

## A COMPARATIVE EXPERIMENTAL STUDY ON ARTIFICIAL INTELLIGENCE- AND HUMAN-DRIVEN SOCIAL MEDIA MARKETING CAMPAIGNS

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### ABSTRACT

**Purpose-** The rapid advancement in digital marketing, driven by technologies such as artificial intelligence (AI), forms the backdrop for this research. This study aims to investigate the performance differences between AI-driven and human-managed digital marketing campaigns by means of a true field experiment. Selected Key Performance Indicators (KPIs) are evaluated on the Meta platform to make a statement regarding the performance.

**Methodology-** The study has an experimental research method. Two concurrent marketing campaigns for the Paul Kenzie brand were conducted over a two-week period: one fully created by ChatGPT-4 and the other by a human expert. Key KPIs measured include Click-Through Rate (CTR), number of conversions, conversion rate, and Return on Advertising Spend (ROAS).

**Findings-** The results indicate that AI-driven campaigns outperform human-managed campaigns in terms of CTR, conversion rate, and ROAS, suggesting higher efficiency and effectiveness in reaching and engaging the target audience.

**Conclusion-** The findings highlight the potential of integrating AI technologies with human creativity to optimize digital marketing strategies.

**Keywords:** Artificial intelligence, social media marketing, digital marketing, field experiment

**JEL Codes:** M15, M31, Q55

### 1. INTRODUCTION

The digital revolution and pandemic conditions over the past decade have significantly transformed various aspects of our lives, embedding digital technologies into daily routines and business practices. One of the areas most affected by digital transformation in businesses is marketing. The innovations brought about by digitalisation have led to a significant change in companies' marketing strategies and the way in which they interact with their customers (Chaffey & Ellis-Chadwick, 2019). Traditional marketing methods are increasingly losing importance and market position, while digital marketing platforms are gaining relevance (Chaffey & Ellis-Chadwick, 2019). These enable companies to communicate with their target groups in a more direct, personalised and measurable way. In recent years, digital marketing has developed rapidly on a global scale: According to a study conducted by Statista, global spending on digital advertising is expected to exceed 730 billion US dollars by 2025 (Statista, 2023). In the new digital marketing world effective management of digital marketing campaigns plays a key role in the success of marketing strategies. Precise targeting, effective messaging, performance measurement and continuous optimisation have become key factors in the development and success of campaigns (Al Adwan et al., 2023). The role of data analysis in digital marketing and understanding customer behaviour is often highlighted in the literature (Wedel & Kannan, 2016). Data-driven insights, i.e. insights gained through the analysis and evaluation of data, enable more precise targeting of campaigns, more personalised experiences and an increase in conversion rates and performance. Social media marketing, an essential element of digital marketing, encompasses all promotional activities undertaken by businesses or individuals to showcase their products, services, or messages on social media platforms, engage their target audience, and enhance customer interaction (Alalwan et al., 2017; Tuten & Solomon, 2017). Social media marketing represents a promising opportunity to reach a large target group, to carry out targeted advertising and to ensure a personalised approach. and is conducted via various platforms such as Facebook, Instagram, Twitter and LinkedIn. Companies can use these platforms to communicate directly with their customers, receive direct feedback on their services or products or interact with customers

in person. Social media marketing platforms, which have the ability to monitor and evaluate the performance of digital marketing campaigns in real time, also have the advantage of providing cost-effective advertising solutions (Constantinides, 2014).

On the other hand, advances in machine learning, deep learning models, and natural language processing have accelerated the use of Artificial Intelligence (AI) and paved the way for more sophisticated digital applications in businesses and especially in digital marketing (Kaplan & Haenlein, 2019). AI is now used in various marketing fields, such as customer segmentation, the creation of personalized content, and the automation of digital marketing campaigns (Chaffey & Ellis-Chadwick, 2019). AI-supported tools have the potential to transform campaign management processes, as they are able to analyse extensive data sets, segment target groups and manage content automatically (Chaffey & Ellis-Chadwick, 2019; Kaplan & Haenlein, 2019). This demonstrates the growing relevance and potential of AI in the field of marketing, but also raises significant questions, such as whether it can replace human expertise or how these two approaches can be used together. The effectiveness of using artificial intelligence (AI) in marketing and which steps it should be implemented in to create a more efficient marketing strategy are still unknown. It appears that studies on the performance differences between AI-supported campaigns and human-led campaigns are limited and the existing research generally focuses on specific situations or different sub-areas of AI in digital marketing (Jarek & Mazurek, 2019). A better understanding of these differences is of great importance for the development of more effective campaigns.

This comparative experimental study aims to analyse the performance differences between social media campaigns created by AI and by humans based on a true field experiment. This study looks at a discount campaign belonging to the Paul Kenzie company which is an underwear brand that targets young adults aged 18-35 in the Turkish market with the aim of increasing sales of men's briefs. Two different ads, one managed by artificial intelligence and the other by humans, were placed simultaneously over a two-week period and their performance was monitored for a fortnight. As part of the study, various key performance indicators (KPIs) for both types of campaigns are analysed during the two-week study period.

In the section following the introduction, a literature review will be conducted on the use of artificial intelligence in digital marketing, digital marketing keyperformance indicators, and similar studies. In the next section the research design will be introduced and the experiment conducted for data collection and analysis will be explained in detail. After evaluating the results of the experiment, the final section will interpret these findings.

## **2. LITERATURE REVIEW**

### **2.1. Digital Marketing and Artificial Intelligence (AI)**

This study concentrates on social media marketing as an under category of digital marketing. The term 'digital marketing' refers to the process of advertising, selling or recognising products and services using the internet and digital technologies (Chaffey & Ellis-Chadwick, 2019). In contrast to traditional marketing methods, digital marketing aims to reach customers through the integration of data-driven, measurable and interactive approaches. In contrast to the one-way and rigid communication of traditional marketing, digital marketing strengthens communication between the customer and the brand through interaction-orientated two-way communication (Ryan, 2016). Google, Facebook and other major digital marketing platforms are currently at the centre of digital marketing strategies (Chaffey & Ellis-Chadwick, 2019). Social media marketing enables brands to reach and engage with segmented target audiences through platforms like Facebook, Instagram, Twitter, LinkedIn, and TikTok. Social media strategies encompass a variety of channels, including content production, user interactions, influencer collaborations, and paid advertising (Tuten & Solomon, 2017). Social media platforms are interactive platforms where customers can communicate directly with brands. In this way, brands can analyse feedback promptly and develop strategies to increase customer satisfaction and strengthen loyalty (Chaffey & Ellis-Chadwick, 2019).

Advances in areas such as machine learning, deep learning models and natural language processing, have accelerated the technological developments of AI paving the way for more sophisticated applications in the digital marketing world (Chintalapati & Pandey, 2022; Kaplan & Haenlein, 2019). Hence the design and management of digital marketing campaigns today is increasingly subject to the influence of AI technologies (Davenport et al., 2020). The use of AI technologies in digital marketing significantly enhances the effectiveness and efficiency of marketing strategies and its effects are evident in every element (Product, Price, Promotion and Place) of the marketing mix (Jarek & Mazurek, 2019):

**Product:** Personalization and automatic recommendations are the most prominent AI-effects on the Product-element. The personalization process aims to provide customers with tailored content and offers based on their past behavior patterns, preferences, and demographic information, formatted according to their device, usage style, and duration (Babatunde et al., 2024). With techniques such as pattern recognition or sentiment analysis are used to extract meaningful insights from large datasets and are frequently used in AI-driven marketing strategies to improve customer understanding (Alqurashi et al., 2023). By analyzing these data, AI can offer customers customized experiences. For instance, digital streaming providers like Amazon and Netflix use AI to recommend products (content) based on users' previous behaviors (Kaplan & Haenlein, 2019). Such personalization practices increase customer satisfaction and loyalty. Many marketplaces offer users special deals or

automatic recommendations based on their past shopping and search behaviors, making it easier for users to find interesting products and simplify their shopping processes. These practices aim to increase users' shopping rates (Smith, 2018).

**Price:** Price management is also supported by AI technologies (Basal et al., 2024). Machine learning algorithms are used in dynamic pricing strategies to enhance the impact of marketing campaigns. Dynamic pricing adjusts product prices automatically based on demand, competition, and other external factors, allowing companies to maximize revenue and offer more competitive prices to customers (Chaffey & Ellis-Chadwick, 2019).

**Promotion:** Creating a unique brand experience, targeting automation and personalized customer communication are areas supported by AI technologies mostly (Jarek & Mazurek, 2019). Machine learning enables performing specific tasks by learning from historical data. Large datasets are analyzed to predict customer behavior and optimize marketing strategies. Machine learning algorithms allow for campaign adjustments to achieve high performance (Perlich et al., 2014). For instance, Google Ads uses machine learning algorithms to predict and optimize the performance of advertising campaigns, enabling more efficient use of advertising budgets during peak search volume times of the day. By analyzing past campaign data, these algorithms can identify changes that enhance ad performance and make adjustments to ensure continuous optimization. Additionally, machine learning algorithms are used in customer segmentation and targeting, ensuring a more efficient approach to reaching the target audience (Choi & Lim, 2020). From the user's perspective, AI algorithms analyze all user behaviors and interactions, assign them to a specific segment, and present the most relevant ad (Choi & Lim, 2020). Furthermore AI assists customers in various ways during the shopping process. AI interacts and communicates with customers through chatbots and virtual assistants and provide product recommendations or answer customer queries (Kaplan & Haenlein, 2019). Virtual customer advisors and assistants, offering personalized support on websites in line with brand image, also exemplify successful Natural Language Processing(NLP) technology use (NLP), where NLP enables computers to understand, analyze, and generate human language (Olujimi & Ade-Ibijola, 2023).

**Place:** AI is expected to have a positive impact on distribution in two key areas: sale channels and sale processes (Nanayakkara, 2020). AI will open up new opportunities for marketing channels like e-commerce and online platforms and it will provide customers with a faster and more convenient purchasing platform, with 24/7 shopping available through tools like chatbots (Jarek & Mazurek, 2019). Another innovation driven by AI is the automation of purchase orders, eliminating the need for manual entry. Purchase order automation software captures orders, enabling faster and more cost-effective processing (Nanayakkara, 2020).

## 2.2. Key Performance Indicators (KPIs) in Digital Marketing

The analytical tools and data collection methods of digital marketing allow the effectiveness of campaigns to be measured and optimised (Chaffey & Ellis-Chadwick, 2019). Key Performance Indicators (KPIs) are essential metrics used to evaluate the success and effectiveness of digital marketing campaigns. These indicators assess whether marketing strategies are achieving their intended outcomes, enabling necessary adjustments when needed (Kingsnorth, 2019). Consequently, KPIs assist in optimizing marketing activities and making strategic decisions (Chaffey & Smith, 2022). When evaluating digital marketing campaigns using KPIs, it is essential to identify and track a set of critical metrics. Understanding these KPIs is crucial for conducting comparative analyses. The analysis and effective use of these KPIs are crucial for the success of planned strategies and tools in digital marketing. By regularly monitoring these indicators, marketers can adjust their campaigns to enhance performance, optimize budget allocation, and achieve their marketing objectives. Common but not limited KPIs to measure the performance of digital marketing are listed below:

- **Impressions:** Impressions refer to the total number of times an ad is viewed (Chaffey & Smith, 2017). This KPI helps gauge the visibility of an advertisement.
- **Reach:** Reach indicates how many unique users have seen the ad at least once. This metric is important for measuring the size of the audience that received the message (Ryan, 2016).
- **Frequency:** Frequency measures how often a single user sees the ad. A high frequency can increase brand awareness if maintained at a reasonable level but can also lead to user annoyance if too high (Chaffey & Ellis-Chadwick, 2019).
- **Cost Per Click (CPC):** CPC indicates the cost for each click on an ad. This metric allows for evaluating the efficiency of the advertising budget and assessing user interest in the ad (Kotler et al., 2016).
- **Click-Through Rate (CTR):** CTR provides insight into the ad's click rate relative to the number of impressions. A high CTR suggests significant interest from the target audience in the ad (Chaffey & Smith, 2022).
- **Number of Conversions and Conversion Rate:** These metrics refer to the number of users who perform a specific action, such as making a purchase or clicking on an ad. The conversion rate indicates the proportion of users who see the ad and complete the desired action (Kotler et al., 2016).

- **Number of Additions to Cart:** This KPI shows how often users add a product to their cart. Adding an item to the cart is a crucial step in the purchasing process and indicates user interest in the product (Chaffey & Smith, 2022).
- **Cost Per Purchase (CPP):** CPP represents the total expenditure required for a single purchase. This KPI is a vital indicator for evaluating the cost-efficiency of a campaign (Ryan, 2016).
- **Return on Advertising Spend (ROAS):** ROAS measures the revenue generated from the advertising spend. This metric provides insight into the profitability of an ad campaign by indicating the proportion of ad spend that returns as revenue (Kotler et al., 2016).

### 2.3. Similar Work

In general the literature indicates that AI plays a crucial role in optimizing digital marketing campaigns and the effectiveness of marketing campaigns has been significantly transformed by the integration of artificial intelligence (AI) technologies. AI's capabilities in data analysis, predictive modeling, and automation have enabled marketers to achieve unprecedented levels of targeting precision and personalization, which are crucial for engaging consumers effectively. AI developments such as machine learning and natural language processing (NLP) enable more effective and targeted campaign creation through the analysis of large datasets (Berman, 2019). There are several studies collectively highlight the transformative role of AI in digital marketing and its growing influence on consumer behavior and engagement. According to Jarek and Mazurek (2019) AI-supported advertising campaigns seem to offer significant advantages and they may more accurately reach target audiences, achieve higher KPI rates, and better optimize advertising expenditures. Chaffey and Ellis-Chadwick (2019) explore how AI tools, through personalized content and automation, can enhance digital marketing strategies by effectively reaching target audiences and increasing customer engagement. Kaplan and Haenlein (2019) expand on this by examining AI-driven solutions like chatbots and virtual assistants in social media marketing, emphasizing their potential to improve customer service and user experience. Malthouse et al. (2013) delve into the role of social media, showing how AI-facilitated user-generated content can shape brand perception and build loyalty. Gao and Liu (2023) highlight AI's ability to predict consumer preferences through the analysis of large datasets, making marketing campaigns more targeted and efficient. Davenport et al. (2020) take this further by demonstrating how AI can strategically improve personalization, leading to better consumer decision-making and higher satisfaction. Finally, Bharadwaj et al. (2013) discuss the broader implications of AI in digital business strategy, stressing the need for companies to embrace technological advancements to remain competitive in the evolving digital landscape.

Studies that compares the effectiveness of AI-generated and human-managed marketing strategies are generally fewer than those that discuss the overall impact of AI on marketing, whereby the comparison shows different performance results: Hartmann et al. (2024) demonstrate that AI-generated marketing content can be produced not only faster and at lower costs but also with "superhuman" effectiveness. This suggests that companies must integrate AI into their daily operations to stay competitive. Saputra et al. (2023) confirm this in a case study on Instagram, showing that content created with Chat GPT significantly boosts user engagement and attention, leading to higher sales. Ananthakrishnan and Arunachalam (2022) examine consumer perceptions of AI-assisted versus human-generated advertisements, finding that AI content is perceived as more sincere and competent. Interestingly, 69% of respondents preferred AI-generated ads. Despite AI's outstanding performance in data analysis and automation, some studies highlight the importance of the human factor in creativity, intuition, and innovation. According to Kotler et al. (2016) human creativity and intuition cannot be fully replicated by AI, and therefore, in certain situations, human-managed campaigns may be more effective. Bohndel et al. (2023), along with Looi and Kahlor (2024), explore the role of virtual AI-driven influencers compared to traditional human influencers. While there are few differences in terms of credibility and competence, human influencers score higher in likability and engagement. However there are many studies emphasizing AI's vast potential to transform how marketing content is created and delivered and to enhance marketing efficiency and effectiveness, there remains still a gap in understanding its comparative performance against human expertise.

## 3. DATA AND METHODOLOGY

### 3.1. Research Design

The experimental method was favoured in this study since it is ideal for analyzing the relationships between sets of variables: a set of independent variables, which is hypothesized to exert an influence, and a set of dependent variables, which is assumed to be affected by the independent variables (Malhotra et al., 2017). Typically, the independent variables consist of levels that are manipulated by the researcher, while the dependent variables are measured. The research method used in this study is field experiment with a between-subjects design. Experiments are a fundamental methodological approach in marketing and the social sciences (Viglia et al., 2021). Field experiments, in particular, examine real-world populations within their actual contexts, integrating seamlessly into ongoing activities (Viglia et al., 2021). Conducted in natural settings, these experiments offer a high degree of external validity, as they are representative of the target population and allow for the

measurement of actual behavior (Spilski et al., 2018). A between-subjects experimental design, in particular, involves comparing differences between groups of participants, each exposed to different stimuli (Viglia et al., 2021).

The study consists of an experimental between-subjects design including two digital marketing campaigns for the Paul Kenzie brand conducted simultaneously on the Meta platform. One of the campaigns was entirely set up by the ChatGPT-4 model, where all optimization settings, campaign targeting, text, and even imagery were determined by the ChatGPT-4 model. The other campaign was created and conducted by Paul Kenzie, a digital marketing expert from the company. The experiment has a between-subjects design, since participants are exposed to these two different campaigns as stimuli. The aim of the study is to compare the effectiveness of these two campaigns. Thus the research question is: *Do AI-supported digital marketing campaigns outperform those managed by humans in terms of their key performance indicators (KPIs)?*

Both campaigns were designed and conducted with the same goal focusing on the brand-created offer to increase sales of men's briefs and with the same budget. This implies that the objective, purpose, and offer of the campaign are identical, leading to a high degree of comparability in the comparisons and analyses conducted in this study. Both social media advertising campaigns were managed via the Meta Ads Manager panel. The Meta platform is a powerful platform for ad management in social media, enabling the analysis and monitoring of KPIs and data (Lammenett, 2024). Meta Ads Manager is a powerful tool for creating, planning, managing and optimising ads on popular platforms such as Facebook and Instagram (Lammenett, 2024). These platforms offer companies and individuals comprehensive solutions in a variety of areas including target group segmentation through the analysis of user data, the optimisation and adjustment of ad impressions, performance tracking and analysis (Chaffey & Ellis-Chadwick, 2019).

Independent variables of the experiment were target audience, ad visual characteristics and targeting strategy while dependent variables are selected KPIs to measure the effectiveness of social media marketing campaigns. Table 1 illustrates the varying characteristics of the two different campaigns used as experimental objects.

**Table 1: Independent Variables - Experimental Design**

	AI-Campaign	Human-Campaign
<b>Target audience</b>	men aged 18 to 40 living in Istanbul, Ankara, and Izmir	men aged 18 to 35 living across Turkey
<b>Targeting strategy</b>	interested in men's fashion and fitness	interested in skincare and fashion accessories
<b>Visuals</b>		

Regarding the target audiences and targeting strategy, it should be noted that in one campaign, they were determined by the digital marketing expert of Paul Kenzie, and in the other campaign by AI. The target audience of the human-campaign consisted of men aged 18 to 35 living across Turkey who are interested in both skincare and fashion accessories. AI preferred a broader target audience, namely men aged 18 to 40 living in Istanbul, Ankara, and Izmir, who are simultaneously interested in men's fashion and fitness. The advertisement image created by the AI campaign had a complex and chaotic structure that could attract user attention, featuring a gamified appearance. The advertisement message was presented in an elegant and comfortable manner. The human-managed campaign was characterized by a readable and flat creative structure with softer colors. The use of images and text in accordance with the brand's communication language drew attention. The preferred ad text in this campaign was "Now waiting for you: a 10% discount opportunity on your first purchase at Paul Kenzie." Compared to the AI campaign, the human-managed campaign conveyed a more implicit message, as the product was not obviously displayed in the image or explicitly mentioned in the text.

To evaluate the effectiveness and success of the social media marketing campaigns, specific Key Performance Indicators (KPIs) crucial for measuring and comparing the performance of digital campaigns (Saura et al., 2017) serve as dependent variables in the experiment (Table 2).

**Table 2: Dependent Variables - Experimental Design**

KPIs
Click-Through Rate (CTR)
Number of Conversions
Conversion Rate
The Return on Ad Spend (ROAS)

The Click-Through Rate (CTR) is a KPI that indicates how often an ad is clicked in relation to the number of impressions. The CTR provides insights into the attractiveness of a campaign. This KPI is crucial for understanding the click rate and user engagement (Chaffey & Ellis-Chadwick, 2019). The number of conversions refers to the number of users who perform a specific target action. In this investigation, purchases were considered as conversions. Since the goal of the campaign is to increase sales, the conversion activity of the initiated campaigns can be described as purchase transactions. The number of purchases provides insights into the conversion rate of the campaign into direct sales and can be used as a financial success criterion (Kotler et al., 2016). The conversion rate refers to the percentage of visitors to an ad who perform a specific target action. In our study, the target action is a purchase. This KPI measures the campaign's success in prompting users to act. A high conversion rate indicates that the campaign effectively reaches and mobilizes its target audience (Ryan, 2016). The Return on Ad Spend (ROAS) is a measure of the revenue generated relative to the advertising expenses. The ROAS is used to evaluate the cost efficiency and return on investment of the campaign. A high ROAS indicates that the advertising expenses are profitable and the investment pays off. ROAS is an important KPI for determining the financial success and overall effectiveness of the campaign (Chaffey & Ellis-Chadwick, 2019).

### 3.2. Data Collection and Data Analysis

The experiment was conducted over a two-week period from May 13, 2024, to May 29, 2024. The time interval of two weeks is considered sufficient to evaluate the short-term impact of the digital marketing activities (Wedel & Kannan, 2016). The data sources collected in this study are based on the results of ads simultaneously run on the Meta platform. The data collection is based on the systematic process of capturing and analyzing data obtained from the campaigns conducted on the Meta platform. The collected data were securely stored and made available for analysis by Meta. Necessary measures were taken to ensure the integrity and confidentiality of the data. Data retention protocols and advertiser transparency were adhered to in accordance with data security guidelines and the rules of the Meta platform. Statistical analysis methods are employed to regularly and systematically examine the data and draw meaningful conclusions. Descriptive statistics are used to summarize the general characteristics of the dataset and are calculated for the KPIs of the two marketing activities as needed. The statistical analysis and data organization system mentioned here takes place directly on the advertising platform, leaving advertisers with no ability to influence it. However, they have the opportunity to double-check the accuracy of the data through their own website. Meta completes the statistical analysis, the calculation of KPIs, and their verification.

## 4. FINDINGS AND DISCUSSIONS

A comparative KPI analysis is crucial to demonstrate the efficiency of the two campaigns. AI-driven campaign demonstrated superior performance in all KPIs (CTR, number of conversions, conversion rate, and ROAS).

**Table 3: KPI Results**

	AI-Campaign	Human-Campaign
Click-Through Rate (CTR)	0.32%	0.30%
Number of Conversions	22	16
Conversion Rate	6.61%	3.89%
Total Spend	4899.28 TRY	4887.08 TRY
Revenue	17697.40 TRY	11193.00 TRY
The Return on Ad Spend (ROAS)	3.61	2.29

By AI-Campaign the Click-Through Rate (CTR) was 0.32%. The campaign received 0.32% clicks relative to the number of impressions, resulting in 22 purchase actions and achieving a conversion rate of 6.61%. The Return on Ad Spend (ROAS) was determined to be 3.61. This ratio indicates that every 1 TRY invested generated a return of 3.61 TRY. The KPI results of the human-led campaign show a Click-Through Rate (CTR) about 0.30%. The campaign received 0.30% clicks relative to the number of impressions, resulting in 16 purchase actions and achieving a conversion rate of 3.89%. The Return on Ad Spend (ROAS) was determined to be 2.29. This ratio indicates that every 1 TRY invested generated a return of 2.29 TRY. It can be observed that the CTR (Click-Through Rate) of the AI-supported campaign is higher than that of the human-managed

campaign. This could indicate that the AI-generated ad texts or images capture the target audience's attention more effectively. The higher CTR for the AI campaign suggests that the visuals or text used were more engaging for the audience. The AI campaign led to more conversions and a higher conversion rate, indicating better performance in turning clicks into purchases. The AI campaign achieved a higher ROAS, meaning it was more cost-effective and generated more revenue per unit of currency spent.

This performance advantage can be explained by two reasons: One reason could be using different visual characteristics. AI-Supported Campaign utilized complex and chaotic visuals with a gamified appearance, which, while attention-grabbing, contradicted the brand image and visual integrity. The descriptive text was also more detailed, which diverged from the brand's typical communication style. Human-Managed Campaign featured a more readable and flat creative structure with softer colors, aligning better with the brand's communication style. The ad text was "Now waiting for you: a 10% discount opportunity on your first purchase at Paul Kenzie," which was more implicit, with the product not being obviously displayed in the image or text. The AI-generated content clearly indicates what users can expect after clicking the ad, which could explain the higher click rate and conversion rate. Users who click on the ad are more likely to start their shopping journey, knowing what to expect on the website. Another reason could be target audience preferences and targeting strategy. AI-Supported Campaign focused on men aged 18 to 40 living in Istanbul, Ankara, and Izmir, interested in men's fashion and fitness. Human-Managed Campaign: Targeted men aged 18 to 35 across Turkey interested in skincare and fashion accessories. AI targeted the three most populous cities in Turkey and employed broader interest-based targeting. Human-managed campaign targeted a specific demographic across the entire country.

## **5. CONCLUSION AND IMPLICATIONS**

The design and management of digital marketing campaigns today is increasingly subject to the influence of artificial intelligence (AI) technologies. In this study, an experiment is conducted to compare the performance of AI- and human-driven social media marketing campaigns. Both campaigns were executed on the Meta platform simultaneously within the same time frame, with identical budgets and for the same purposes. The goal of both campaigns was to increase sales of the brand's men's briefs with a focus on "10% off your first purchase". The optimization settings of each campaign and the way the ads were presented to users were different in both campaigns. The performance was evaluated by means of selected KPIs. The data collected over a two-week period on these KPIs was used in a comparative analysis of AI-supported and human-led campaigns. The data has been gathered and analyzed via the Meta platform. According to the results of the conducted experiment it can be concluded that the AI-supported campaign outperformed the human-managed campaign in terms of key metrics such as CTR, conversion rate, and ROAS. The better performance of AI-supported campaigns can be attributed to the AI's ability to generate more engaging images and texts, directly showcasing the offer and what is being offered or to the targeting strategy developed by AI.

The comparative effectiveness of AI-supported versus human-managed marketing campaigns reveals that while AI can automate and optimize many aspects of marketing, the human element remains essential for creativity and strategic oversight. Research indicates that AI can perform comparably to experienced human marketers in certain contexts, such as closing sales calls, but it often lacks the nuanced understanding and emotional intelligence that human marketers bring to the table (Ullal et al., 2020; Davenport et al., 2020). The balance between AI capabilities and human ingenuity is critical; effective marketing strategies require a synergy that leverages the strengths of both (Mani, 2024; Tauheed et al., 2024). In terms of costs AI-supported campaigns often have lower operational costs due to automation of tasks. AI technologies can reduce costs by analyzing large datasets and optimizing campaigns. However, initial investments in AI technologies can be high. Human-managed campaigns involve higher personnel costs due to the time and expertise required for creative processes, analyses, and strategy development. Despite higher costs, the use of human creativity and emotional elements can justify the expenses. In conclusion, the integration of AI into marketing strategies presents a transformative opportunity for businesses to enhance campaign effectiveness through improved targeting, personalization, and operational efficiency. The integration of AI and human expertise holds great potential for optimizing digital marketing strategies. Content that is quickly generated and dynamically organized by artificial intelligence, significantly reducing both personnel costs and campaign processing time, can be enriched by humans with the emotional and creative elements necessary for effective brand communication. The most successful marketing campaigns will likely be the hybrid ones that effectively combine AI's strengths with the irreplaceable insights and creativity of human marketers. A balanced approach that combines the strengths of both AI and human capabilities can lead to the most effective and compelling marketing strategies. This study will help to manage digital marketing campaigns more efficiently and sustainably. They will enable companies to make the best use of AI technologies and maximise overall performance by combining human expertise and AI capabilities.

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