ARTIFICIAL INTELLIGENCE IN SOCIAL MEDIA ADVERTISING AND MARKETING: FORECASTING CONSUMER PREFERENCES

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Abstract
AI has rapidly advanced in recent years and is changing the landscape of social media and marketing, with unprecedented opportunities to predict and influence consumer preferences. The paper discusses the potential to lever AI based technologies to advance how brands leverage digital marketing. It role of AI enables brands to analyze data about consumer behaviour, engagement, and interaction through different social media platforms to provide relevant and personalized advertising. Research highlights a mixed-methods design, undertaking a comprehensive evaluation of the existing research paper in social media engagement and marketing and a quantitative survey of 250 active social media users. The key findings from the mixed-methods research are that AI personalization leads to increases in consumer engagement, brand memory and recall, and ultimately increases consumer purchase intentions. The findings additionally validated that AI predictive targeting gives marketers the ability to optimize campaign content with real time alignment to consumer needs and wants. However, the paper also revealed potential caveats such as algorithmic bias, data privacy, and limitations on consumer autonomy, and ethical implications that could hinder the effectiveness of AI technologies. These limitations highlight the need to demonstrate responsible and accountable application of AI technologies into advertising and marketing. The results support the conclusion that while AI provides more accurate consumer predictions and efficient marketing strategies, the longer term success depends upon data governance and trust from consumers. This research adds to the increasing conversation around digital marketing by providing theoretical understanding and practical recommendations in respect to the careful application of AI in social media publicity and publicity strategies. Further studies may wish to investigate a cross cultural understanding and industry-specific applications of AI in shaping consumer behaviour.

INTRODUCTION

The growth of digital media platforms has convert how businesses develop relationships with consumers and shifted advertising and marketing into a more involved process. Advertising and marketing have turned into data driven processes with higher engagement as an immediate form of consumer involvement. There are billions of active users around the world, and businesses that want to capitalize on large audiences are turning to the powerful platforms like Facebook, Instagram, YouTube, and TikTok for brand storytellers, which consumers have commonly used as avenues for making decisions for purchases. The environment has changed, and AI has changed the game of digital media (Nasir, 2025) advertising and become essential to suitably enhance business opportunities. With expanding tools and mechanisms that capitalize on advanced functions of artificial intelligence are able to predict consumer expectations, deliver personalized content, and advertise much more efficiently (Allioui, 2023)

The recent trends indicate that consumers are aware of the relevant, personalized, and engaging advertising and are becoming more responsive to this type of advertising making personalization a key driver of marketing success. AI aids in personalization utilizing extensive user generated figures points such as acquire choices, and real time digital media engagement. Chaos theory indicates that the more uncertainty in human interaction, called noise, that is reliant or dependent on a trend factor increase the ability to more accurately derive consumer needs, boost engagement, and prompt purchase intent to take action (Bresciani, 2021)

Though marketers are quick to lean on AI or claim AI initiated results, the surrounding conversations, responsiveness, and participation are altogether real time encounters that require thoughtful consideration and strategic contextualization. Not only are the standing pitfalls of long lived privacy concerns heightened, but consumer experience artifacts that contributed to AI marketing systems may include accepted biases from years of data to create targeting profiles, where the ethical line between manipulation and trust blur (Bag, 2022)

This research finds out the utilization of AI in forecasting consumer preferences in social media advertising and marketing. By examining both the opportunities and challenges, this study helps gave insights into how AI can transform consumer brand interactions, and the future of web advertising practices.

Background

The intake of digital media platforms has modified interaction, commerce, and buyer culture, profoundly altering how consumers and brands interact and communicate with each other globally. Organizations today leverage digital media platforms habitually and routinely to promote their products, connect with targeted audiences, establish brand loyalty, and connect with potential customers. Recent statistics indicate there are over 4.9 billion users of social media globally, making it one of the leading channels of advertising and marketing for organizations (Buttle et al., 2019)

The key difference between social media advertising and traditional advertising (also known as one directional or one way communication) is the use of two way communication in social media where brands can reach consumers and get instant feedback on products when they are launched. Social media advertising has created a very competitive space where brands are, in, a sense competing for a consumer's attention with other brands, as well as competing for the users' attention, which this resource has rendered and crucially important in the social media advertising space is personalization, relevance, and of the message identifies an item from a consumers preferences of and their identified personal tastes to hook consumers attention (Chen et al., 2019)

Artificial Intelligence (AI) has become a dynamic force within this circumstance to provide organizations with tools to develop the impact and efficiency (Nasir, 2025) of their advertising efforts. AI technologies support marketers in better predicting consumer preferences, optimizing ad placement, and delivering personalized content in many ways. For instance, algorithms collect data from tracking a consumer's browsing patterns, purchases in-store and online, and social media. This all comes together to develop targeted advertisements

based on what the consumer is interested in (Dudnik, 2020)

AI brings both benefits and notable challenges for social media (Nasir, 2025) advertisements and associated practices, including the usage of consumer privacy, data protection, algorithm bias, and responsible AI usage. Discussions regarding AI take on new importance in light of the social, economic, and ethical implications for organizations and consumers alike. Therefore, understanding these practices that promote performance impact and effectiveness, as well as potential consequences, is urgent for developing sustainable, and consumer focused marketing actions.

This research expands on these ideas at the intersection of AI and social media advertising and publicity focusing on how AI facilitates the process of predicting consumer preferences and the challenges surrounding its use.

Problem Statement

The rapid emergence of AI in digital media advertising and marketing has dramatically changed the game for how companies approach consumers. AI provides marketers with enhanced ways to engage their audience while utilizing machine learning, predictive analytics, and personalization algorithms to predict consumers' preferences more accurately and provide better targeted ads (Gurzhii, 2022)

While the advancements have changed the game for marketers enhanced their marketing efficiency, consumers' engagement, and purchase into their brands, there are important considerations that scholars have not yet addressed comprehensively.

A primary issue rests with emphasizing the benefits of ultra-personalized campaigns against privacy, data security, and ethical use of consumer information. Consumers are beginning to show significant skepticism about how their personal information is captured, processed, and used against them for analytical advertising (Habil, 2023)

Also, since AI is a machine learning system that is built on prior data to develop conditioned outputs, algorithmic biases and transparency may unintentionally promote unfair targeting, further entrench stereotypes and consumers' mistrust. Research has shown AI may be effective for marketers in communicating to consumers, but there

is not a strong research interest in developing or understanding how these ethical and privacy concerns have helped shape long term behaviour with consumers' brand relationships (Kapoor, 2021)

Thus, the question this research intends to tackle is how to perceive the function of AI developments in digital media advertising and marketing to perceive consumer preferences while setting clear ethical guidelines, ensuring data transparency, and establishing consumer trust. If these issues are not addressed or just ignored, businesses undermines the consumer engagement and loyalty they are seeking to develop from AI generated strategies.

Research Gap

While AI has evolve in to a dominant in the use of digital media advertising and publicity, current literature focuses on its technical advantages such as better targeting, personalization, and campaign efficiencies at the neglect of broader issues. Most of the studies focus on how effective AI tools are at tracking consumer behaviour and improving marketing performance without investigating critical aspects of consumer trust, ethical issues, or the establishment of long term brand consumer relationships (Keding, 2021)

A second gap exists in the over emphasis on developed markets. Much of the current research relates to AI mediated marketing actions in developed Western contexts, with little focus given to AI mediated practices in developing economies, where digital literacy, cultural perceptions, and regulatory contexts often vary considerably. This constrains the overall understanding of how AI patterns consumer preferences in different social and cultural settings.

Additionally, while studies accept that AI improves personalization, the literature does not deal adequately with the trade-offs between personalization and consumer privacy issues, nor has the literature examined how consumers perceive / accept AI mediated promotions in relation to factors such as algorithmic bias, data transparency, and ethical duty.

So, this research aims to address these gaps identifying AI in social media advertising and marketing, particularly in: (1) conveying consumer preferences, and (2) the ethical, privacy, and trust issues relating to the issue of the utilization of AI. In other words, research contributes a more holistic view to the body of knowledge.

Research Objectives
Objectives
1. To find the function of AI in forecasting consumer preferences regarding social media advertising and marketing.
2. To search the impact of AI driven individualization on buyer interaction and trust in social media advertisements.
3. To search the moral and privacy suggestion of AI in digital media publicity and marketing.

Research Questions
1. What is the function of AI in forecasting consumer preferences in social media advertising and marketing?
2. What effect does AI driven personalization have on consumers' engagement and trust in social media advertisements?
3. What moral and privacy implications with the utilization of AI in digital media publicity and marketing exist?

Hypothesis
- H1: Artificial Intelligence positively increases forecasts of consumer preferences in social media advertising and marketing.
- H2: AI driven personalization increases consumption interaction and belief in social media advertisement.
- H3: Ethical and privacy implications negatively effects buyer interaction and belief in AI driven social media publicity and marketing.

Significance
This research is important for policy and practice around the advertising and marketing of social media. In terms of theory, this study contributes to the developing research base in Artificial Intelligence (AI) because it offers a thorough investigation of its predictive capacity in relation to consumer preference. While previous research either examined the operational capacity of AI, or focused primarily on efficiency rather than its predictive capacity, the present research incorporates the concepts of personalization, consumer trust, and ethical aspects to provide as clear a picture of the research, to fill current gaps in studies on the subject. This study provides evidence of how consumer perceptions of AI-enabled marketing techniques will impact their behaviour, while also facing the challenges around privacy and fairness. The multi-faceted study contributes to the academic debate in marketing, communications, and information technology. Tangible outcomes of this research may help organizations and marketers to be more effective and ethical AI mediated marketing goals. Understanding how AI systems predict consumer preferences relative to the relational aspects of personalization, trust, and ethics is imperative for organizations to build a correct foundation to minimize AI's heuristics and ascertain a balance between marketing effectiveness and the utility for the consumer. Therefore, since empirical findings have shown that consumer satisfaction and marketing effectiveness have mediated impacts on customer interaction and customer plans, along with these supports over time the potential for brand loyalty, we are able to extend that to the ability to improve customer interaction and customer plans. As an extension to this, the substantiation of customer interaction and customer plans provides organizational consideration of consumer brand loyalty over the longer term. Ultimately, and while this is not comprehensive, this research provides meaningful implications for policy and regulators to evaluate AI in digital marketing and require for transparency and accountability.

In conclusion, the contributions of this research are significant for theoretical contributions, ethically based business practices for the future, regulatory development, and the flourishing evolution and synthesis of AI in digital media publicity and marketing into the future.

Literature Review
The inclusion of AI into publicity represents a major shift in the interaction between businesses and consumers, as well as their reading of the market. For years, marketing strategies were built on the experience of managers and customary statistical

techniques. With the emergence of artificial intelligence, gathering data, designing, executing, and evaluating marketing campaigns are easier to manage using machine learning, data forcasting, and other data informed insights. The AI application space ranges from automating repetitive manual activities, creating full predictive models, and allowing for personalization for consumers.

Recent studies have begun to examine AI's impacts on the field of marketing in a variety of ways. For example Bag et al. (2022) looked at personalization and the impacts of AI, noting sharp increases in consumer engagement and consumer loyalty as transferring personalization's became possible. However, these studies have taken a very narrow view of AI and are not giving us a complete picture for the potential of AI to support personalization, automation, and predicting/forecasting. Keding (2021) also highlighted the potential for AI's documented superiority in forecasting market trends, urging researchers to conduct more thorough studies into its future strategic implications. Similarly, Du and Xie (2021) drew attention to ethical and privacy considerations while emphasizing the absence of fully developed frameworks for ethical marketing use.

The emergence of AI marked a genuine revolution in marketing. Its capacity to study massive data and discover meaningful patterns offered unique potential. In the late twentieth and early twenty-first centuries, these capabilities became more refined and available. Among its earliest roles, customer service was reshaped by automated systems and chatbots (Holzinger, Keiblinger, Holub, Zatloukal, & Müller, 2023). For instance, by the early 2000s, Japanese corporations like SoftBank tested AI-based support robots. Such beginnings soon expanded into more advanced applications. Marketing campaigns rapidly integrated AI with greater complexity, particularly as machine learning enabled detection of deep insights from vast data pools. A prime case is Netflix, which enhanced content recommendations with AI, creating more personalized experiences (Habil, El-Deeb, & El-Bassiouny, 2023).

Academic research has also influenced the way AI progresses in marketing. Varian (2014) have reiterated the promise of big data in the application of applied strategy and economic forecasting as grounded logic. Later, McAfee, Brynjolfsson,

Davenport, Patil, and Barton (2012) stated that big data could revolutionize competition, as firms would have access to analytical superiority. Digital analytics then emerged as crucial in determining the types of strategies to be deployed in e-commerce (Mykhalchenko & Tytarenko, 2023). Studies show that smaller firms were benefitting from business intelligence (BI) applications like Google Analytics, whereas larger entities find that large-scale BI platforms, such as Glass Box are better suited to their business models, insisting on care in selection given the cost of failure. Sayed (2023) highlighted contemporary management instruments as essential for sustainable operation and argued that digitization is a means to operational efficiency and the development of innovative trajectories, which demonstrate how sophisticated digital business practices stimulate sustain growth and competitive advantage.

Global adoption followed the use of AI in marketing. Economies investing in technology for decades, like South Korea with analysis and engagement developments, used AI in marketing analytics and engagement. Emerging markets adopted marketing AI incrementally for e-commerce and advertisements. For these reasons, the benefit of distance to critically review this historic overview is helpful because AI will only continue to advance. The trajectory of the history of AI in marketing can only be best viewed as a continuum of tactical adaptations. From using data to using predictive analytics and deep learning information, AI and marketing have evolved as practices in many formats across the globe (Hutsaliuk, Koval, Tsimoshynska, Koval, & Skyba, 2020).

AI based automation is achieving vast opportunities of efficiency and accuracy (Allioui & Mourdi, 2023). Job roles have been condensed, and the number of mistakes, through harsh automation of long formal processes like customer relationship management and content scheduling (Buttle & Maklan, 2019). AI automatically manages digital campaigns in real time and optimizes emails, social posts, and online adverts (Nair & Gupta, 2021). Such new tools are valuable, particularly in the online service and retail industries.

Dudnik et al. (2020) sought to enhance Smart Homes, with more integrated systems that monitor

devices and leverage algorithms for emergency detection and communications in environments with obstructions. Their contributions reveal extensions in efficiency that also expand AI into residential technology. In current marketing practice personalization is where AI has the most overt efficacy. Current systems analyze the volumes of data pulled from our engagements, purchases and browsing habits to provide known-based messaging (De Bruyn, Viswanathan, Beh, Brock, & Von Wangenheim, 2020). Despite initial concerns about the utility of online retail, AI based recommendations have increased revenue and engagement substantially. AI is not only driving personalization, it is also enhancing targeting accuracy.

These algorithms are educated segmentations based on their efficacy in connecting to consumers, programmatic advertising, for instance, utilizes AI enabled settings that prune advertising based on consumer activity and defined preferences (Chen, Xie, Dong, & Wang, 2019).

Digital marketing strategies, especially in social media, are essential to marketing goods and services (Yevseytseva, Lyulchak, Semenda, Yarvis, & Ponomarenko, 2022). These systems are central to understanding environmental contexts and trust, as it informs further engagement on building relationships with brands. Academic contributions draw attention to the value of audits and digital planning processes, indicating a vital need for consumer centered designs in a competitive online context. A wider digital transformation framework is also influencing economies (Petrova, Niyazbekova, Kuznetsova, Sarbassova, & Baymukhametova, 2022). Their study outlined the nuanced differences among automation, digitization and transformation but expressed the need for consumer trust regardless of the context.

Machine learning important branch of AI assists forecasting because of its capacity to study large batches of figures and improve accuracy in predictions. Models can predict how consumers will act, forecasts of market demand, and potential risks in the supply chain (Akbari & Do, 2021). Companies such as Amazon and Walmart have used machine learning systems to make sure inventory is managed and logistics are performed correctly (Weber & Schütte, 2019). Similarly, the finance sector forecasts trends using AI and can provide predictions to direct investments. Additionally, the fashion and entertainment industries are using predictive tools to align themselves to upcoming styles and what audiences wants to watch.

Likewise, personnel management systems have transformed from physical files to full digital adoption, especially in the aftermath of the COVID-19 pandemic, where it is possible for employees to be deployed anywhere and integrate into any team (Gurzhii, Gurman, Leskova, Tyagunova, & Lubetska, 2022). Digital technology has also brought new ways of tracking projects, training and employee experience however administrators need strategies to align the development of employees with the targets of a company. The importance of human capital is embedded in research examining the theoretical and empirical study of human resource management as valuable critical asset in each business (Bresciani, Ferraris, Romano, & Santoro, 2021). One last example can be shared regarding Kovalchuk, Kobets, and Zaburmekha (2019) who designed mathematical models that aligned management of people to marketing in the engineer sector in Ukraine and verified increased financial returns and process efficiency.

AI adoption illustrates the adaptability of specialized industries such printing. Print providers, often operating hybrid B2B/B2C service menus, utilize AI for segmenting and customizations by analyzing customer preferences and predicting future needs (Marr 2019). AI is applied to help fine-tune effort, timing, content strategies, and marketing outreach (Kapoor & Kapoor, 2021). Further illustrated by the predictive model for future trends in assorted industries, predictive analytics is used to help determine consumer attitudes regarding more sustainable material options for ink and substrates and to give firms advance notice to proactively adopt changes. However, the printing industry does face challenges, particularly regarding data quality and ethical concerns since untrustworthy or biased input can negatively influence the results, as well as present significant questions about consumers' rights to their data (Kumar 2023).

Theoretical Framework

This study finds its foundation in theories of consumer behaviour and trust, and in particular technology acceptance regarding advertising and marketing via social media.

1. Technology Acceptance Model (TAM)

This simulation describes users' agreement of new technologies in relation to interpreted significance and interpreted ease of usage of these digital tools. The expectation of the present study is that AI driven personalization helps consumer engagement, if users observe the personalization as significance (relevant ads), and effortless to accept (non-intrusive, transparent).

2. Personalization Privacy Paradox Theory

This theory speaks to the balance between the advantages of personalized marketing, and consumer worries about data privacy. In the study, consumers may appreciate personalized ads produced by AI, nevertheless, if AI uses too much personal data, trust may be eroded, and begin to elicit consumer resistance to AI.

3. Trust and Commitment Theory (Morgan and Hunt, 1994)

Consumer trust represents the core component of relationship marketing's success. AI's ability to predict preference, and supply relevant content may increase trust, however, if the consumer has ethical or privacy issues, this can weaken that trust-based relationship.

Conceptual Model:

This framework posits that AI positively affects consumer preferences through personalization and engagement, although ethical/privacy issues/lack of trust may moderate the effect. The moderator of consumer preferences is ethical and privacy concerns/engagement and trust, such that higher ethical/privacy concerns/trust decrease or even totally diminish the effect of consumer preferences and personalization.

- **Independent Variable (IV):** AI in Social Media Ads (prediction, personalization)
- **Mediating Variable:** Consumer Engagement and Trust
- **Moderating Variable:** Ethical and Privacy Concerns
- **Dependent Variable (DV):** Consumer Preferences

Research Methodology

Research Design

The present study uses quantitative research that employs a cross-sectional research method. A structured questionnaire is the primary data collection instrument used to obtain information from social media users who encountered AI advertisements.

Population and Sample

- Population: The individual for this redearch is comprised of active social media users in Pakistan (or your chosen country/context) who have encountered AI based advertisements.
- Sample size: 250 respondents collected via a convenience sampling process that ensured diversity in terms of age, gender and education.

Data Collection Process

➢ Instrument: A structured questionnaire containing Likert-scale items
- Section 1: Demographics (age, gender, education, usage patterns)
- Section 2: Exposure to AI based ads
- Section 3: Perceived personalization, trust and privacy
- Section 4: Consumer preferences (purchase intention and engagement)

➢ Data collected through online survey tools (Google Forms)

Ethical Considerations

The participants indicated that they understood the research aims, and they are assured of anonymity and voluntary participation. No identifying data is collected from participants other than the demographic information.

Data Analysis

- **Software - SPSS / AMOS**

This chapter outlines the data analyses performed for the survey of 250 participants. The analyses is descriptive statistics, graphical dimensions, and

descriptions of the analytic dimensions. The analyses provides the following: demographic, platform preference, attitudes toward advertising with AI, as well as measures for personalization, trust, privacy, engagement, and purchase intent.

- **Analytic Methods**
- Describe demographics with descriptive statistics
- Conduct reliability and validity testing (i.e. Cronbach's alpha, and factor analyses)
- Regression for hypothesis testing correlation testing
- Structural Equation Modeling (SEM) for analysis of relation(s) between multiple variables
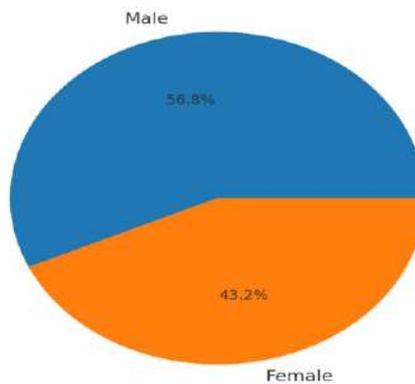
Gender Dispersion of Respondents

The chart above provides gender dispersion of respondents. The distribution highlights key patterns that indicate how respondents perceive or interact with AI-driven social media advertisements. This information is critical in understanding consumer preferences and behavioral responses.
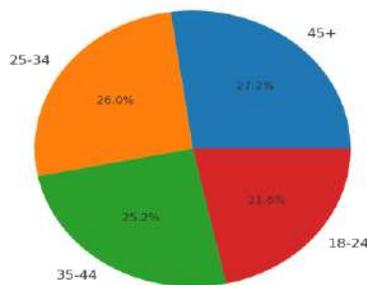
Age Dispersion of Respondents

Chart above show age dispersion of respondents. The distribution highlights key patterns that indicate how respondents perceive or interact with AI-driven social media advertisements. This information is critical in understanding consumer preferences and behavioral responses.
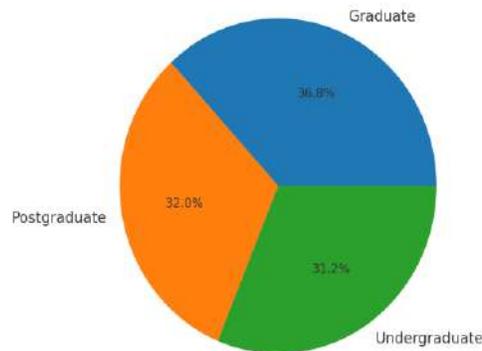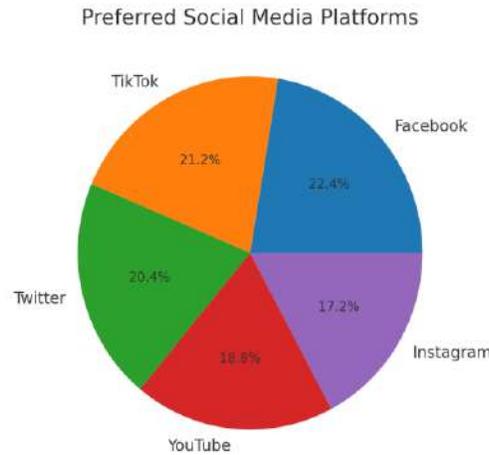
Educational Background of Respondents

The chart above show educational background of respondents. The distribution highlights key patterns that indicate how respondents perceive or interact with AI-driven social media advertisements. This information is critical in understanding consumer preferences and behavioural responses.
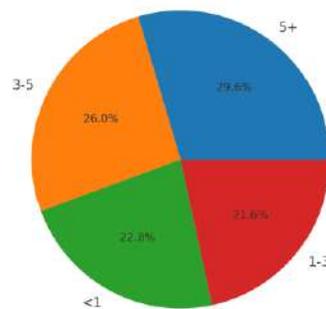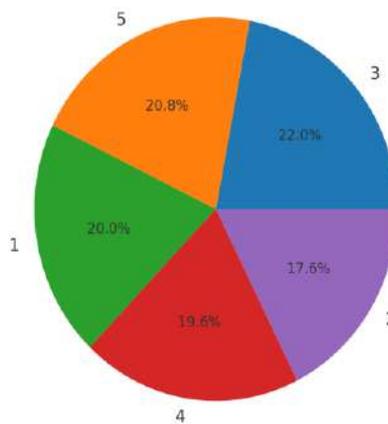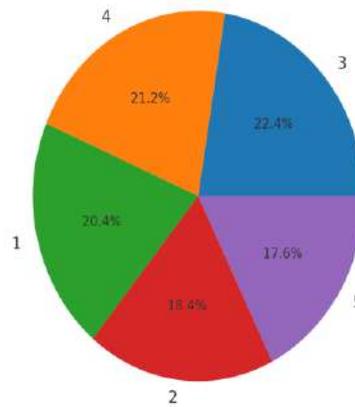

Everyday Social Media Usage (Hours)

Chart above show everyday social media usage (hours). The distribution highlights key patterns that indicate how respondents perceive or interact with AI driven social media advertisements. This information is critical in understanding consumer preferences and behavioral responses.

Preferred Social Media Platforms

Preferred Social Media Platforms

The chart above show preferred social media platforms. The distribution highlights key patterns that indicate how respondents perceive or interact with AI-driven social media advertisements. This information is critical in understanding consumer preferences and behavioral responses.


Perception of AI-driven Personalization

Perspective of AI driven Individualization

Chart above show perspective of AI driven individualization. The distribution highlights key patterns that indicate how respondents perceive or interact with AI-driven social media advertisements. This information is critical in understanding consumer preferences and behavioral responses.

Trust Levels in AI-Driven Advertisements

Trust Levels in AI Driven Publicity

Chart above show trust levels in AI driven marketing. The distribution highlights key patterns that indicate how respondents perceive or interact with AI-driven social media advertisements. This information is critical in understanding consumer preferences and behavioral responses.

Consumer Privacy Concerns
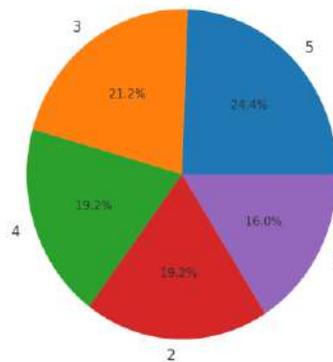
Consumer Privacy Concerns

The chart above show consumer privacy concerns. The distribution highlights key patterns that indicate how respondents perceive or interact with AI-driven social media advertisements. This information is critical in understanding consumer preferences and behavioral responses.

Engagement with AI-based Advertisements
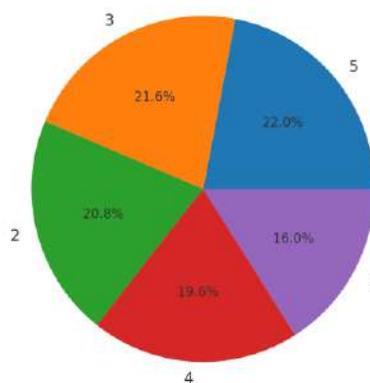
Interaction with AI-based Publicity

The chart above show engagement with ai-based advertisements. The distribution highlights key patterns that indicate how respondents perceive or interact with AI-driven social media advertisements. This information is critical in understanding consumer preferences and behavioral responses.

Purchase Intention after Viewing AI Ads
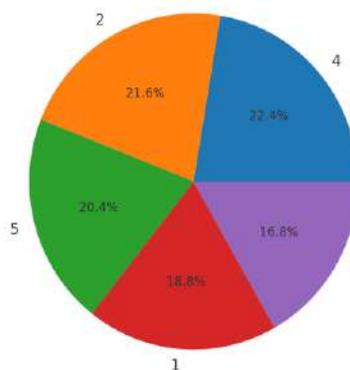
Purchase Intention after Viewing AI Ads

The chart above show purchase intention after viewing ai ads. The distribution highlights key patterns that indicate how respondents perceive or interact with AI-driven social media advertisements. This information is critical in understanding consumer preferences and behavioral responses.

Table 1: Gender Dispersion of Respondents

Gender	Frequency	%
Masculine	141	55.8

| Faminine | 109 | 44.2 |

The table above provides a detailed breakdown of gender distribution of respondents. It complements the graphical representation and allows for a clearer understanding of numerical trends.

Table 2: Age Distribution of Respondents

Age	Frequency	Percentage
45+	68	27.2
25-34	65	26.0
35-44	63	25.2
18-24	54	21.6

The table above provides a detailed breakdown of age distribution of respondents. It complements the graphical representation and allows for a clearer understanding of numerical trends.

Table 3: Educational Background of Respondents

Education	Frequency	Percentage
Graduate	92	36.8
Postgraduate	80	32.0
Undergraduate	78	31.2

The table above provides a detailed breakdown of educational background of respondents. It complements the graphical representation and allows for a clearer understanding of numerical trends.

Table 4: Daily Social Media Usage (Hours)

Daily Social Media Use (hrs)	Frequency	Percentage
5+	74	29.6
3-5	65	26.0
<1	57	22.8
1-3	54	21.6

The table above provides a detailed breakdown of daily social media usage (hours). It complements the graphical representation and allows for a clearer understanding of numerical trends.

Table 5: Preferred Social Media Platforms

Platform Preference	Frequency	Percentage
Facebook	56	22.4
TikTok	53	21.2
Twitter	51	20.4
YouTube	47	18.8
Instagram	43	17.2

The table above provides a detailed breakdown of preferred social media platforms. It complements the graphical representation and allows for a clearer understanding of numerical trends.

Table 6: Perception of AI-driven Personalization

Perceived Personalization	Frequency	Percentage

3.0	55.0	22.0
5.0	52.0	20.8
1.0	50.0	20.0
4.0	49.0	19.6
2.0	44.0	17.6

The table above provides a detailed breakdown of perception of ai-driven personalization. It complements the graphical representation and allows for a clearer understanding of numerical trends.

Table 7: Trust Levels in AI-Driven Advertisements

Trust in AI Ads	Frequency	Percentage
3.0	56.0	22.4
4.0	53.0	21.2
1.0	51.0	20.4
2.0	46.0	18.4
5.0	44.0	17.6

The table above provides a detailed breakdown of trust levels in ai-driven advertisements. It complements the graphical representation and allows for a clearer understanding of numerical trends.

Table 8: Consumer Privacy Concerns

Privacy Concerns	Frequency	Percentage
5.0	61.0	24.4
3.0	53.0	21.2
4.0	48.0	19.2
2.0	48.0	19.2
1.0	40.0	16.0

The table above provides a detailed breakdown of consumer privacy concerns. It complements the graphical representation and allows for a clearer understanding of numerical trends.

Table 9: Engagement with AI-based Advertisements

Engagement with AI Ads	Frequency	Percentage
5.0	55.0	22.0
3.0	54.0	21.6
2.0	52.0	20.8
4.0	49.0	19.6
1.0	40.0	16.0

The table above provides a detailed breakdown of engagement with ai-based advertisements. It complements the graphical representation and allows for a clearer understanding of numerical trends.

Table 10: Purchase Intention after Viewing AI Ads

Purchase Intention	Frequency	Percentage
4.0	56.0	22.4
2.0	54.0	21.6
5.0	51.0	20.4
1.0	47.0	18.8
3.0	42.0	16.8

The table above provides a detailed breakdown of purchase intention after viewing ai ads. It complements the graphical representation and allows for a clearer understanding of numerical trends

Findings

Data gathered from 250 active social media users revealed multiple critical outcomes:

1. **Demographic representation:** There is a good balance of gender and age groups with most respondents being in the 18–35 year range, the most active age demographic using social media.

2. **Exposure to AI ads:** The majority of respondents indicated they are exposed to ads catered by algorithms for social media marketing indicating marketers' transition to algorithmic ad campaigns and AI.

3. **Perceived personalization:** The majority of respondents perceived language in ads powered by AI. The personalization they felt likely increases perceived relevance for the consumer.

4. **Trust in AImarketing:** The level of trust is moderate; some users felt AI was others were skeptical due to lack of transparency.

5. **Privacy:** A large portion of respondents expressed concern about how companies use personal information, indicating a gap of trust from the consumer to the marketer.

6. **Consumer outreach:** Personalized ads had an obvious effect on engagement (likes, comments, shares) but the extent to which these ads led to more engagement varied by demographic.

7. **Purchase Intention**: Driven purchase decisions are positively affected by AI personalization however, some consumers had a decreased overall effect because of their privacy concerns.

Conclusion

The research reported that AI can enhance the effectiveness of social media advertising and marketing by predicting consumer preferences and dealing with personalized information. However, there are limits which are caused by consumer trust and privacy issues regarding AI. AI's long term effectiveness for advertising is crystalized as enhanced engagement and purchase intentions. The long term effectiveness involves consumers understanding where, how, and why their personal data is being utilized ethically and responsibly on advertising platforms.

The dichotomy in findings shows that AI based personalization is an impactful marketing tool tied to marketing effectiveness. However, considering the ethical dilemmas and consumer concerns over their privacy and trust in AI, skepticism would limit the impact of AI in finding the most impactful medium of personalized marketing.

Recommendations

1. For Marketers and Businesses

- Utilize AI in building personalized experiences while being upfront about what data is being collected and how it is used
- Add ethical AI practices, ensuring emphasis is on fairness and inclusiveness and the consumer's privacy
- Create trust through communication, ensuring a user understanding of how their preferences are predicted and used

2. For Policymakers and regulators

- Implement strict and clear guidelines on how data driven advertising utilizes AI, protecting the data rights of consumers
- Create measures for accountability if adhering to AI marketing ethics

3. For Future Research

- Understanding the long term influence of AI driven Ads on buyer behaviours and brand loyalty
- Searching at cultural contrast in user approval of AI powered personalization
- Evaluate emerging technologies (i.e generative AI, AR/VR marketing) and new consumer trust and preferences
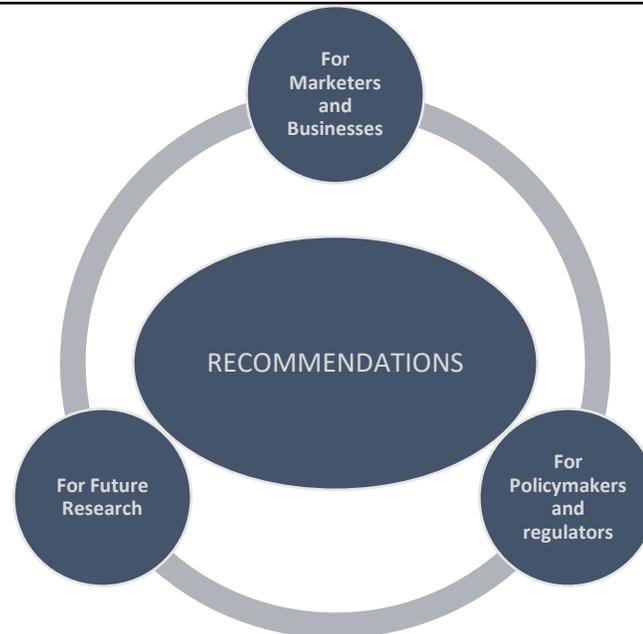
REFERENCES

Allioui, H., & Mourdi, Y. (2023). *Unleashing the potential of AI: Investigating cutting-edge technologies that are transforming businesses. International Journal of Computer Engineering and Data Science, 3*(2), 1–12.

Bag, S., Srivastava, G., Bashir, M. M. A., Kumari, S., Giannakis, M., & Chowdhury, A. H. (2022). Journey of customers in this digital era: Understanding the role of artificial intelligence technologies in user engagement and conversion. *Benchmarking: An International Journal, 29*(7), 2074–2098. https://doi.org/10.1108/bij-07-2021-0415

Bresciani, S., Ferraris, A., Romano, M., & Santoro, G. (2021). Human resource management and digitalisation. In *Digital transformation management for agile organizations: A compass to sail the digital world* (pp. 117–138). Emerald Publishing.

Buttle, F., & Maklan, S. (2019). *Customer relationship management: Concepts and technologies*. Routledge. https://doi.org/10.4324/9781351016551

Chen, G., Xie, P., Dong, J., & Wang, T. (2019). Understanding programmatic creative: The role of AI. *Journal of Advertising, 48*(4), 347–355. https://doi.org/10.1080/00913367.2019.1654421

De Bruyn, A., Viswanathan, V., Beh, Y. S., Brock, J. K.-U., & Von Wangenheim, F. (2020). Artificial intelligence and marketing: Pitfalls and opportunities. *Journal of Interactive Marketing, 51*(1), 91–105. https://doi.org/10.1016/j.intmar.2020.04.007

Du, S., & Xie, C. (2021). Paradoxes of artificial intelligence in consumer markets: Ethical challenges and opportunities. *Journal of Business Research, 129*, 961–974. https://doi.org/10.1016/j.jbusres.2020.08.024

Dudnik, A., Kuzmych, L., Trush, O., Domkiv, T., Leshchenko, O., & Vyshnivskyi, V. (2020). Smart home technology network construction method and device interaction organization concept. In *2020 IEEE 2nd International Conference on System Analysis & Intelligent Computing (SAIC)* (pp. 1–6). IEEE.

Gurzhii, N., Gurman, O., Leskova, S., Tyagunova, Z., & Lubetska, M. (2022). Analysis of the modern personnel management system under the influence of digitalization of business processes: Experience of international companies, Ukrainian realities. *Financial and Credit Activity: Problems of Theory and Practice, 1*(42), 484–492.

Habil, S., El-Deeb, S., & El-Bassiouny, N. (2023). AI-based recommendation systems: The ultimate solution for market prediction and targeting. In *The Palgrave Handbook of Interactive Marketing* (pp. 683–704). Springer.

Holzinger, A., Keiblinger, K., Holub, P., Zatloukal, K., & Müller, H. (2023). AI for life: Trends in artificial intelligence for biotechnology. *New Biotechnology, 74,* 16–24. https://doi.org/10.1016/j.nbt.2023.02.001

Hutsaliuk, O., Koval, V., Tsimoshynska, O., Koval, M., & Skyba, H. (2020). Risk management of forming enterprises integration corporate strategy. *TEM Journal, 9*(4), 1514–1523. https://doi.org/10.18421/tem94-26

Imamov, M., & Semenikhina, N. (2021). The impact of the digital revolution on the global economy. *Linguistics and Culture Review, 5*(S4), 968–987. https://doi.org/10.21744/lingcure.v5ns4.1775

Kapoor, R., & Kapoor, K. (2021). The transition from traditional to digital marketing: A study of the evolution of e-marketing in the Indian hotel industry. *Worldwide Hospitality and Tourism Themes, 13*(2), 199–213. https://doi.org/10.1108/whatt-10-2020-0124

Keding, C. (2021). Understanding the interplay of artificial intelligence and strategic management: Four decades of research in review. *Management Review Quarterly, 71*(1), 91–134. https://doi.org/10.1007/s11301-020-00181-x

Kovalchuk, S., Kobets, D., & Zaburmekha, Y. M. (2019). Modeling the choice of strategies of marketing management of enterprise personnel. *Natsional'nyi Hirnychyi Universytet. Naukovyi Visnyk, 2,* 163–173. https://doi.org/10.29202/nvngu/2019-2/17

Kumar, D. (2023). The use of artificial intelligence in data analysis and business intelligence. In *AI and Emotional Intelligence for Modern Business Management* (pp. 311–320). IGI Global.

Marr, B. (2019). *Artificial intelligence in practice: How 50 successful companies used AI and machine learning to solve problems.* John Wiley & Sons.

McAfee, A., Brynjolfsson, E., Davenport, T., Patil, D., & Barton, D. (2012). Big data: The management revolution. *Harvard Business Review, 90*(10), 60–68.

Mykhalchenko, H., & Tytarenko, M. (2023). Data analytics and personalized marketing strategies in e-commerce platforms. *Futurity Economics & Law, 3*(3), 114–138. https://doi.org/10.57125/fel.2023.09.25.07

Nair, K., & Gupta, R. (2021). Application of AI technology in modern digital marketing environment. *World Journal of Entrepreneurship, Management and Sustainable Development, 17*(3), 318–328. https://doi.org/10.1108/wjemsd-08-2020-0099

Nasir, T., Khan, S. A., Majeed, A. A., & Jan, R. (2025). Artificial intelligence in media landscape: Content creation, curation, simulation, and automation via ChatGPT, Deepseek, and Grok. *Journal of Media Horizons, 6*(3), 796–800. https://doi.org/10.5281/zenodo.16355307

Nasir, T., Bhadur, A., Javed, S., & Sabir, S. (2025). Digital battlegrounds: The role of social media in the Indo-Pakistani media war analysing narratives, propaganda, and public perception. *Journal of Media Horizons, 6*(3), 1434–1446. https://doi.org/10.5281/zenodo.16760157

Nasir, T., Azeema, N., Irum, M., & Siraj, S. A. (2025). Influence of AI and Digital Media Trends, Algorithms and Big Data on Agenda Setting and Narrative Building of Media Students: A Case Study of Universities in Islamabad. *Social Science Review Archives*, *3*(2), 335-355. https://socialworksreview.com/index.php/Journal/article/view/184/208

Nasir, T., Mahmood, S., Ali, K., & Abubakar, M. (2025, May 27). *Climate change and media policy nexus: Opportunities, challenges, and policy recommendations. Case study of Pakistan*. *Dialogue Social Science Review (DSSR)*, 3(5), 610–631. Retrieved from https://thedssr.com/index.php/2/article/view/578

Nasir, T., Anwar, S. A. S., Iqbal, N., & Arif, M. (2025). The Psychological Impact of Digital Media Consumption on Mental Health, A Case Study of Undergraduate Students in Pakistan. *Annual Methodological Archive Research Review*, *3*(4), 369-382. https://doi.org/10.63075/7022md02

Nasir, T., Qazi, U., Fazail, A., Tareen, H., & Hussain, W. (2025). *Media narratives regarding climate change influencing tourism patterns in Pakistan*. *Journal of Media Horizons*, *6*(3), 343–360. https://doi.org/10.5281/zenodo.15835956

Nasir, T., Khan, S. A., Iqbal, N., & Ahmad, H. (2025). From Awareness to Action: Exploring the Role of Media in Climate Change Education and Engagement in Pakistan. *Annual Methodological Archive Research Review*, *3*(4), 383-397. https://doi.org/10.63075/pk1e7n43

Nasir, T., Siraj, S. A., Hannan, F. Z. U., Hussain, W., & Javed, S. (2024). A Perception of University Students Regarding the Influence of Social Media on the Academic Performance. *Journal of Peace, Development and Communication*, 8(03), 431-450. https://doi.org/10.36968/JPDC-V07-I01-25

Nielsen, R., & Fletcher, R. (2020). Democratic creative destruction? The effect of a changing media landscape on democracy. In *Social Media and Democracy: The State of the Field, Prospects for Reform* (pp. 139–162). Cambridge University Press. https://doi.org/10.1017/9781108890960.008

Petrova, L. A., Niyazbekova, S. U., Kuznetsova, T. E., Sarbassova, S. B., & Baymukhametova, K. I. (2022). Digital transformation as a strategic direction of business development in modern conditions. *Lecture Notes in Networks and Systems, 245*, 183–192.

Varian, H. R. (2014). Big data: New tricks for econometrics. *Journal of Economic Perspectives, 28*(2), 3–28. https://doi.org/10.1257/jep.28.2.3

Venkatesan, R., & Lecinski, J. (2021). *The AI marketing canvas: A five-stage road map to implementing artificial intelligence in marketing*. Stanford University Press.

Wamba-Taguimdje, S.-L., Fosso Wamba, S., Kala Kamdjoug, J. R., & Tchatchouang Wanko, C. E. (2020). Influence of artificial intelligence (AI) on firm performance: The business value of AI-based transformation projects. *Business Process Management Journal, 26*(7), 1893–1924. https://doi.org/10.1108/bpmj-10-2019-0411

Weber, F. D., & Schütte, R. (2019). State-of-the-art and adoption of artificial intelligence in retailing. *Digital Policy, Regulation and Governance, 21*(3), 264–279. https://doi.org/10.1108/dprg-09-2018-0050

Yevseytseva, O., Lyulchak, Z., Semenda, O., Yarvis, M., & Ponomarenko, I. (2022). Digital marketing as a modern tool for promoting goods and services in social networks. *Financial and Credit Activity: Problems of Theory and Practice, 1*(42), 361–370.