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The impact of digital marketing strategies on innovation: The mediating role of AI: A critical study of SMEs in the KSA market

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A B S T R A C T

The purpose of this study is to investigate the moderating role of digital marketing strategies on innovation through Artificial Intelligence (AI) mediating impact in Small and Medium Enterprises within Saudi Arabia. Advanced analytics tools analyzed data from KSA SMEs to establish the role of AI, customer behavior, and experiences in product and process innovation. Artificial intelligence boosts product and process innovation with unconventional customer knowledge. Integrating AI combined with digital marketing to improve decisions and efficiency, to increase understanding of customer dynamics for sustaining growth and promoting collaborations. Using AI-empowered digital marketing strengthens Saudi SMEs advancement by promptly reacting to market motions. Sustainability practices attract the environmentally conscious consumer. This research provides actionable insights for SMEs who want to employ digital marketing and AI strategies and contribute to building an economic environment in Saudi Arabia.

1. Introduction

Saudi Arabia has seen tremendous growth, especially in small and medium-sized businesses (SMEs) over the years. Given that around 99% of firms in many countries are small or medium-sized (SMEs) and account for about 90% of business activity, there is a disproportionate economic impact on SMEs when they produce 60% of job opportunities (Syed et al., 2018). Marketing stands as a critical pillar for any SME in Saudi, yet many get stuck on this point which affects their overall business performance. The purpose of this research is to investigate Artificial Intelligence (AI)-enabled digital marketing strategies that can increase innovation and overall business performance in small businesses. Digital Marketing strategies are classified into social media, SEO, and Data Analytics to improve the way firms engage with consumers while co-creating value. Whether in-house or outsourced, we suggest that using more of the practices and techniques described above is very important for innovation to be realized well where they help organizations much better understand market trends, consumer behavior, and competitive dynamics (Han & Balabanis, 2024). But it is pure magic when connected to AI that can analyze huge data sets in milliseconds, predict consumer behavior, and customize strategies, therefore innovating continuously. In Saudi Arabia, this is relevant as the country tries to diversify its economy through Vision 2030 and breaking free from an oil-economy-dependent town. The program is designed for businesses to develop new technologies to boost their competitiveness and innovation strengths. AI mediates by processing and interpreting vast amounts of data to optimize digital marketing strategies toward innovation (Sugahara et al., 2024). This is particularly relevant in the fast-growing digital economy of Saudi Arabia where the consumer base, largely young & tech-savvy, and expanding technological infrastructure have driven growth. This essential

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research aimed to determine the mediating role of AI between digital marketing strategies and innovation in the Saudi market. More specifically, research examines the impact of digital marketing on customer behavior and experience, and these, in so doing, drive innovation. It explores how AI becomes a critical accelerator of progress in digital marketing for customer behavior intelligence, and shaping better user experiences. Some studies link these gains with innovation performance, specifically product development and process improvement. This research serves as a case sample by displaying the relationships empirically, providing insights of high value to Saudi companies (Kutbi et al., 2024). Such insights allow them to take advantage of digital marketing and AI to foster creativity, aligning with the broader vision 2030 economic development agenda. The exploration inquiries driving this examination are as per the following:

RO1: How do digital marketing strategies impact the innovation capabilities of SMEs in the Saudi market?

RO2: What is the role of AI in mediating the relationship between digital marketing strategies and innovation outcomes in Saudi market SMEs?

The research focuses on how digital marketing strategies spark innovation within SMEs by mediating the process through AI. We analyze empirical data to provide a pragmatic option for SMEs in utilizing AI to improve the innovation of products and processes (Aranyossy, 2022). Our results, therefore, are meant to provide digital marketers and entrepreneurs tactics for decision-making efficiency. The analysis also makes specific policy suggestions to facilitate such an enabling environment that promotes digital innovation and, in turn, generates economic growth as well as societal welfare. It contributes to the knowledge about this interplay between digital marketing, AI, and Innovation that may help future research and policy advances (Vassakis et al., 2018) .

2. Literature Review

2.1 Digital Marketing Strategies in Saudi Arabian SMEs

For small and medium-sized enterprises (SMEs) in Saudi Arabia, digital marketing strategies are a necessity to maintain competitiveness as the market becomes increasingly digitized. (Vemulapalli, 2024): These are mainly non-technical marketing techniques that have become very common, among the plethora of such strategies: social media and SEO strategies, content, or email marketing, etc. (Harmanen, 2019). Digital marketing can help SMEs advertise to a larger market, interact as it happens, and even personalize the approach by using data-driven insights. A study has demonstrated that the right digital marketing strategies can have an impact on brand awareness, increased customer engagement, and also better work performance for SMEs (Budiarto et al., 2024).

2.2 Customer Behavior

These comprise strategies such as social media marketing and search engine optimization (SEO), content, email marketing, etc., (Suvattanadilok, 2024) where SMEs could leverage digital marketing to reach out to a wider target market, interact in real-time, and even personalize their strategy through data insights. The research reveals that effective digital marketing strategies contribute to improved customer engagement, brand awareness, and performance in SMEs. It is, in fact, a quintessential part of digital marketing strategies - consumer behavior. SMEs use digital marketing tools to capture and measure customer interaction, choices, and buying behavior data (Sikandar et al., 2017) . This data approach allows business to segment their customers, tailor marketing messages, and predict future purchase behaviors. By analyzing the behavior of customers, businesses can compose superior marketing campaigns that suit their audience better and eventually help to improve both repeat businesses as well increase leads. This might be more important for Saudi Arabian SMEs because of the large, various, and dynamic market (Arhin & Cobblah, 2024).

2.3 Customer Experience

Digital marketing also involves improving the customer experience. The digital marketing strategies aspire to provide a continuous and connected experience through all touchpoints at the customer journey, starting from acquisition channels till the post-purchase stage (Raji et al., 2024). These include website optimization and design, mobile responsiveness, real-time chatbots, and content personalization. A superior customer experience not only generates satisfied customers but also increases repeat business and word-of-mouth referrals. Increasing satisfaction (Oseremi Onesi-Ozigagun et al., 2024) Therefore, for (SMEs) in Saudi Arabia, differentiation based on customer experience will be an essential step to gain a competitive advantage over the rivals as well as a sustainable source of loyal customers.

Successful digital marketing enhances base client expertise and helps business success and development.

2.4 Innovation in SMEs

Innovation is critical for the growth and sustainability of SMEs (Ur Rehman et al., 2024). This process comprises applying new ideas, products**,** or services to better the business operations and satisfy market needs. Innovation - to overcome resource constraints, competition**,** and changing consumer preferences in Saudi Arabian SMEs. (Patella et al., 2021). This line of

research has shown that SMEs more involved in innovation obtain better results, grow at a higher rate**,** and are more adjustable to changes in the market.

2.5 Product Innovation

The development and introduction of new or significantly improved goods and services is known as product innovation (Judijanto et al., 2024). Such innovation is necessary for SMEs to keep up with the evolving customer needs and demands (Paliwal & Chatradhi, 2023). With trajectories that result from market research and customer feedback**,** SMEs can innovate improved functionality or features, entirely new solutions, or better add-ons to existing products. Although consumer trends change rapidly in Saudi Arabia, product innovation ensures that SMEs can stay ahead of the game. SMEs are poised to gain market share, customer satisfaction, and brand loyalty through successful product innovation, and in this way take a leadership role within their industry (Osasona et al., 2018).

2.6 Process Innovation

New or substantially improved production and delivery methods. This is the efficiency and effectiveness angle of an innovation, (Benzidia et al., 2024). Process innovation may lead to cost savings, product quality improvements, and time-to-market acceleration for SMEs. For example, shifting to advanced manufacturing techniques, using AI and automation for repetitive tasks, and integrating the supply chain (Atieh et al., 2024). For SMEs, particularly in rich resource countries like Saudi Arabia, process innovation can be useful to remain competitive by making them more efficient overall as well as being less wasteful. By scrutinizing the processes, they can reach a high level of productivity and service which will lead to the growth of their businesses further, hence commercial longevity for small and medium enterprises (Samargandi et al., 2024).

2.7 Artificial Intelligence (AI) in SMEs

In the era of digital economy, Artificial Intelligence (AI) is changing how small and medium-sized enterprises (SMEs) operate or compete now(Zamani et al., 2023). In strict terms, AI entails the ability of a digital computer to perform task processes normally conducted by intelligent beings even though they rely on their wide experience only while solving problems (Sharabati et al., 2023). AI technologies are capable of providing SMEs with myriad tools that increase efficiency, productivity, and decision-making across a range of business processes.

2.8 Enhancing Efficiency and Automation

Artificial intelligence allows SMEs to automate routine, time-consuming workloads, and free up human resources for more strategic tasks (Sodiya et al., 2024) AI systems can efficiently support tasks like data entry, chatbots for customer service, and predictive analytics that determine inventory management (Mazumder, 2015) . This not only allows you to save operational costs but also incur fewer human errors while providing a high speed of processing and hence increasing overall efficiency in SMEs.

2.9 Improving Decision-Making

AI also helps small and medium-sized businesses make decisions based on data by processing massive amounts of information fast, and accurately (Osasona et al., 2024). Machine learning algorithms uncover patterns, trends, and insights from data in a way that primarily escapes the attention of human analysts (Jawabreh et al., 2023), allowing companies to predict market developments, forecast demand, or personalize customer interactions. SMEs therefore benefit from this competitive edge by utilizing AI-powered decision support systems to speed up the data analysis process and enhance quick & informed decisions (Leonard et al., 2024).

3. Research Methodology

3.1 Research Design

As argued by Greve (2021), AI allows small businesses to base their decisions on data, which are massive and processed efficiently. The study research is designed to explore the effect of digital marketing strategies on innovation in Saudi Arabian SMEs, as well as the SEI mediation role. Secondary data are combined with primary data because secondary resources are the most accessible and least expensive, allowing for foundational elements to set the scene of what previously occurred in the environment from various scholarly viewpoints. The study therefore constructs a theoretical framework using secondary data from various sources literature reports, academic journals, and government publications to guide the primary data collection and analysis.

3.2 Data Analysis

The study used Descriptive and inferential statistical methods to analyze primary data based on the demographic characteristics of all participants along with their responses relative to research objectives. They are favored methods because of their good performance in raw data interpretation. Statistical tables, graphs, and charts are used to depict the patterns and relationships of primary data collected. Before data analysis, we made the discussion, conclusion, and recommendations sections so

that an approach interpreted the results systematically in context. Variables were determined using questionnaires developed for this particular study. All responses were evaluated quantitatively, on a five-point Likert scale measured for agreement. Furthermore, data analysis involved the application of partial least squares-structural equation modeling PLS-SEM 4, a powerful statistical method for exploring complex relationships and testing theoretical models in digital marketing tactics, AI adoption, and innovation in Saudi Arabian SMEs as it adequately handles design hypotheses with measurement-model that includes adaptive orientation to mediation/nonlinear model behavior within small samples.

4. Conceptual model of the Study: UTAUT Model

The Unified Theory of Acceptance and Use of Technology UTAUT can be used as a sound base to study the impact of digital marketing strategies that influence innovation in the Saudi market (Chittipaka et al., 2023). Considering specifically AI as a mediator between digital transformation and SMEs The UTAUT explains Technology Acceptance and Usage Performance Expectancy, Effort Expectancy Social Influence Facilitating conditions. These constructs can be used in this study to understand the adoption and usage of AI-based digital marketing strategies by SMEs for innovation enablement (Atieh et al., 2024). Performance expectancy evaluates the extent to which the benefits of AI will help with digital marketing, such as understanding customer behavior and providing customized customer experiences. Ease of use: refers to how effortless it is for marketers to leverage AI technologies in digital marketing and relate this dimension with tools that are easy, friendly, and quick. Social influence focuses on the societal and peer pressures that affect AI adoption in the Saudi Arabian cultural and business environment. Facilitating conditions are the resources at your disposal in terms of support to implement AI in digital marketing strategies. This study intends to determine the determinants of AI Acceptance and Integration in Digital Marketing by Saudi SMEs using the UTAUT model (Wang et al., 2020). This paper investigates the underlying links through which digital marketing strategies can influence innovation objectives by delving into how these factors mediate the relationship with the enhancement of customer behavior understanding and eventually an improvement in overall customer experience , the analysis yielded insights into how AI can be applied for product and process innovation in Saudi SMEs contributing to meeting broader economic goals of Vision 2030.

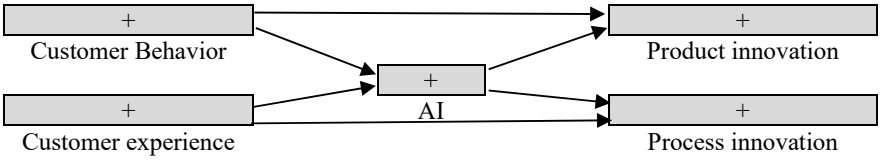

Fig.1. Research Model

5. Hypothesis development

5.1 Primary Data Presentation

The main reason it showed secondary data was just to give a starting place for gathering real information and seeing if there were any relationships. Data was gathered in the form of a mail survey distributed to business operators.

5.2 Demographic Information

In analyzing the KSA marketplace SMEs, fully detailed research methodologies were utilized for both data collection and analysis. The KSA market SME study utilized sound data collection and analysis methodologies, focusing on the wide array of approximately one million institutions with ca 5M employees. However, this study is practically based on the collection of primary data from an appropriately structured questionnaire distributed to about 150 targeted respondents who operated start-up businesses and small and medium enterprises (SMEs) in various sectors in Saudi Arabia. Of these, 45 questionnaires were returned (response rate of 70%). Simple random sampling was employed in data collecting as it can be more cost-effective and has better efficiency in collecting insights among SME participants at the representative level. Gray literature was used alongside primary data and formed a useful component in the study findings. These secondary sources included industry magazines, financial reports of various companies, internal records & external proprietary databases; we were available to directly dig into some of the paid platforms. To an even greater extent, internal secondary data sources report, customer and company-level data and feedback from dealers and distributors provided additional depth to SME dynamics in Saudi. The demographic details including age, gender, and place in the organization were required for this research of the KSA SME Market. Understanding the responses were candid while stressing data collection integrity was crucial to obtaining real insights on what SMEs are up against and opportunities within this evolving Saudi market.

5.3 Data Analysis

This research has included the collection and organization of primary data by demographic characteristics as well as participant responses related to study outcomes by applying a descriptive statistics approach and inferential statistical analysis. They are chosen as the best data collection interpreters. Statistical tables, graphs, and charts are used to present the primary data collected in a manner that conveys an instant understanding of the summative findings. The sections of discussion, conclusion,

and recommendations after the data analysis are secure by checking on all variables measured in this investigation through the responses to questionnaires. Knowing that we proceed to employ established measures in the research. Moreover, the data was analyzed through Smart PLS 4 software that would enable the establishment of a good and precise relationship among variables in SMEs, particularly in the KSA market.

Table 1
Factor loadings

Constructs	Items	Factor Loadings	Cronbach's Alpha	C.R.	(AVE)
Customer experience	CE1	0.812	0.945	0.953	0.694
	CE2	0.845			
	CE3	0.835			
	CE4	0.866			
	CE5	0.785			
	CE6	0.865			
	CE7	0.819			
	CE8	0.821			
	CE9	0.846			
Product innovation	PI1	0.884	0.903	0.932	0.775
	PI2	0.852			
	PI3	0.923			
	PI4	0.86			
Al	AI1	0.86	0.952	0.96	0.75
	AI2	0.879			
	AI3	0.863			
	AI4	0.883			
	AI5	0.841			
	AI6	0.887			
	AI7	0.901			
	AI8	0.808			
Process Innovation	PI1	0.895	0.918	0.942	0.803
	PI2	0.898			
	PI3	0.899			
	PI4	0.893			
Customer Behavior	CB1	0.728	0.918	0.934	0.67
	CB2	0.84			
	CB3	0.804			
	CB4	0.847			
	CB5	0.812			
	CB6	0.862			
	CB7	0.83			

According to Table 1, Factor Loadings and Reliability Metrics for Selected Constructs Factor loadings for the Customer Experience (CE) items were high ranging from 0.785 to 0.866, having a Cronbach's Alpha of 94% and Composite Reliability (C.R.) at.953 indicating respective measurement validity across parts of customer experience as observed in Table IV below; The factor loadings of PI items range from 0.852 to 0.923 which confirms that they are still robust, with a Cronbach's Alpha value of.903 and above (C.R.= 0.932), satisfying their ability in capturing different dimensions on innovation High factor loadings of 0.808~0.901 and a high Cronbach's alpha in the range of 0.952 to indicate that AI items are reliably measuring mediating roles between digital strategies and innovation outcomes (Table A2). The first factor Process Innovation (PI) too stays with very stable loadings ranging from 0.893 to 0.899 and a close Alpha of. 918, c.r..942 signalizes the reliability of the construct to assess process Innovation CB (Table 3): CB items - Factor loadings from 0.728 to 0.862, high Cronbach's Alpha of them .918 & C.R.=.934, these items which measure some facets determining the respective dimensions related for independent and dependent constructs of interest (9/20). Such results confirmed the validity and in-depth features of these measurement instruments, leading to a stronger basis for connections when learning more about what is examined.

5.4 Structural Model Assessment

For the evaluation of discriminant validity, we first used HTMT (Henseler et al., 2015) as a cut-off value. Earlier standards recommended that the value of HTMT ought not surpass 1 (Franke & Sarstedt, 2019). However, this guideline was based on an old version and recent updates fine-tune these criteria. Table 2 reveals satisfactory discrimination between variables because our HTMT values exceed the revised threshold. This thorough test demonstrates the strength of our measurement model and provides confidence in the reliability and validity necessary to investigate correlations as mentioned above. Table 2 displays a Fornell-Larcker criterion matrix used to evaluate discriminant validity among constructs in the analysis. The diagonal values indicate the Average Variance Extracted (AVE) for each construct: Al (0.866), Customer Behavior (0.819), Customer Experience (0.833), Product Innovation (0.880), and Process Innovation (0.896). These statistics show the proportion of variation accounted for by construct items in relation to measurement error. Off-diagonal values correspond to the correlation between pairs of constructs. All AVE values exceed their corresponding correlations in the matrix, which confirms

discriminant validity. This suggests that the measurement model can separate the constructs and it provides a solid ground for additional testing.

Table 2
Fornell-Larcker

	Al	Customer Behavior	Customer Experience	Product Innovation	Process Innovation
Al	0.866				
Customer Behavior	0.751	0.819			
Customer Experience	0.756	0.697	0.833		
Product Innovation	0.810	0.759	0.677	0.880	
Process Innovation	0.914	0.718	0.743	0.790	0.896

Table 3
R^2 Adjusted

Variable	**R^2**	**R^2 Adjusted**
Al	0.669	0.663
Product innovation	0.708	0.703
Process innovation	0.841	0.839

Table 3 shows R^2 and R^2 Adjusted coefficients of determination for model variables, illustrating how much variance in dependent variables is explained by independent variables while controlling for model complexity and sample size. Al's R^2 of 0.669 and modified R^2 of 0.663 reveal that independent factors explain 66.9% of the variance. Product Innovation's R^2 is 0.708, explaining 70.8% of the variation, corrected to 0.703. Process Innovation explains 84.1% of the variance, adjusted to 0.839, with an R^2 of 0.841. Independent variables explain variance in Product and Process Innovations, and adjusted R^2 accounts for model complexity and sample size modifications, ensuring the model's predictive power.

5.5 Hypotheses Testing

This is accomplished through hypothesis testing in which specific propositions about digital marketing strategies are tested against effects upon innovation outcomes, and these become mediated via AI under analysis. This research tested the following hypotheses regarding the relationship between digital marketing initiatives and the impact on innovation measures (product, process innovations) of Saudi SMEs. Statistical tests would identify the nature and power of these relationships, providing a measure of writing evidence on imparting innovation in Saudi business through marketing strategies harnessed by AI. Data-driven insights and automation from AI boost product and process innovation. Companies use AI to foresee and address consumer wants, which drives product and process innovation. Businesses employ AI to improve customer satisfaction, which spurs product design and process efficiency advancements. Customer behavior, experience, and AI create a loop of innovation and improvement. Table 4 shows how Artificial Intelligence (Al), Customer Behavior, and Customer Experience affect Product and Process Innovation. Beta coefficients, STDEVs, T-statistics, and P-values evaluate each association. The impact of Al on innovation is significant. Al mediately affects product innovation (beta = 0.580, T-statistic = 4.36, P = 0), showing significant influence in new product development. Al has a significant effect on process innovation (beta = 0.931, T-statistic = 11.652, P = 0), demonstrating its importance in operational efficiency. Innovation also depends on customer behavior. It positively affects Al uptake (beta = 0.466, T-statistic = 4.42, P = 0) and strongly affects Product and Process innovation. This shows that product development strategies must match with customer insights to succeed in innovation. Customer experience affects Product innovation less strongly than other variables (beta = 0.259, T-statistic = 2.639, P = 0.008). Positive customer experiences improve operational processes (beta = 0.473, T-statistic = 4.402, P = 0), but Al, Customer Behavior, and Customer Experience strongly influence innovation dynamics, highlighting areas where strategic alignment with customer insights can lead to significant organizational benefits in product development and operational efficiency.

Table 4
Hypotheses testing estimates

Relationships	Beta	(STDEV)	T statistics	P values	
Al → Product innovation	0.580	0.133	4.36	0.000	Supported
Al → process innovation	0.931	0.080	11.652	0.000	Supported
Customer Behavior → Al	0.466	0.106	4.42	0.000	Supported
Customer Behavior → Product innovation	0.636	0.109	5.812	0.000	Supported
Customer Behavior → Process innovation	0.434	0.104	4.189	0.000	Supported
Customer experience → Al	0.447	0.105	4.271	0.000	Supported
Customer experience → Product innovation	0.259	0.098	2.639	0.008	Unsupported
Customer experience → process innovation	0.473	0.107	4.402	0.000	Supported

6. Conclusion

This study highlights the leading role of digital marketing strategies in innovating SMEs and further examines through mediating the Artificial Intelligence (AI) effect, how it contributes to the KSA market (AL-share et al., 2023). It confirmed powerful unions like the role of AI in ordering progress both in items, and procedures that employers can appreciate through

perceptions taken out from client conduct and client experience. The results of the study confirm that AI can be efficient in improving innovation outcomes which may benefit SME development for strategic decision and operational improvement. These findings indicate that AI-powered solutions need to be integrated into business processes to ensure growth and competitiveness. By leveraging these insights, SMEs can better respond to the inherent market volatility and directionality of consumer expectations or technology advancement. This, in turn, helps SMEs gain a competitive edge and play their part in fostering innovation and sustainability within the KSA market.

7. Recommendation

By using AI to gain insights, companies can improve their competitive edge by gaining a better understanding of consumer behavior, forecasting market trends, and delivering more personalized marketing efforts. Innovation should be inspired by an intimate understanding of customer interests and decisions. SMEs need to harness AI in the gathering and analyzing of customer data for highly personalized, engaging marketing experiences. For SMEs without in-house expertise, working alongside AI experts and technology providers can help fill the gap by providing access to powerful new AI tools. AI-driven marketing efforts must be monitored and evaluated continuously. Identifying KPIs to look at the AI applications' capability in delivering value to marketing strategies. The use of innovation should move further than solely from a marketing services perspective.

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