

AI POWERED PERSONALIZATION IN MARKETING: BALANCING CUSTOMER ENGAGEMENT AND PRIVACY CONCERNS

PERSONALISASI PEMASARAN BERBASIS AI: MENYEIMBANGKAN KETERLIBATAN PELANGGAN DAN KEKHAWATIRAN PRIVASI

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ABSTRACT

The application of artificial intelligence (AI) in marketing strategies has increased rapidly, but there are significant concerns about data privacy that can erode consumer trust. This study aims to explore how AI-based personalization strategies can balance customer engagement and privacy concerns. This study focuses on developing a framework that integrates aspects of technology, consumer behavior, and privacy ethics in the context of digital marketing. This study used the Systematic Literature Review (SLR) approach with the PRISMA protocol to identify and analyze relevant literature. Data were collected from the Scopus and Web of Science databases, with thematic analysis to identify key patterns and themes. The findings suggest that transparency in data usage, user control over personal information, and application of data minimization principles are key strategies for building trust and increasing customer engagement. The study also identifies mediators such as trust and perceived risk that influence the relationship between AI personalization and privacy. These findings make a significant contribution to the development of digital marketing theory and offer practical guidance for marketers to design ethical and effective strategies, which can increase customer loyalty and strengthen long-term relationships.

Keywords: Artificial Intelligence, Personalization, Data Privacy, Customer Engagement, Marketing Ethics.

ABSTRAK

Penerapan kecerdasan buatan (AI) dalam strategi pemasaran telah meningkat pesat, namun terdapat kekhawatiran signifikan terkait privasi data yang dapat mengikis kepercayaan konsumen. Penelitian ini bertujuan untuk mengeksplorasi bagaimana strategi personalisasi berbasis AI dapat menyeimbangkan antara keterlibatan pelanggan dan kekhawatiran privasi. Studi ini berfokus pada pengembangan kerangka kerja yang mengintegrasikan aspek teknologi, perilaku konsumen, dan etika privasi dalam konteks pemasaran digital. Penelitian ini menggunakan pendekatan Systematic Literature Review (SLR) dengan protokol PRISMA untuk mengidentifikasi dan menganalisis literatur yang relevan. Data dikumpulkan dari basis data Scopus dan Web of Science, dengan analisis tematik untuk mengidentifikasi pola dan tema utama. Temuan menunjukkan bahwa transparansi dalam penggunaan data, kontrol pengguna atas informasi pribadi, dan penerapan prinsip data minimisasi adalah strategi kunci untuk membangun kepercayaan dan meningkatkan keterlibatan pelanggan. Penelitian ini juga mengidentifikasi faktor mediator seperti kepercayaan dan persepsi risiko yang mempengaruhi hubungan antara personalisasi AI dan privasi. Temuan ini memberikan kontribusi signifikan terhadap pengembangan teori pemasaran digital dan menawarkan panduan praktis bagi pemasar untuk merancang strategi yang etis dan efektif, yang dapat meningkatkan loyalitas pelanggan dan memperkuat hubungan jangka panjang.

Kata Kunci: Kecerdasan Buatan, Personalisasi, Privasi Data, Keterlibatan Pelanggan, Etika Pemasaran.

1. INTRODUCTION

The application of artificial intelligence (AI) in marketing strategies has experienced rapid growth in recent years. According to McKinsey (2021), 71% of consumers expect personalized experiences from brands, and 76% feel frustrated when those expectations are not met. Instapage (2025) reports that 92% of businesses now leveraging AI-based personalization to

drive growth, and 73% of marketing leaders believe that AI is fundamentally changing personalization strategies. In fact, personalized calls-to-action have a higher performance 202% better compared to the generic version. However, while AI provides a variety of benefits in increasing customer engagement and brand loyalty, there are also serious concerns regarding data privacy. A report from the International Association of Privacy Professionals (IAPP, 2023) shows that 68% of consumers are somewhat or very concerned about online privacy, and 57% feel that AI poses a significant threat to their privacy. In fact, 81% of respondents believed that personal data collected by AI-based companies may be used in ways they do not agree to or do not expect. The Deloitte survey (2024) also highlights the increasing consumer demand for transparency and control over personal data, particularly in the context of generative AI.

This situation poses a dilemma in modern marketing practices: on the one hand, AI-based personalization has proven to be effective in increasing conversions and engagement; but on the other hand, this practice also risks eroding customer trust if not managed ethically and transparently. Therefore, it is important to examine how AI personalization strategies can optimize customer engagement while maintaining trust and privacy protection. The rapid development of artificial intelligence (AI) technology in marketing has opened up new opportunities to create more personalized, efficient, and relevant customer experiences. One of its most prominent applications is AI-based personalization strategies, which are able to respond to consumer behavior in real-time and provide recommendations tailored to individual preferences. However, despite this growing trend, there is an important gap in the scientific literature that has not received much attention, namely the lack of studies that systematically and in-depth analyze the balance between customer engagement effectiveness and privacy protection in the context of AI-based personalization.

Most previous studies tend to emphasize the economic and operational benefits of AI personalization, such as increased conversion rates, customer loyalty, and digital campaign efficiency. However, more sensitive and complex aspects—such as how such strategies can affect consumers' perceptions of privacy violations, feelings of being monitored, or potential misuse of personal data—have yet to be fully addressed. In other words, the current literature tends to be one-dimensional: heavily emphasizing the benefits of technology, but lacking a critical exploration of the social and psychological impacts of overly invasive AI use of customers' personal data. Furthermore, there are still few studies that try to formulate a strategic approach or practical framework that can answer the dilemma between the need for companies to create more personalized interactions with the need for customers to control, transparency, and security of their personal data. The lack of integration between the perspectives of technology, consumer behavior, and privacy ethics makes this topic very relevant for further research. This study is here to fill this gap, by examining in depth how AI-based personalization can be designed in such a way as to maintain a healthy balance between customer engagement and privacy protection, especially in an increasingly complex and competitive digital marketing ecosystem.

The main questions underlying this research are: **How can AI-powered personalization strategies balance customer engagement and privacy concerns in digital marketing?** This question arises from the complexity of modern marketing dynamics, where the intensive use of data to create more personalized experiences is faced with consumer resistance to the collection and use of their personal data. This research aims to explore strategic approaches that enable the implementation of effective AI personalization while remaining ethical and respectful of user privacy.

This research makes a significant contribution to the development of science, both theoretically and practically. Theoretically, this research aims to fill the gap in digital marketing literature which currently still lacks in-depth discussion of the issue of balance between customer engagement and privacy protection in the context of AI-based personalization. By

integrating perspectives from value-based marketing theory, digital consumer behavior, and information privacy theory, this research is expected to broaden conceptual insights while strengthening the synergy between technological and ethical aspects in marketing practices. Meanwhile, from a practical perspective, this research will develop a conceptual framework that can be used as a guide by marketers, AI system developers, and policy makers in designing personalization strategies that are not only effective in business but also sensitive to consumer privacy protection. The findings of this study are expected to help formulate marketing policies that are more ethical, transparent, and focused on building long-term customer trust.

2. RESEARCH METHODS

2.1 Research Design

This research uses an approach Systematic Literature Review (SLR) which follows the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) protocol. This approach was chosen to systematically identify, evaluate, and synthesize relevant scientific literature related to AI-based personalization strategies in digital marketing, especially those that address the balance between customer engagement and privacy issues. By using the PRISMA protocol, this study ensures high transparency and replicability in the study search and selection process, and avoids selection bias.

2.2 Inclusion and Exclusion Criteria

To ensure the relevance and quality of the literature analyzed, this study established the following inclusion and exclusion criteria:

2.2.1. Inclusion Criteria:

- Journal articles that have gone through a peer-review process.
- Publications span the period 2013 to 2025, to reflect the latest developments in AI and digital marketing.
- The main focus is on the topics of AI, personalization in marketing, customer engagement, and privacy and data protection issues.
- Articles are in English and available in full-text form to facilitate in-depth analysis.

2.2.2. Exclusion Criteria:

- Literature that is not relevant to the research focus, such as that which only discusses AI in general without marketing or privacy context.
- Non-peer-reviewed articles such as editorials, opinion pieces, or non-academic reports.
- Publication outside the specified time frame.
- Articles that are not available in full-text format.

2.3 Data Sources

Literature data was obtained from three main credible and comprehensive academic databases, namely:

- Scopus: As one of the largest and most trusted databases for international journals covering the fields of social sciences and technology.
- Web of Science (WoS): Provides access to highly reputable journals frequently used in academic research.

2.4 Search and Selection Process

The literature search process was carried out using a systematic search strategy using a combination of Boolean keywords, namely: ("AI personalization" OR "artificial intelligence

marketing”) AND (“customer engagement” OR “consumer interaction”) AND (“privacy” OR “data concern”). The search is carried out in stages with the following filtering mechanism:

- 1. Title Filtering
Eliminate articles that are not on topic based on the title.
- 2. Abstract Filtering
Checking the relevance of the topic through the abstract summary.
- 3. Full-Text Filtering
Read the entire article to ensure compliance with the inclusion and exclusion criteria.

Each stage of the selection is documented in detail and visualized using PRISMA diagrams for transparency and clarity of the selection process.

2.5 Data Analysis Techniques

After the literature data is selected, the analysis process is carried out using thematic analysis to identify key themes and patterns emerging from multiple studies. This technique allows for the extraction of key concepts, comparison of approaches, and in-depth understanding of how AI personalization strategies manage the balance between customer engagement and privacy. The analysis was carried out manually by the researcher to maintain accuracy and consistency, with the possible use of qualitative analysis software such as NVivo to improve efficiency and accuracy in the process of coding and categorizing data.

3. RESEARCH RESULTS

3.1 Characteristics of the Studies Reviewed

3.1.1. Prisma Protocol

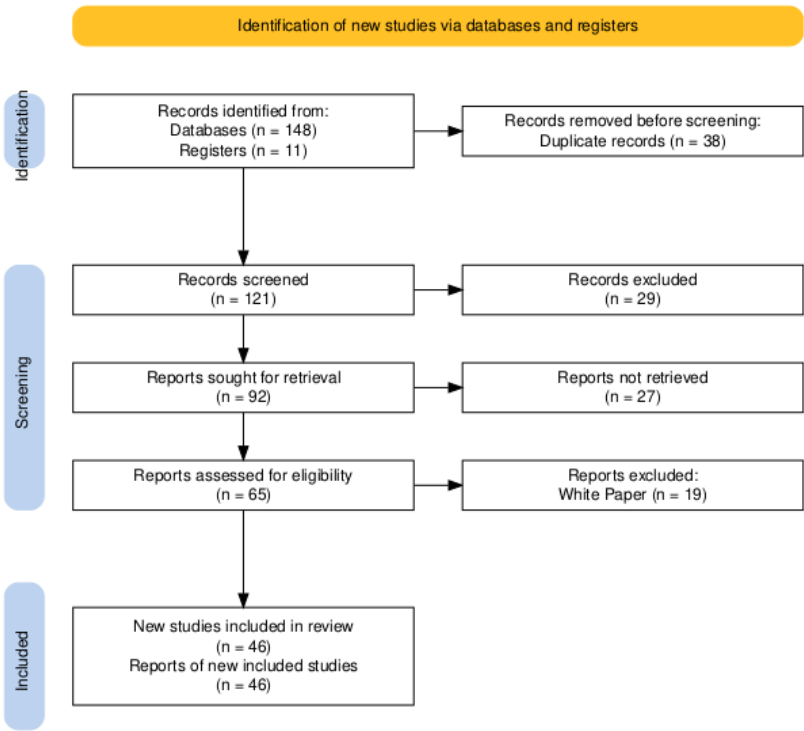


Figure 1. Prisma Protocol
Source: Processed Data, 2025

The process of identifying and selecting articles in this study was carried out by following the protocol. PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) to ensure transparency and thoroughness in the literature review. In the initial

stage, as many as 159 records were successfully identified from various sources, namely 148 articles from scientific databases (such as Scopus, Web of Science) and 11 of additional registers relevant. After the elimination process of 38 duplicates, the number of documents remaining for the screening process is 121 records. Next, an initial screening stage is carried out based on title and abstract, which produces 92 articles which are considered relevant to be investigated further. However, in the process of searching for complete documents, there are 27 reports which are inaccessible or not available in full-text form. From 65 reports which were successfully obtained in full, a comprehensive feasibility assessment was carried out to determine suitability with the research inclusion criteria, namely focusing on AI-based personalization strategies in marketing, customer engagement, and privacy issues. At this level, 19 articles were issued because it is classified as white paper or non-peer-reviewed documents that do not meet established scientific standards. Finally, as many as 46 studies met all inclusion criteria and were included in the final analysis for systematic literature review. These studies serve as the main basis for identifying trends, strategies, challenges, and theoretical and practical gaps regarding how AI-based personalization can balance between customer engagement and privacy protection.

3.1.2. Trending Articles by Year

Tabel 1. Trending Articles by Year

Year	Number of Articles
2024	10
2023	9
2022	9
2021	6
2020	3
2019	3
2018	1
2017	1
2015	1
2013	1
2010	1
2000	1

Source: Processed Data, 2025

Based on the data presented in Table 1, it can be observed that publications related to the topic of AI-based personalization in marketing that consider customer engagement and privacy concerns show a significantly increasing trend in recent years. The peak of publications occurred in 2024 with a total of 10 articles, followed by 2023 and 2022, each contributing 9 articles. This increase reflects the high academic attention to the issue of balancing digital marketing effectiveness and personal data protection in the era of artificial intelligence.

Prior to 2020, the number of publications was minimal and unevenly distributed, with only one article published in 2000, 2010, 2013, 2015, 2017, and 2018. This suggests that this topic was not previously a major focus in digital marketing research. However, since 2020,

there has been a consistent and progressive surge in interest in this issue, marked by an increasing number of publications per year.

This trend shows that the scientific discourse on AI personalization and customer privacy issues in digital marketing is increasingly relevant and a major concern in the academic community, along with the development of technology and increasing public awareness of personal data protection.

3.1.3. Authors' Country Affiliations

Tabel 2. Authors' Country Affiliations

Country	Number of Articles
United States	21
United Kingdom	12
Australia	6
Canada	1
South Africa	1
European Union	5

Source: Processed Data, 2025

Based on table 2 above, the geographical distribution of the data, it can be concluded that research on AI-based personalization in marketing, particularly that which addresses the balance between customer engagement and privacy protection, is mostly conducted in United States of America with 21 articles. This shows that the United States is becoming a major center for the development of discourse and innovation in the field of artificial intelligence-based digital marketing, along with the dominance of large technology companies and a strong research ecosystem in the country. The next position is occupied by English with 12 articles, And Australia with 6 articles, reflecting the significant contribution of English-speaking countries to the development of literature in this field. European Union Collectively also contribute by 5 articles, reflecting the growing attention to data privacy ethics and regulatory issues in the region, particularly following the introduction of the General Data Protection Regulation (GDPR). You have And South Africa each contributed 1 article, shows that while the topic is starting to reach other regions outside the Americas and Europe, its distribution is still uneven. This gap suggests an opportunity to expand the geographic scope in future studies, particularly to understand how local context, regulation, and digital culture influence the effectiveness and ethics of AI-based personalization strategies in different parts of the world.

3.1.4. Research Methods Used

Tabel 3. Research Methods Used

Research Method	Number of Articles
Survey/Questionnaire	25
Meta-analysis	2
Systematic Review	3

Research Method	Number of Articles
Qualitative Study	5
Case Study	4
Literature Review	5
Experimental Study	2

Source: Processed Data, 2025

Based on the distribution of research methods used in the studies analyzed, it appears that the approach is quantitative through surveys or questionnaires dominated by number25 articles. This suggests that many researchers prefer an empirical, respondent-based approach to measuring consumer perceptions, attitudes, and behaviors regarding AI personalization, customer engagement, and privacy concerns.Method Qualitative Also shows a significant contribution, with5 qualitative studies And 4 case studies, which is usually used to dig deeper into context, understand the dynamics of interactions, and explore nuances that quantitative data cannot capture. On the other hand, there are5 literature review And 3 systematic review, which shows an effort to conceptually synthesize and map existing knowledge in this field.Interestingly, there is only 2 meta-analyses And 2 experimental study, indicating that experimental approaches and quantitative analyses across studies are still very limited. These limitations create opportunities for future researchers to explore more comprehensive experimental methods and statistical synthesis in testing the effectiveness of AI-based personalization strategies, as well as to understand the influence of privacy variables on consumer engagement in more depth and causally.

3.1.5. Journal Database Sources

Tabel 4. Journal Database Sources

Database	Number of Articles
Scopus	28
Web of Science	18

Source: Processed Data, 2025

Based on the distribution of data sources, most of the articles used in this study were obtained fromScopus as much as 28 articles, temporary Web of Science contributing 18 articles. This shows that Scopus is the main source in literature search because of its broad coverage and indexing of highly reputable journals in the fields of technology, marketing, and data ethics.These two databases were chosen because they have high credibility in providing relevant scientific literature and have gone through a rigorous peer-review process. Scopus' dominance also reflects global trends in publications on the topic.AI-powered personalization and shows that this topic is getting more attention in international journals indexed in the database. This distribution also supports the validity and representativeness of the results of the systematic literature review conducted in this study.

3.1.6. Theories Used in Research

Tabel 5. Theories Used in Research

Theory Name	Number of Articles
Technology Acceptance Model	26
Privacy Calculus Theory	8
Customer Engagement Theory	7
Data Protection Theory	3
Social Exchange Theory	2

Source: Processed Data, 2025

Based on the distribution of theories used in the articles analyzed, it can be seen that Technology Acceptance Model (TAM) is the most dominant theoretical framework, used in 26 articles. This shows that many studies focus on how users accept and adopt AI-based personalization technology, especially in the context of ease of use, perceived usefulness, and behavioral intentions toward AI-based marketing systems. Furthermore, Privacy Calculus Theory used in 8 articles, reflects a strong concern with the consumer's deliberation process in balancing the benefits gained from personalization with the risks to their privacy. This theory is relevant in explaining why some consumers are willing to share personal data despite being aware of potential privacy threats. Customer Engagement Theory, which appears in 7 articles, emphasizes the importance of building emotional, cognitive, and behavioral relationships between consumers and brands, and how AI personalization can either strengthen or undermine those relationships if not managed ethically. Data Protection Theory (3 articles) and Social Exchange Theory (2 articles) also show relevance in this context, although their use is still limited. Data Protection Theory focuses more on the legal and regulatory aspects related to the protection of personal information, while Social Exchange Theory views the interaction between consumers and companies as an exchange of value influenced by trust, reciprocity, and perceptions of fairness. The dominance of TAM and the emergence of other theories show that although the technological aspect is the center point, the ethical, social relations, and risk considerations are starting to receive wider attention in academic discourse on AI-based personalization in marketing. This opens up opportunities for integration between theories to produce a more holistic conceptual approach.

3.2 Key Findings

Thematic analysis of the articles reviewed revealed four main themes that are the focus of research in this domain:

3.2.1. Theme 1: The Most Common AI-Based Personalization Strategies

The landscape of AI-based customer personalization strategies is increasingly defined by three predominant approaches: recommendation systems, chatbots, and predictive targeting algorithms. Each of these strategies utilizes artificial intelligence to enhance user engagement and satisfaction across various platforms. Recommendation Systems are instrumental in personalizing content based on individual user preferences and behaviors. These systems leverage vast datasets to analyze user interactions and predict products or services that may align with users' interests. As highlighted by Chen et al., the integration of AI in customer interactions profoundly reshapes the user experience, facilitating more tailored recommendations in the e-retailing sector (Chen et al., 2021). This customization fosters customer engagement and satisfaction, leading to increased sales and improved retention rates.

Chatbots represent another significant AI-driven personalization strategy, providing direct and interactive customer service. Research by Sands et al. emphasizes how effective chatbot scripts can enhance the customer service experience by personalizing interactions at scale, thereby meeting individual needs more efficiently (Sands et al., 2020). Furthermore, studies indicate that chatbots can improve organizational resource allocation while maintaining customer satisfaction through rapid response times and availability (Lubbe & Ngoma, 2021). By automating many routine queries, chatbots enable businesses to focus on more complex customer interactions, enhancing overall service quality and efficiency (Schanke et al., 2021).

Lastly, Predictive Targeting employs sophisticated algorithms to forecast consumer behaviors and identify relevant content, ads, or products that align with specific user profiles at crucial moments. The work of Davenport et al. illustrates this strategic capability, noting how AI will transform marketing by enabling brands to adapt their outreach dynamically based on consumer data (Davenport et al., 2019). This predictive capability is crucial for businesses to remain competitive in a rapidly evolving digital landscape, making timely and relevant connections with their audience. Overall, the convergence of these AI-driven personalization strategies underscores a paradigm shift in customer engagement practices. By leveraging recommendation systems, chatbots, and predictive targeting, organizations can enhance user satisfaction, build loyalty, and drive better business outcomes.

3.2.2. Theme 2: Dimensions of Customer Engagement

Customer engagement is a multifaceted concept encompassing various dimensions, which can be primarily categorized into three key areas: affective, behavioral, and cognitive engagement. Each of these dimensions plays a significant role in enhancing the relationship between customers and brands. Affective engagement refers to the emotional connections that customers develop with a brand. It is the emotional investment that customers feel, which significantly influences their loyalty and overall satisfaction. For instance, Harrigan et al., (2020) emphasize the importance of emotional engagement in cultivating customer loyalty, arguing that engaged customers tend to develop a strong attachment to brands, which enhances their likelihood of advocating for those brands (Harrigan et al., 2020). Additionally, (Barari et al., 2020) highlight that emotional bonds are paramount in developing customer loyalty, suggesting that positive emotional experiences can lead to favorable attitudes towards a brand (Barari et al., 2020). This interplay underscores the essential role emotional connections—the core of affective engagement—play in establishing long-term customer relationships (Barari et al., 2020)(Harrigan et al., 2020).

Behavioral engagement, on the other hand, involves the actions customers take in relation to a brand, such as making purchases, participating in promotional events, or engaging with the brand on social media. (Vohra & Bhardwaj, 2019) provide insight into how active participation on social media serves as an important antecedent to customer engagement, indicating that customers who actively engage in these behaviors are more likely to develop a deeper connection with the brand (Vohra & Bhardwaj, 2019). This notion is supported by (Soomro et al., 2024), who assert that behavioral actions—driven by strong trust in the brand—encourage constructive engagement and positive citizenship behaviors towards the brand (Soomro et al., 2024). Notably, the context of these behaviors can differ substantially; for example, (Barari et al., 2020) found that face-to-face interactions are more effective in fostering emotional engagement, while online contexts are better suited for facilitating behavioral engagement (Barari et al., 2020). Cognitive engagement pertains to the mental involvement of customers with the brand, such as the attentiveness to personalized content or brand messages. This dimension is increasingly recognized as vital in understanding how consumers process information and form attitudes towards brands. (Chen & Li, 2021) illustrate the importance of cognitive appraisal in customer interactions, suggesting that when consumers cultivate strong cognitive engagement—characterized by thoughtful consideration

and personal relevance—they are more likely to demonstrate favorable behaviors towards the brand (Chen & Li, 2021). Furthermore, the work of (Kumar et al., 2010) emphasizes that cognitive engagement often transcends mere transactional behaviors, influencing customers' willingness to engage in activities that benefit the brand (Kumar et al., 2010). In conclusion, understanding the dimensions of customer engagement—*affective, behavioral, and cognitive*—is crucial for businesses aiming to foster deeper consumer relationships. These dimensions interact dynamically, collectively contributing to enhanced customer loyalty and satisfaction. Through targeted strategies that resonate emotionally, encourage participatory behaviors, and stimulate cognitive involvement, brands can ultimately forge stronger connections with their customers.

3.2.3. Theme 3: Privacy Protection Strategies

In the context of increasing privacy concerns, companies are adopting various data protection strategies, prominently including transparency, data minimization, and user control. These strategies are essential for enhancing customer trust and compliance with evolving legal frameworks.

3.2.3.1. Transparency in the Use of Customer Data

Transparency entails clear communication about how companies collect, process, and use personal data. By fostering an environment where users understand their data practices, companies can mitigate privacy concerns. Wong et al. emphasize the importance of transparency in the context of data governance, proposing that actively involving data subjects enhances privacy protection and allows for effective co-creation of data governance frameworks (Wong et al., 2022). Additionally, Brkan discusses how transparency in algorithmic decision-making contributes to better data protection outcomes, ensuring users are informed about the mechanisms that govern their data (Brkan, 2019). This notion aligns with the principles set out in the European General Data Protection Regulation (GDPR), which mandates clear disclosures about data processing activities (Zhao & Chen, 2019).

3.2.3.2. Data Minimization Practices

Data minimization is grounded in the principle of collecting only the data that is essential for a specific purpose. This practice reduces the risk of data breaches and unauthorized use of personal information. Malek discusses how adopting data minimization can help mitigate privacy invasion and associated risks in the age of big data (Malek, 2021). In line with this, the GDPR mandates that organizations limit their data collection to what is strictly necessary for achieving their processing objectives (Ooijen & Vrabec, 2018). The principle of purpose limitation, as articulated by Kamenjašević and Povše, reinforces this by outlining fundamental guidelines for processing personal data efficiently while protecting individuals' rights (Kamenjašević & Povše, 2019).

3.2.3.4. User Control Over Personal Data

Empowering users with control over their personal information is another pivotal strategy in contemporary data protection. The GDPR enhances user control by granting individuals specific rights, such as the right to access and rectify their personal data (Zhao & Chen, 2019). This legal framework supports the findings of Ooijen and Vrabec, who explore how the GDPR has implemented features to amplify individual agency over data, highlighting the importance of informed consent in data processing activities (Ooijen & Vrabec, 2018). Furthermore, Wong and Henderson argue that co-creation models can further enhance user autonomy in data governance, ensuring that individuals have a say in how their data is managed (Wong & Henderson, 2020). In conclusion, the integration of transparency, data minimization, and user control presents a multifaceted approach to privacy protection. As businesses navigate the complexities of data governance, they must adopt these strategies not only to comply with legal requirements but also to foster trust and safeguard user privacy in an increasingly digital world.

3.2.4. Theme 4: Mediating Factors between Personalization and Privacy

The relationship between AI personalization and privacy concerns is mediated by several factors, including trust, perceived value, and risk perception. Trust is crucial in shaping consumer attitudes towards the utilization of AI technologies. According to (Wanjugu et al., 2022;), feelings of betrayal resulting from privacy violations significantly mediate the relationship between privacy concerns and trust, suggesting that maintaining customer trust in both companies and the technologies they employ is essential for fostering a supportive environment for personalization practices (Wanjugu et al., 2022;). Additionally, the quality of relationships between consumers and businesses plays a critical role in managing these perceptions, as breaches can undermine trust and escalate privacy concerns (Wanjugu et al., 2022;).

Perceived value significantly impacts this mediation. Consumers' willingness to engage with personalized services often depends on their assessment of the perceived benefits offered by these technologies. Yin & Qiu, 2021; found that the perceived effectiveness of AI applications influences users' evaluations of their value, affecting their willingness to adopt such technologies despite potential risks Yin & Qiu, 2021;. This aligns with findings by Beets et al., 2023;, which stress that understanding public perceptions of AI's usefulness is critical for medical AI applications, where concerns about privacy are especially pronounced Beets et al., 2023;. Higher perceived value can enhance trust, thereby alleviating privacy anxieties.

Risk perception regarding potential privacy violations is another vital factor influencing the relationship between AI personalization and user concerns. Segijn et al., 2022) investigated how privacy risk perceptions manifest in contexts involving AI, showing that consumers' susceptibility to privacy violations and perceived severity of such violations significantly inform their overall risk evaluations Segijn et al., 2022). Furthermore, Chusteki, 2024; highlighted that the accumulation of extensive datasets heightens consumer fears regarding the compromise of their personal information, reinforcing the idea that higher risk perception negatively correlates with both trust and perceived value Chusteki, 2024;. This indicates that consumers' risk assessments related to AI interactions can discourage engagement with personalized services. In summary, trust, perceived value, and risk perception are critical mediating factors that significantly shape the dynamics of AI personalization relative to consumer privacy. As organizations seek to leverage AI for personalized experiences, it is vital to recognize and address these mediators to ensure user acceptance and trust in these innovations (Wanjugu et al., 2022; Beets et al., 2023; Yin & Qiu, 2021; Chusteki, 2024; Segijn et al., 2022).

4. DISCUSSION

4.1 Synthesis of Results

An effective AI-based personalization strategy must balance increasing customer engagement with respecting user privacy. This dual approach is critical, given the growing concerns over data privacy and the need for customer trust in brands. Transparency in recommendation algorithms, user control over personal data, and the principles of data minimization are necessary strategies for achieving this balance (Portes et al., 2020; , (Wilson et al., 2024; . Research indicates that transparent algorithms can help foster trust among users, which is foundational for maintaining long-term customer relationships (Kim et al., 2018). By offering users more control over their personal information, companies can enhance feelings of security and autonomy, which are vital in mitigating privacy concerns (Asimakopoulos et al., 2024).

Moreover, ensuring that personalization strategies consider the multifaceted dimensions of customer engagement—ffective, behavioral, and cognitive—is essential for promoting an enriched user experience that transcends functional interactions. Engaging customers at these multiple levels not only drives loyalty but increases the probability of retention (Brown et al., 2024; , (Okbagaber, 2024; . For instance, effective personalization must

evoke emotional connections while remaining functional and relevant to users' needs (Okbagaber, 2024; , Wilson et al., 2024). Brands that integrate affective dimensions into their interactions often report higher levels of customer satisfaction, underscoring the importance of a holistic approach to customer engagement (Cradduck et al., 2020).

However, the main challenge lies in managing customer perceptions of risk and privacy while still delivering the added value of personalization. Studies indicate that privacy concerns can negatively affect customer engagement (Kaveladze et al., 2022), while strategies focused on enhancing perceived privacy mechanisms can mitigate this risk and encourage consumer participation in personalization initiatives (Sukendia, 2021). Users appreciate personalization that is considerate of their privacy, thus reinforcing the need for ethical practices in AI applications to maintain consumer trust and engagement (Wilson et al., 2024; , Khan et al., 2024). In conclusion, an AI-based personalization strategy must integrate effective transparency practices, prioritize user control, and navigate the complexities of privacy concerns while engaging customers on both emotional and functional levels. This nuanced approach not only drives short-term engagement but also solidifies long-term customer loyalty and peace of mind, fostering sustained business relationships.

4.2 Theoretical Implications

The findings of this study strengthen the validity of two main theories frequently used in digital marketing literature, namely Privacy Calculus Theory And Engagement Theory. Privacy Calculus Theory explains that customers actively evaluate the benefits and risks of disclosing their personal data, so an effective personalization strategy must be able to maximize perceived benefits while minimizing privacy risks. While Engagement Theory emphasizes the importance of meaningful and ongoing interactions in building strong customer relationships. This research also opens up opportunities to integrate or develop new theoretical frameworks that more specifically accommodate the dynamics of AI personalization in the digital era. For example, a framework that combines aspects of technology, consumer psychology, and digital ethics can be an important stepping stone for further, more in-depth studies.

4.3 Practical Implications

On the practical side, this study provides concrete recommendations for marketers and brands in designing and implementing ethical and effective AI personalization strategies. First, transparency in data usage must be a top priority so that consumers feel safe and valued. Second, giving users control over their personal data must be realized in the form of features that are easy to access and understand. Third, building and maintaining customer trust is a crucial factor that should not be ignored because this trust acts as a mediator between personalization and consumer acceptance. Brands that are able to implement this strategy consistently are predicted to gain a significant competitive advantage in the increasingly competitive digital market.

4.4 Comparison with Previous Studies

The findings of the current study highlight significant differences in privacy concerns across geographic and demographic contexts. Notably, the levels of privacy concerns tend to be elevated in jurisdictions with stringent data protection regulations, such as those found in the European Union (EU). This observation aligns with Raab and Székely's analysis, which emphasizes the role of data protection authorities (DPAs) in fostering a culture of privacy awareness, particularly in regions with robust regulatory frameworks, suggesting their strong influence on public concern regarding personal data security (Raab & Székely, 2017). Similarly, Rughiniş et al. indicate that privacy concerns are notably higher in Central and Eastern European countries compared to their Western counterparts, reflecting varying regional

attitudes toward data privacy shaped by historical and regulatory contexts (Rughiniş et al., 2025).

In contrast, developing countries generally demonstrate lower levels of privacy concerns, which can be attributed to their nascent stages in adopting artificial intelligence (AI) technologies and the lack of comprehensive legal frameworks governing data privacy (Milberg et al., 2000). This discrepancy is echoed in the work of Dinev et al., who investigate the implications of cultural and economic factors on privacy concerns, noting that developing nations often lack the regulatory infrastructure that nurtures a robust privacy culture seen in developed economies (Dinev et al., 2013; Miltgen & Peyrat-Guillard, 2014). These differences highlight the importance of contextual understanding when analyzing privacy concerns globally.

Moreover, the influence of demographic factors such as age, education level, and cultural background further complicates consumer attitudes toward privacy and personalized marketing strategies. For instance, Taddicken discusses the 'privacy paradox' phenomenon, indicating that individuals may express high levels of privacy concern while simultaneously engaging in behaviors that undermine their privacy (Taddicken, 2013). This paradox can be particularly pronounced among varied demographic groups, as younger consumers often display different privacy attitudes compared to older adults, reflecting a need for marketers to adopt more nuanced and segmented strategies that take these differences into account (Wirtz et al., 2007).

Additionally, Milberg et al. contribute to this discourse by establishing a link between national regulatory approaches to privacy, corporate practices, and consumer concerns, thereby emphasizing the necessity for businesses to adapt their marketing strategies based on localized privacy norms and consumer expectations (Milberg et al., 2000). As a result, future studies should prioritize these demographic and geographic variables, creating a more refined framework for understanding variations in privacy attitudes and responses to personalized marketing across diverse consumer segments (Dinev et al., 2015). In conclusion, the interplay between regulatory environments, demographic variables, and cultural factors plays a critical role in shaping privacy concerns and consumer behavior. As firms navigate these complexities, their marketing strategies must be inherently adaptable to align with the diverse preferences and privacy expectations of their target markets.

4.5 Study Limitations

This study has several limitations that need to be acknowledged. First, the literature search only included English-language articles, so it is possible that important literature from other languages was missed. Second, the research method was a systematic literature review without conducting a quantitative meta-analysis that could provide statistical weight to the existing findings. Third, the limited secondary data from the reviewed studies hinders direct causal conclusions.

4.6 Recommendations for Further Research

Based on the limitations and findings of this study, it is recommended that further research conduct a more in-depth empirical study of consumer preferences for various privacy strategies in AI personalization. Quantitative research with experimental designs or large-scale surveys can help test the effectiveness of the developed framework and validate mediator factors such as trust and risk perception more comprehensively. In addition, exploration of cultural and regulatory dynamics in various geographic regions is also an important focus so that the AI personalization model developed can be more adaptive and inclusive globally.

5. CONCLUSION

5.1 Summary of Key Findings

The study revealed that a successful AI-based personalization strategy that balances customer engagement and privacy concerns must be based on three main pillars: transparency, giving users full control over their personal data (user control), and implementing ethical principles in data management. This approach not only enhances the customer experience in a personalized and relevant way, but also strengthens trust, which is an important foundation for building long-term relationships between consumers and brands. Thus, an ethical and transparent personalization strategy can be a competitive advantage in modern digital marketing.

5.2 Contribution to the Literature

This study makes a significant contribution to the development of AI-based digital marketing literature through a comprehensive systematic mapping of current studies in the field of personalization and privacy. In addition, this study proposes an initial conceptual framework that integrates aspects of technology, consumer psychology, and digital ethics, which can serve as a basis for future theory and practice development. This framework helps clarify how various elements of personalization and privacy interact with each other and influence the effectiveness of AI-based marketing strategies.

5.3 Study Limitations

Despite providing important insights, this study has limitations that need to be considered. The limited focus of the literature search on articles available in large databases and in English may have resulted in a lack of inclusiveness of literature in other languages or scattered in non-indexed sources. In addition, the systematic literature review method used did not include quantitative meta-analysis, so the statistical weight and generalizability of the results are still limited. This is an important note for readers in interpreting the findings of this study.

5.4 Suggestions for Future Research

To deepen the understanding of AI personalization in digital marketing, future research is recommended to develop a more comprehensive integrative model by simultaneously combining psychological, technical, and social variables. In addition, cross-cultural and cross-industry studies are essential to test the adaptability and relevance of the developed conceptual framework, considering the differences in regulations, cultures, and levels of technology adoption across regions and industry sectors. Empirical approaches, both quantitative and qualitative, are also recommended to test the validity and effectiveness of personalization strategies that prioritize the balance between engagement and privacy.

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