



Studying the Relationship between Artificial Intelligence and Digital Advertising in Marketing Strategy

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ABSTRACT

Introduction - Current study examines the relationship between Digital Advertising (DA) and Artificial Intelligence (AI) and their impact on creating a suitable Marketing Strategy (MS) for any organization. The study suggests some measures that can help marketers to improve their marketing strategies. As a genuine branch of Marketing science, digital marketing managed to create value for organizations and increased engagement with customers through electronic services. The Digital era has helped industries monitor their procedures including branding, promotion, advertising, production, channel distribution, etc. Based on gathered data, interactive customer experience, and a digital overview of procedures and sales, business managers could make more accurate and data-driven decisions.

Methodology: This paper searches the various dimensions attached to the concept of artificial intelligence and digital advertising. It is a descriptive study; the survey method was used for the collection of data. Artificial Intelligence Survey Instrument (Weng, 2020), and Marketing Strategy Scale (Weng, 2020), whose face, discriminant, and construct validity were measured. Apart from this, Cronbach's alpha coefficient (α) and composite reliability (CR) were calculated to measure their reliability. Analysis of required data was done by using the SPSS software package (ver. 22) in the form of descriptive statistics as well as the SmartPLS software by means of inferential statistics and structural equation modelling (SEM).

Results: The way we communicate with consumers has changed marketing. It is morphing every day and that's where the big shift has happened. The big change that is happening in marketing, is artificial intelligence and machine learning. It creates new opportunities for storytelling and marketing. It will change how people interact with information, technology, brands, and services. Thus, marketers must adopt artificial intelligence systems in their marketing strategies to succeed in the present era of digital marketing. It saves both time and money for the marketers, customers, and prospects; and occupies the minds of customers without human intervention. The study results can be assistance to business managers and strategy practitioners to figure out the interrelationships between DA and AI, and their impact on marketing strategy formation.

Keywords: Digital Advertising, Artificial Intelligence, Marketing, Strategy, Communication Technologies

INTRODUCTION

The digital advertising (DA) environment has recently emerged as a result of the swift

development of information and communication technologies (ICT) in both the private and governmental sectors (Aaker,

2022). Following customers' increased use of the internet, businesses naturally used this sort of marketing to further manage and promote their brands. As part of their marketing strategy and deployment plans, DA is being used by a variety of institutions, including corporations, hospitals, schools, professional associations, councils, and even non-governmental organizations (NGOs).

Even while some businesses can launch their own e-commerce platforms, most of them make full use of the internet as a conduit or medium in their corporate communication plans (Albers-Miller, 2020). Over the past ten years, there has been a rapid increase in consumer use of digital media channels. As a result, businesses are using the best DA strategies to reach their target audiences.

Since 2010, there has been a dramatic increase in the number of internet users, who now number over 2 billion and are predicted to grow every year. Due to accelerated competition and a shift in consumer preferences, DA has evolved into an essential strategy for promoting new goods and services against this backdrop. Online advertising for sending electronic messages to potential clients is referred to as direct advertising (DA), also known as electronic marketing (e-marketing) (Nuseir & Aljumah, 2020). Due to today's worldwide, fierce competition, the utilization of digital technology trends to reach customers has thus emerged as a crucial phenomenon to define development in the following ten years (Miller, 1999). Businesses continually plan to strengthen their competitive stance through technological advancement and innovation that foster growth.

To support their operations for disseminating the most recent information, the majority has therefore acknowledged the need to adopt and apply technologically innovative solutions (Aggarwal, 2017). Due to growing competition, business operations, particularly communication and information sharing, have changed as a result of the many ways that digital technologies have altered lifestyles. Such tools and applications are seen to be the most efficient ways to open a line of communication with clients right away. Companies are attempting to replace their traditional marketing strategies with dynamic

approaches and adopt operational technologies, including communication with customers and stakeholders, as traditional marketing strategies are no longer sufficient in today's fiercely competitive business environment (Kaur, 2017). Because marketing communication using digital technology doubles their interactions, it enables businesses to establish long-term customer-marketer connections to achieve shared goals and growth (Yoga, Korry, & Yulianti, 2019).

It's important to highlight that the perception of DA competence suggests businesses strive for more effective strategic decision-making. They can even spot new business prospects using DA which determines prospective threats and maintain market competitiveness. This study aims to investigate the interactions between DA and MS because there isn't much information on the relationship between DA and marketing strategy (MS) in the relevant literature.

This study focused on marketing for a number of reasons, keeping in mind that a company is a value chain made up of a variety of activities (Li, H 20), including primary operating functions like production, marketing, sales, and service, as well as supporting ones like human resource management (HRM), research and development (R&D), and information systems. First, a marketing strategy makes a big difference to the overall MS creation of a company (Dobni & Luffman, 2003). Second, marketing is frequently linked to a variety of other business operations, including production, sales, and customer service (Tseng, 2016). Additionally, marketing intelligence (AI) lays the foundation for marketing activities throughout business operations as the capacity to effectively gather and analyze information is a must for all marketing choices (Trainor, Krush, & Agnihotri, 2013). Therefore, the purpose of this study was to investigate the interactions between DA and MS as well as the effect of AI in this regard.

Theoretical Foundations of Digital Advertising and Marketing Strategy

The internet enables businesses to find out more about consumer trends in just a few clicks on the appropriate analytics tools. The greatest benefit of DA above other marketing techniques and channels is hence its ability to

be measured. In this sense, the digital shadows left by internet users leave behind substantial data trails that can be used as inputs for marketing analytics (Kietzmann et al, 2018). Recently, it was suggested that empirical studies on DA techniques could improve the performance of small and medium-sized businesses (SMEs) (Baka, 2016).

Traditional marketing strategies have been further impacted by the introduction of technology-based DA, necessitating evaluations to create strategic initiatives to maintain competitiveness in the digital age (Baltes, 2015). Additionally, some of the most well-known businesses, including Rolex, Coca-Cola, the New York Times, and Nike, have recently launched DA campaigns to be effective in raising and ensuring consumer awareness due to their importance. The impact of DA on the levels of employee engagement, increased sales rates, as well as trust and loyalty, has been further documented (Hollebeek & Macky, 2019).

The growth of consumer relationships and their sense of attachment have additionally helped to improve levels of performance in businesses given the efficient use of DA efforts (Hollebeek & Macky, 2019). The rise of technology and digitization has also replaced conventional marketing techniques. Such outdated practices are also inappropriate for the growth of sustainable businesses. As a result, DA is crucial for businesses to operate in a dynamic and cutthroat commercial climate. Digitization also centralizes the method of information exchange and communication among stakeholders in an organization, enabling income generation and fostering long-lasting partnerships (Batini, 2015). The following theories were therefore addressed:

- *Hypothesis 1:* There is a significant positive relationship between DA and costleadership (CL) strategy.
- *Hypothesis 2:* There is a significant positive relationship between DA and differentiation (DF) strategy.

Digital Advertising and Artificial Intelligence

Artificial intelligence (AI) is described as computerized systems that collect data and use it to do activities that intelligent beings would do in the best possible way. Because

there are so many various types of AI, Guruduth Banavar, the director of IBM's AI research, describes the term as "a portfolio of technologies" (Kaput, 2016). These AI technologies serve a variety of functions and are progressing at different rates, but they are all aimed at simulating human intelligence in computers to make them "smart." This kind of intelligence supports managers in formulating effective decisions and strategies based on the data provided for this reason and is defined by relevance, usability, timing, accuracy, and precision, as well as completeness and goals (Ganesh, 2020).

AI is generally built on gathering data regarding customer needs, together with their desired attitudes and behaviors, as well as potential changes in the business environment that may influence customers (Kumar & Bagga, 2020). Digital marketers are ahead in predicting client requests, despite the fact that consumer behavior is typically quite complex and should be analyzed frequently. Consumer response analysis can be further completed using the appropriate AI tools. As these technologies adjust to the dynamic changes experienced by digital media and offer real-time solutions to generate more promising outputs, the major difficulties in the DA environment can be overcome in general (Bhosale et al., 2020).

AI can further supply the processed data for strategic planning and decision-making by gathering marketing information from databases or stakeholders (such as consumers, employees, and suppliers), or forums and online techniques (social media, blogs, etc.). This way, the profitability and competitive advantage of business organizations are redoubled. AI further facilitates companies to better forecast and meet customer needs. This competitive situation also enables them to maintain a competitive advantage for faster information processing and introduce new products and services at a low price or with distinctive features (Weng, 2020). In view of this, the following hypothesis was presented:

- *Hypothesis 3:* There is a significant positive relationship between DA and AI.

Artificial Intelligence and Marketing Strategy

The MS formation is defined by its clear visions, missions, and goals, scenario analysis, thorough alternative appraisal, and strategy creation process (Slater et al., 2006). The competitive positioning, market segmentation, and industrial environment of a corporation are thus connected to an MS (Tseng, 2016). Companies must also keep an eye on their internal and external environments for any potential changes if they hope to survive, expand, and be profitable (Rodgers, 2022). As a result, creating and implementing a MS frequently requires gathering, retrieving, evaluating, interpreting, and forecasting data about the company's internal and external conditions (Claver-Cortés et al., 2012). Additionally essential to allowing MS development in a corporation is the AI capability Because MS is a common practice in businesses.

Business executives must assess the new facts about the situation and, if necessary, adapt their planned and emergent plans (Janssen, van der Voort, & Wahyudi, 2017). To accomplish this, AI is essential for strategic decision-making and accurate updating in accordance with the changing competition (Aker et al., 2016).

To evaluate which market categories are ideal for CL and DF, a company can use AI capabilities to gather and analyse the cost structures and distinctive features of similar goods and services offered elsewhere (Weng, 2021). Therefore, in order for a company to maintain an up-to-date and viable cost positioning, marketing information on cost analysis at all levels must be collected and analyzed. Taking into account client preferences and distinguishing qualities (Mchergui, 2021). AI in order to produce a distinctive product for competitive pricing, a company must differentiate its products and manage its cost structure (Xie et al., 2016). Consequently, the following theories were advanced:

- *Hypothesis 4:* There is a significant positive relationship between AI and CL strategy.
- *Hypothesis 5:* There is a significant positive relationship between AI and DF strategy.

Research Methods

The current study examined Marketing Strategies in SMEs that were impacted by DA and then mediated by AI, as shown in Figure 1. All the variables were explored through a questionnaire with a five-point Likert-type scale in this cross-sectional study's quantitative research design to ascertain how they related to one another inside the study's model.

The important responders were the marketing and IT managers of the SMEs operating in Noida, India, which made up the statistical population. In order to gather the necessary data, 400 questionnaires were circulated. Ultimately, 250 completed and useful instances were collected for data analysis (Hennik 2021). The scales used to measure the variables were modified from those used in earlier research. Four sections made up the questionnaire used here; the first dealt with the respondents' demographics the remaining three parts concentrated on DA, AI, and MS respectively.

For this, the standard Business Strategy Questionnaire (Weng, 2020) with eight items, the Marketing Intelligence Survey Instrument (Weng, 2021) with four items, and the Digital Advertising Questionnaire (De Pelsmacker, Van Tilburg, & Holthof, 2018) with six items each were used. Utilizing the measurement model and structural equation modeling, the SmartPLS software was utilized to analyse the data based on the information gathered (SEM).

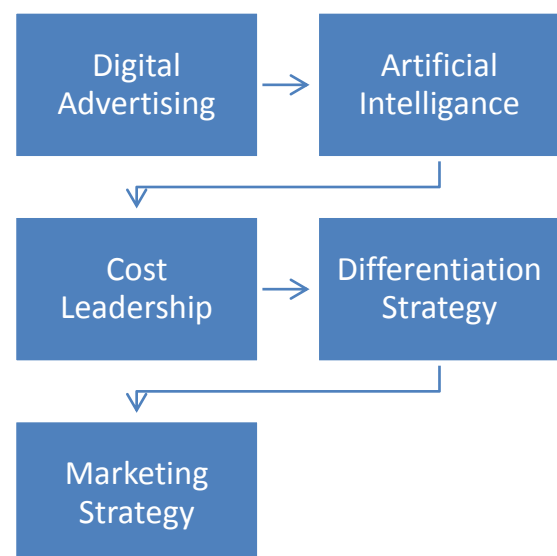


Figure 1: Research Model

Findings

Based on SEM and the collected data, the interrelationships among the research constructs were examined. The reliability test, as initially investigated through the partial least squares (PLS) regression algorithm, was presented as follows.

Table 1: Measurement model (Reliability test)

Variables	Cronbach's alpha coefficient (α)	CR	AVE
DA	0.871	0.903	0.611
AI	0.841	0.893	0.678
CL	0.845	0.896	0.685
DF	0.704	0.778	0.501

Note: DA, digital marketing; AI, marketing intelligence; CL, cost leadership; DF, differentiation, CR, composite validity; AVE, average variance extracted

Table 1 shows the α , CR, and AVE values. In this line, the α value should remain above 0.7 and CR should be larger than 0.7, while the AVE value should remain greater than 0.5 to be acknowledged as statistically reliable for the data collection instrument (Hair et al., 2016). Here, the statistically acceptable values revealed the validity and reliability of the given construct.

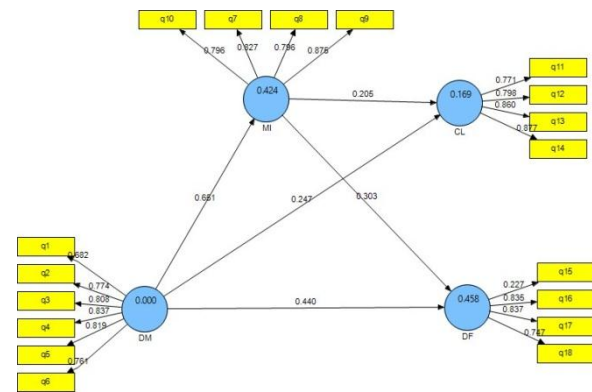
Table 2: Measurement model (Discriminant validity)

Variables	DA	AI	CL	DF
DA	0.781	-	-	-
AI	0.649	0.823	-	-
CL	0.379	0.363	0.827	-
DF	0.593	0.569	0.562	0.707

Note: DA, digital marketing; AI, marketing intelligence; CL, cost leadership; DF, differentiation

Table 2 displays the discriminant validity index that confirms the correlation between the variables. According to Fornell and Langley (2020), the AVE square root should be higher than the correlation value with other variables. The square root of the AVE is thus depicted in italics at the top of the table, indicating that the first value of each column is higher than the remaining values that meet the discriminant validity conditions.

Structural Equation Modeling (SEM)



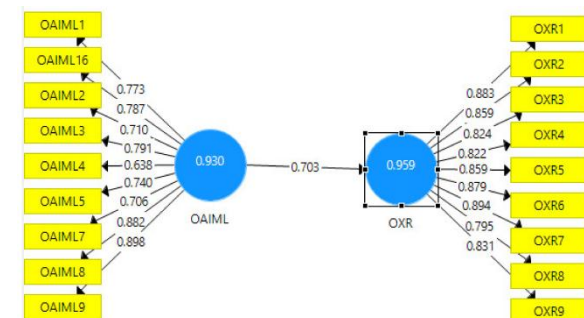
By testing the hypotheses addressed in the previous part of this study, the interrelationships among the proposed model constructs were assessed. The collected data were then analyzed through the bootstrap method.

Table 3: Hypothesis testing (Direct relationships)

Paths	Path coefficients	t-value	p-value
DA \square CL	0.247	3.127	p<0.01
DA \square DF	0.440	7.520	p<0.001
DA \square AI	0.651	16.896	p<0.001
AI \square CL	0.205	2.104	p<0.05
AI \square DF	0.303	4.282	p<0.001

*p<0.05, **p<0.01, ***p<0.001

Note: DA, digital marketing; AI, marketing intelligence; CL, cost leadership; DF, differentiation



Cronbach's alpha analysis reveals a strong model because all the OAIML and OXR sub-variable values are very high (greater than 0.7). The validation procedure was based on the criteria presented in the preceding model. The Cronbach's coefficient (0.93 for OAIML, 0.959 for OXR) demonstrates that our analysis

is consistent because the sub-indicators of the variables mentioned above correlate with each other and with the additive result of all sub-indicators. Keeping in mind that all the criteria were met, the researchers developed a consistent regression model. The inner model is statistically significant because its standardized track coefficient (0.703) is large. Overall, OAIML has a significant impact on the variable OXR—the opportunities provided by AI and ML technologies in education have a significant impact on the opportunities provided by XR. Thus, HEI has to implement both AI and XR in the marketing process to develop a good marketing strategy for any company or organization.

Discussion and Conclusion

This study investigated the interrelationships between digital advertising and artificial intelligence, and their impact on marketing strategy. Upon confirming the research hypotheses, this study's results can be of assistance to business managers and strategy practitioners to figure out the interrelationships between the organizational capabilities, viz. DA and AI, and their effects on MS formation.

In this respect, the study findings demonstrated a significant positive relationship between DA and CL strategy formation. From this perspective, Weng (2020) reported that CL strategy needed organizational capabilities to achieve operational efficiency, including time and cost optimality, along with flexibility. A significant positive relationship was further observed between DA and DF strategy formation.

In this line, Langley (2020), explaining the impact of the Internet of Things (IoT) on business models, found that the given network could play a leading role in business models, and the flow of operational resources and information could change once things were more capable and connected, thereby the interactions between the business models would be shaped at the micro level.

Moreover, the study results supported a significant positive relationship between DA and AI had discovered that the provided network AI got plays a significant part in business models and that as objects became more capable and connected, the flow of operational resources and information may

vary, shaping the interactions between business models at the micro level. The study's findings also confirmed a strong positive association between DA and AI. According to this approach, Kunle et al. (2017) established information-marketing infrastructure, including internal records, competition sales data, threats, risks, and market opportunities.

Significantly and favorably impact establishing a competitive edge. Additionally, a substantial positive link between AI and the development of CL strategies was discovered, supporting the findings of Hendar et al(2020) . 's investigation into the mediating effect of specialized Marketing skills in Indonesian retail SMEs' AI and business performance relationships. Additionally, Rakthin et al. (2016) maintained that knowledge and AI were the most significant resources for giving a company a competitive edge while considering the significance of AI in market orientation.

Accordingly, the study's findings showed that AI and knowledge improve a company's performance by boosting customer acquisition and retention as well as MS, particularly CL strategy. Similar to Kunle et al. (2017)'s findings, which questioned the impact of AI on acquiring a competitive advantage, the study results demonstrated a substantial positive association between AI and the development of DF strategy. As a result, it was determined that AI, when used effectively, may enable a corporation to strengthen its competitive advantage, earn more profit, and beat the market. Additionally, Gerpott and May (2016) stated that while integrating goods or services, the IoT components may play three different functions. Understanding how the IoT could change everything for reaching certain business growth goals tracked by a corporation was therefore essential.

The validity of the research instrument could not be clearly confirmed based on a single study, despite the fact that this study had significant consequences for the creation of multidimensional measurement of the constructs inside a postulated model. In this regard, it is advised that the marketing and IT managers of SMEs operating in Noida, India, act by setting up AI units and then gathering, reviewing, and analysing data about their surroundings, rivals, clients, suppliers, and

different markets trends as well as potential future behaviour patterns of environmental and market elements. To expand available options and pinpoint potential.

By utilizing all AI capabilities, such businesses should provide their goods or services at a lower cost than their rivals in the market. Finally, it is advised to increase employee motivation in the marketing and sales teams to support them in coming up with original and innovative ideas to differentiate their goods and services.

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