability (DDMC), Digital Marketing Strategy (DMSE), Customer Engagement (CE), and Entrepreneurial Performance (EP). The online questionnaires were sent via email and Google Forms. To support and validate the primary findings, Secondary data derived from published research, government documents, and institutional archives were further examined.

3.5 Measures

To gather the information, a methodical questionnaire was used. A five-point Likert scale ranging from strongly disagree to strongly agree was used to construct the questionnaire, asking respondents to share their opinions on a variety of study topics. All of the items on

the questionnaire were closed-ended. The inquiries have been meticulously crafted to gather pertinent information on the selected research variables. The variables utilized in the study are described in full below.

Variables

- **Data Driven Marketing Capability**

The phrase "capabilities for data-driven marketing" describes a company's capacity to effectively produce, compile, and evaluate a sizable volume of data in order to make well-informed marketing decisions. Organizations may better understand client demands thanks to a company's data-driven marketing capabilities, personalize the execution of marketing activities, and make effective responses to the marketplace, resulting in an improvement in competitive advantage for organizations operating in a dynamic setting. Various studies have verified that big data analysis capabilities have positively influenced marketing performance and reactivity (Rosário & Dias, 2023) (Mikalef et al., 2020).

- **Digital Marketing Strategy Effectiveness**

Digital Marketing Strategy Effectiveness is the degree to which the digital marketing efforts, include internet advertising, social media, search marketing, and content customization, are able to produce the desired results, which may include but are not limited to expanded reach, engagement, conversion rates, and responsiveness. Research indicates that firms with data-informed digital marketing strategies exhibit higher levels of customer interaction and market performance compared to firms without such strategies (Tarazona-Montoya et al., 2024).

- **Customer Engagement**

Customer Engagement represents the level of emotional, cognitive, and behavioral involvement that customers exhibit with a brand's digital platforms, content, and interactive touchpoints. Highly engaged customers are more likely to participate in repeat interactions, provide feedback, co-create content, and demonstrate loyalty, all of which contribute to better marketing outcomes. Literature highlights that strategic digital initiatives especially those informed by customer data significantly enhance customer engagement, driving stronger relational bonds and long-term value creation (Brodie et al., 2011).

- **Entrepreneurial Performance**

Entrepreneurial performance is defined as the degree to which entrepreneurial ventures realize intended outputs or outcomes across various financial and nonfinancial dimensions, including but not limited to revenue growth, profitability, market share, innovation outcomes, and sustainability of the business. In essence, this shows how well the strategic investments, operational execution, and customer relationships of the firm have combined to create value in a sustainable manner. Research suggests that performance outcomes in entrepreneurial settings are strongly influenced by digital and data-driven strategic practices, particularly when these strategies improve customer engagement and market responsiveness (Mayer-Haug et al., 2013).

4 Results

The empirical results of the research are presented in this part, with an emphasis on how data-driven digital marketing tactics affect entrepreneurs' success. The analysis employs a descriptive statistics, testing for reliability and validity, and SEM. The results enable an examination of the relationships among the important key constructs. A total of 384 participants were sought from small and medium enterprises, including, entrepreneurs, marketing managers, and digital marketing specialists who play important roles in decision-making.

Table 1 Descriptive Analysis

Variable	N	M	Std. Deviation	Skewness	SE. of Skewness	Kurtosis	SE. of Kurtosis
Data Driven Marketing Capability	384	3.7014	0.78208	-0.898	0.125	1.191	0.248
Digital Marketing Strategy Effectiveness	384	3.671	0.75875	-0.926	0.125	0.93	0.248
Customer Engagement	384	3.6424	0.81293	-0.827	0.125	0.764	0.248
Entrepreneurial Performance	384	3.4573	0.71511	-0.425	0.125	0.389	0.248

From descriptive statistics, it has been found out that the level of perception of respondents about all constructs is higher than average with means ranging from 3.4573 to

3.7014.

Among them, the most important variable having mean value 3.7014 (SD = 0.7821) is Data-Driven Marketing Capability while other two variables Digital Marketing Strategy Effectiveness and Customer Engagement have mean values of 3.6710 (SD = 0.7588) and 3.6424 (SD = 0.8129), correspondingly. Therefore, there is very high level of agreement between the respondents in respect to the use of data for digital marketing strategy and customer engagement. However, when it comes to Entrepreneurial Performance, there is low level of agreement but positive (M = 3.4573, SD = 0.7151). All variables are negatively skewed (−0.425 to −0.926), meaning that there is concentration of data on the higher side of the distribution (high level of agreement). All variables are positively skewed (0.389 to 1.191) indicating that the distribution is slightly peaked than the normal distribution.

Table 2 Assessment of Validity and Reliability

Variables	Cronbach's Alpha	AVE	Composite Reliability
Data Driven Marketing Capability	0.894	0.667	0.852
Digital Marketing Strategy Effectiveness	0.885	0.664	0.851
Customer Engagement	0.895	0.663	0.850
Entrepreneurial Performance	0.86	0.646	0.814

It is evident that all four concepts have very good internal consistency and convergent validity based on the output data pertaining to validity and reliability. All four constructions have Cronbach's Alpha coefficient values that range from 0.860 to 0.895, which means that it is extremely high compared to the minimum required benchmark of 0.70. It is undoubtedly a clear proof that the variables used in order to measure the following constructs have accomplished this task consistently: Data Driven Marketing Capability ($\alpha=0.894$); Digital Marketing Strategy Effectiveness ($\alpha=0.885$); Customer Engagement ($\alpha=0.895$) and Entrepreneurial Performance ($\alpha=0.860$). AVE value, which ranges among 0.646 and 0.667, demonstrates that convergent validity was attained since it exceeds the 0.50 threshold. All things considered, the measurement model meets the essential criteria for convergent validity and reliability, supporting its suitability for subsequent SEM analysis.

Hypothesis Development

H1: Data-Driven Marketing Capability has an effect on Digital Marketing Strategy Potency.

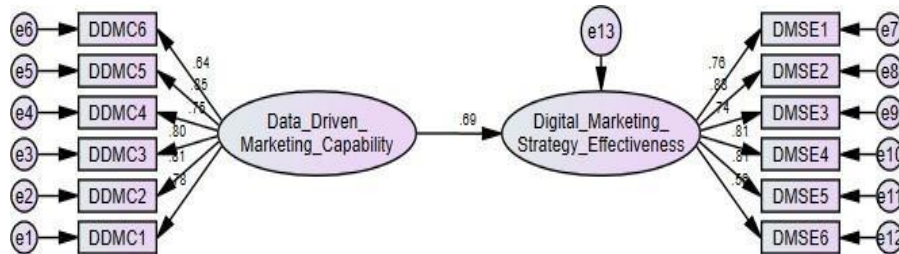


Table 3 Regression Weights: (Group number 1 - Default model)

Path		Estimate	S.E.	C.R.	P
Digital Marketing Strategy Effectiveness	<--- Data Driven Marketing Capability	.692	.059	11.496	***

With a normalized value of 0.692, The path that links these two variables shows that Data Driven Marketing Capability and Digital Marketing Strategy Effectiveness are positively correlated. The huge degrees of the connection of C.R. values indicate the quantitative relevance of the observed associations. Because the factors exhibit statistical significance with p-values > 0.05 (as shown in the Table), the fitness metrics suggest that the model has a good fit. As a consequence, seven distinct fit indices were used to evaluate the comprehensive model fit. The amalgamation of these indices revealed a statistically significant positive link between data-driven marketing competencies and the effectiveness of digital marketing strategies.

Table 4 Model fit summary

Variable	Chi-square value(χ^2)	Degree of freedom (df)	CMIN/DF	P value	GFI	RFI	NFI	IFI	CFI	RM R	RMSE A
Value	73.795	53	1.392	.031	.968	.966	.972	.992	.992	.023	.032

The results indicate a satisfactory model fit based on main fit indices: $\chi^2 = 73.795$, GFI = 0.968, RFI = 0.966, NFI = 0.972, IFI = 0.992, and CFI = 0.992, all of which are more than the recommended threshold of 0.90. The RMR = 0.023 and the RMSEA = 0.032 are both within permitted boundaries. The CMIN/DF ratio of 1.392 suggests a solid model fit. The framework does not meet the conventional 0.05 threshold of statistical significance, but it is still within an acceptable range, according to the p-value (0.000). All things considered, the aforementioned results verify that the model is suitable for representing the sample data.

H2: Digital Marketing Strategy Effectiveness (DMSE) has an effect on Customer Involvement.

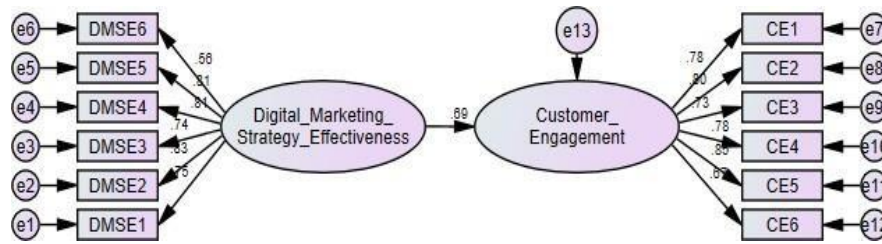


Table 5 Regression Weights: (Group number 1 - Default model)

Path	Estimate	S.E.	C.R.	P
Customer Involvement <--- Digital Marketing Strategy Effectiveness	.690	.064	11.323	***

Exhibiting a normalized value of 0.690, the connection between these two variables reveals a favorable connection with clientele participation and the success of digital marketing methods. The observed connections are statistically relevant when the correlation C.R. values possess considerable magnitudes. The fit indices imply that the model is suitably fitted, considering that the factors exhibit statistical significance with p-values above 0.05 (as shown in the Table). Therefore, the whole model fit was assessed by seven individual fit indices. The integration of these indicators indicated a statistically significant positive relationship between customer participation and the success of digital marketing techniques.

Table 6 Model fit summary

Variable	Chi-square value(χ^2)	Degrees of freedom (df)	CMIN/DF	P value	GFI	RFI	NFI	IFI	CFI	RM R	RMSEA
Value	114.087	53	2.153	0	0.953	0.947	0.957	0.977	0.977	0.029	0.055

The results reveal an acceptable model fit as per key fit indices: $\chi^2 = 114.087$, GFI = 0.953, RFI = 0.947, NFI = 0.957, IFI = 0.977, and CFI = 0.977, all surpassing the required limit of 0.90. The root RMR is 0.029, and the RMSEA is 0.055, both falling within allowable thresholds. The CMIN/DF ratio of 2.153 demonstrates a satisfactory model fit. The conventional 0.05 threshold of statistical significance is not met by the representation, but it is still within an acceptable range, according to the p-value (0.000). Overall, these results validate the model's authenticity and its ability to effectively depict the sample data.

H3: Customer Engagement has an effect on Entrepreneurial Performance.

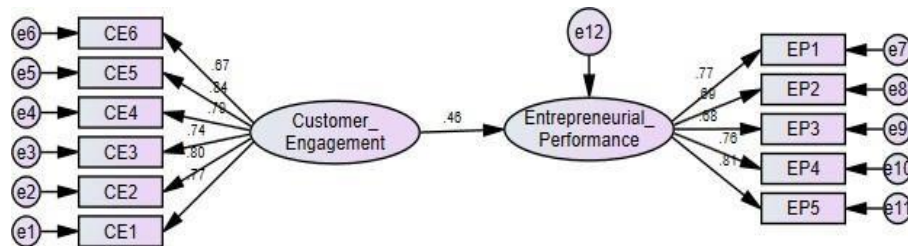


Table 7 Regression Weights: (Group number 1 - Default model)

Path	Estimate	S.E.	C.R.	P
Entrepreneurial Performance <--- Customer Engagement	.455	.057	7.680	***

The route linking these two variables, with a standardized value of 0.455, indicates a favorable correlation between Entrepreneurial Performance and Customer Engagement. The identified associations are statistically meaningful when the correlation C.R. values exhibit substantial magnitudes. The fit indices suggest that the model is well-fitted, since the factors exhibit statistical significance with p-values over 0.05 (as shown in the Table). Thus, the whole model fit was analyzed using seven individual fit indices, which, when combined, revealed a statistically significant positive association between consumer participation and entrepreneurial success.

Table 8 Model performance overview

Variab le	Chi- square	Degre es of	CMIN/ DF	P valu e	GF I	RF I	NF I	IFI	CF I	RM R	RMSE A
	value(χ^2)	freedom (df)									
Value	84.002	43	1.95 4	.000	.96 3	.95 0	.96 1	.98 1	.98 1	.037	.050

Based on major fit indices, the findings show an acceptable model fit: $\chi^2 = 84.002$, GFI = 0.963, RFI = 0.950, NFI = 0.961, IFI = 0.981, and CFI = 0.981, all of which are superior to the suggested threshold of 0.90. First, the values for RMSEA and RMR are 0.055 and 0.037, respectively. Both numbers can be deemed appropriate. The CMIN/DF ratio is 1.954, indicating an excellent model fit. The model is not statistically significant at the recognized level of significance of 0.05 since p is equal to 0.000.

4.1 Discussion

The findings prove the hypothesis of the research "Data-Driven Digital Marketing Strategies and their Influence on Entrepreneurial Performance", as there is a logic connection between capability and performance. Firstly, the hypothesis H1 proves that the presence of strong Data-Driven Marketing Capability will have a positive impact on Digital Marketing Strategy Effectiveness; in other words, the greater amount of data on customers and market entrepreneurs collect and analyze, the more effective their marketing strategies become. Secondly, H2 proves that the greater is Digital Strategy Effectiveness, the greater Customer Engagement becomes; thus, the more efficient marketing campaign the entrepreneur develops, the better customer engagement can be expected. Thirdly, H3 states that Customer Engagement positively affects Entrepreneurial Performance. These findings prove that entrepreneurs are successful in digital market, as they not only apply technologies but also collect the data and develop a good strategy.

5 Conclusion

In conclusion, it should be noted that the strategic efficacy and consumer engagement of data-driven digital Marketing tactics are essential for improving the efficacy of entrepreneurs. As a result of the SEM analysis, it has been established that the Data Driven Marketing Capability has a very high and

substantial impact on the efficacy of digital marketing strategies ($\beta = 0.692$). It means that companies with higher capabilities in collecting and analyzing data will have a higher ability to design and implement their digital marketing strategies. Furthermore, the Digital Marketing Strategy Effectiveness has a very high and significant effect on the Customer Engagement ($\beta = 0.690$), which means that data driven digital marketing campaigns will be able to achieve customers' engagement. Finally, it was discovered that customer engagement significantly and favorably affects entrepreneurial performance ($\beta = 0.455$).

6 References

- Ali, N. (2023). Influence of Data-Driven Digital Marketing Strategies on Organizational Marketing Performance: Mediating Role of IT Infrastructure. *Studies in Big Data*, 135, 337–347. https://doi.org/10.1007/978-3-031-42463-2_31
- Aljumah, A. I., Nuseir, M. T., Refae, G. El, Al-Hiyari, A., & Mahho, M. I. (2024). Enhancing Business Performance Through Data-Driven Digital Marketing and Big Data Capabilities. *Global Congress on Emerging Technologies (GCET-2024)*, 79–88. <https://doi.org/10.1109/GCET64327.2024.10934166>
- Bleier, A., Goldfarb, A., & Tucker, C. (2020). Consumer privacy and the future of data-based innovation and marketing. *International Journal of Research in Marketing*, 37(3), 466–480.
- Bo, S., Zhang, Y., Huang, J., Liu, S., Chen, Z., & Li, Z. (2024). Attention mechanism and context modeling system for text mining machine translation. *2024 6th International Conference on Data-Driven Optimization of Complex Systems (DOCS)*, 857–863.
- Braverman, S. (2015). Global review of data-driven marketing and advertising. *Journal of Direct, Data and Digital Marketing Practice*, 16(3), 181–183.
- Brewis, C., Dibb, S., & Meadows, M. (2023). Leveraging big data for strategic marketing: A dynamic capabilities model for incumbent firms. *Technological Forecasting and Social Change*, 190, 122402. <https://doi.org/10.1016/j.techfore.2023.122402>
- Brodie, R., Hollebeek, L., Juric, B., & Ilic, A. (2011). Customer Engagement. *Journal of Service Research*, 14. <https://doi.org/10.1177/1094670511411703>

- Chandler, G. N., McLeod, M. S., Broberg, J. C., McKelvie, A., & DeTienne, D. R. (2024). Customer engagement patterns and new venture outcomes. *Small Business Economics*, 63(3), 1117–1138. <https://doi.org/10.1007/s11187-023-00843-6>
- Dan Duku Dankwa, J. Y. (2025). *Digitalization, Customer Engagement, and Performance of Small and Medium Enterprises: Emerging Market Context*. <https://www.taylorfrancis.com/chapters/edit/10.1201/9781003560449-2/digitalization-customer-engagement-performance-small-medium-enterprises-emerging-market-context-dan-duku-dankwa-joseph-yeboah>
- Gao, S. (2025). Digital marketing tools and digital transformation capability as a factor in enhancing business performance in China and Kazakhstan. *Scientific Reports*, 15(1), 1–13. <https://doi.org/10.1038/s41598-025-20967-x>
- Gilang Pratama, Endang Ruswanti, A. A. (2025). *NAVIGATING THE DIGITAL LANDSCAPE: A SYSTEMATIC REVIEW OF DIGITAL MARKETING CAPABILITIES INTERRELATIONSHIPS*. <https://doi.org/https://doi.org/10.33474/jimmu.v10i2.24157>
- Hong, S. (2024). Data-driven precision marketing strategy and its effect measurement. In *Transactions on Economics, Business and Management Research* (Vol. 12, pp. 59–64). <https://doi.org/10.62051/d63mm017>
- Hossain, M. A., Akter, S., Yanamandram, V., & Wamba, S. F. (2023). Data-driven market effectiveness: The role of a sustained customer analytics capability in business operations. *Technological Forecasting and Social Change*, 194, 122745. <https://doi.org/https://doi.org/10.1016/j.techfore.2023.122745>
- Jihua, S., & Lin, S. (2024). Research on Data-driven Marketing Strategy Optimization. *Journal of Business and Marketing*, 1(2), 157–161. <https://doi.org/10.62517/jbm.202409224>
- jun Gu, W., hao Zhong, Y., zun Li, S., song Wei, C., ting Dong, L., yue Wang, Z., & Yan, C. (2024). Predicting stock prices with finbert- lstm: Integrating news sentiment analysis. *Proceedings of the*

Kamyabi, M., Özgüt, H., & Ahmed, J. N. (2025). *Sustaining Digital Marketing Strategies to Enhance Customer Engagement and Brand Promotion*.

<https://doi.org/https://doi.org/10.3390/su17073270>

Li, W., Li, H., Gong, A., Ou, Y., & Li, M. (2018). An intelligent electronic lock for remote - control system based on the internet of things. *Journal of Physics: Conference Series*, 1069(1), 12134.

Liu, J., Li, K., Zhu, A., Hong, B., Zhao, P., Dai, S., Wei, C., Huang, W., & Su, H. (2024). Application of deep learning-based natural language processing in multilingual sentiment analysis. *Mediterranean Journal of Basic and Applied Sciences (MJBAS)*, 8(2), 243–260.

Mamun, A. Al, Mohiuddin, M., Fazal, S. A., & Ahmad, G. Bin. (2018). Effect of entrepreneurial and market orientation on consumer engagement and performance of manufacturing SMEs. *Management Research Review*, 41(1), 133–147. <https://doi.org/10.1108/MRR-04-2017-0102>

Mayer-Haug, K., Read, S., Brinckmann, J., Dew, N., & Grichnik, D. (2013). Entrepreneurial talent and venture performance: A meta-analytic investigation of SMEs. *Research Policy*, 42(6), 1251–1273. <https://doi.org/https://doi.org/10.1016/j.respol.2013.03.001>

Mikalef, P., Pappas, I. O., Krogstie, J., & Pavlou, P. A. (2020). Big data and business analytic s : A research agenda for realizing business value. *Information & Management*, 57(1), 103237. <https://doi.org/https://doi.org/10.1016/j.im.2019.103237>

Nadler, A., & McGuigan, L. (2018). An impulse to exploit: the behavioral turn in data-driven marketing. *Critical Studies in Media Communication*, 35(2), 151–165.

Patwa, N., & Saleem, K. (2021). Data-driven marketing for growth and profitability. *EuroMed Journal of Business*, 16(4), 381–398. <https://doi.org/10.1108/EMJB-09-2018-0054>

Rosário, A. T., & Dias, J. C. (2023). How has data-driven marketing evolved: Challenges and opportunities with emerging technologies. *International Journal of Information Management Data Insights*, 3(2), 100203.

<https://doi.org/https://doi.org/10.1016/j.jjime.2023.100203>

- Safitri, D., & Komaryatin, N. (2025). Digital Marketing Influence on Marketing Performance : The Role of Customer Engagement and Relationship Marketing. *Golden Ratio of Marketing and Applied Psychology of Business*, 5(2), 316–331. <https://doi.org/10.52970/grmapb.v5i2.960>
- Saura, J. R., Palacios-Marqués, D., & Ribeiro-Soriano, D. (2023). Digital marketing in SMEs via data-driven strategies: Reviewing the current state of research. *Journal of Small Business Management*, 61(3), 1278–1313.
- Sharabati, A. A. A., Ali, A. A. A., Allahham, M. I., Hussein, A. A., Alheet, A. F., & Mohammad, A. S. (2024). The Impact of Digital Marketing on the Performance of SMEs: An Analytical Study in Light of Modern Digital Transformations. *Sustainability (Switzerland)*, 16(19), 1–25. <https://doi.org/10.3390/su16198667>
- Solfa, F. D. G. (2023). *Stimulating E-Business Capabilities and Digital Marketing Strategies on Business Performance in E-Commerce Industry*. <https://doi.org/https://doi.org/10.54489/ijcim.v3i2.298>
- Tarazona-Montoya, R., Devece, C., Llopis-Albert, C., & García-Agreda, S. (2024). Effectiveness of digital marketing and its value in new ventures. *International Entrepreneurship and Management Journal*, 20(4), 2839–2862. <https://doi.org/10.1007/s11365-024-00959-5>
- Walker, T. (2021). *Digital Marketing Strategies for Modern Businesses: Harnessing Data Analytics, Personalization, and Customer Engagement*.
- Wang, Z., Yan, H., Wei, C., Wang, J., Bo, S., & Xiao, M. (2024). Research on autonomous driving decision-making strategies based deep reinforcement learning. *Proceedings of the 2024 4th International Conference on Internet of Things and Machine Learning*, 211–215.
- Xu, Q., Feng, Z., Gong, C., Wu, X., Zhao, H., Ye, Z., Li, Z., & Wei, C. (2024). Applications of explainable AI in natural language processing. *Global Academic Frontiers*, 2(3), 51–64.
- Zacharias, I. S., De Sousa Mendes, G. H., Da Costa Fernandes, S., Seles, B. M. R. P., Lizarelli, F. L., Carvalho, M. M., & Mascarenhas, J. (2025). Customer engagement, digitalization, and business performance: A model for digital startups. *Proceedings of the Design Society*, 5, 1071–1080. <https://doi.org/10.1017/pds.2025.10121>

Zhong, Y., Liu, Y., Gao, E., Wei, C., Wang, Z., & Yan, C. (2024). Deep learning solutions for pneumonia detection: Performance comparison of custom and transfer learning models. *International Conference on Automation and Intelligent Technology (ICAIT 2024)*, 13401, 95–100.

Zhou, R. (2024a). Advanced embedding techniques in multimodal retrieval augmented generation a comprehensive study on cross modal ai applications. *Journal of Computing and Electronic Information Management*, 13(3), 16–22.

Zhou, R. (2024b). Understanding the impact of TikTok's recommendation algorithm on user engagement. *International Journal of Computer Science and Information Technology*, 3(2), 201–208.