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Transforming Digital Marketing: Examining the Adoption and Impact of Artificial Intelligence through the Technology Acceptance Model

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Transforming Digital Marketing: Examining the Adoption and Impact of Artificial Intelligence through the Technology Acceptance Model

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ABSTRACT

Artificial Intelligence is transforming the digital marketing industry by revolutionizing how brands engage with consumers. AI improves personalisation and automates repetitive tasks effectively. However, the degree of adoption of these tools and the factors influencing the adoption are still underexplored. Thus, using the Technology Acceptance Model (TAM), this thesis explores how marketing professionals perceive, adopt and use AI tools in digital marketing. The study utilises a mixed-methods approach, incorporating quantitative surveys and qualitative feedback, to emphasise of AI role in optimising workflows, enhancing targeting, and facilitating data-driven decision-making. Research shows that there is a strong connection between Perceived Usefulness (PU) and Behavioural Intention (BI), which emphasizes how AI can importantly improve efficiency and promote innovation. When many users find usability issues, a negative correlation appears between Perceived Ease of Use (PEOU) and Behavioural Intention (BI), obstructing broad adoption. Ethical considerations like data privacy and transparency are pivotal factors affecting trust in AI-driven marketing. Participants show little remorse about integrating AI and highlight its potential to increase productivity, though they express worries about dependency and creativity. The study advocates for organisational support and training to reconcile the disparity between AI's perceived utility and usability. This research enhances comprehension of AI's transformative impact on digital marketing and offers practical guidance for incorporating ethical and efficient AI solutions into marketing strategies. Future research should investigate the longitudinal effects and cross-industry applications to better contextualise AI's evolving impact on digital marketing practices.

KEYWORDS

Digital Marketing; Artificial intelligence; Technology Acceptance Model, Predictive Analytics, Marketing Strategy;

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

In the ever-evolving marketing landscape, staying relevant and competitive is more challenging than ever. The increasing shift towards digital platforms has reshaped consumer expectations, requiring businesses to adopt technologies that enable more personalised, efficient, and adaptive strategies (Zimmermann et al., 2023). Among these technologies, artificial intelligence (AI) has emerged as a transformative force redefining how marketers engage with their audiences by using new and exciting ways (Desai, 2021). Professionals must understand the adoption and effect of AI in this field, as it shapes the future of marketing and presents opportunities and challenges in this rapidly changing environment (Venkateswaran et al., 2024). As AI evolves rapidly, new possibilities for marketing practices arise (Zimmermann et al., 2023). AI drives innovation in marketing through machine learning, natural language processing, and big data improvements, enabling marketers to move beyond generalized campaigns and create dynamic, data-driven strategies that respond in real time to consumer behaviour (Desai, 2021). Machine learning algorithms process enormous datasets and learn from consumer interactions to offer unmatched precision in targeting and decision-making (Priyanga, 2023). The transformative effect of AI becomes clear as we compare customary marketing and digital marketing in a way that draws attention to the significant differences between the two approaches. Customary marketing strategies used static advertisements and fixed content schedules, allowing few opportunities for real-time adjustments or personalized outreach (Chaitanya et al., 2023). AI-driven digital marketing enables marketers to create hyper-personalized campaigns that accurately predict customer preferences while automating repetitive tasks like data analysis and managing campaigns (Zimmermann et al., 2023). This improves efficiency and creates meaningful consumer experiences encouraging engagement and loyalty (Desai, 2021). As marketers embrace AI and adapt to change, they actively shape the future of a competitive and dynamic industry (Venkateswaran et al., 2024).

The transformative potential of AI in marketing is widely recognised, however, its adoption and practical integration among marketeers remain uncertain. Many marketers are still facing challenges regarding the usability and perceived value of AI-driven solutions, while concerns about data privacy and transparency related to ethics are also popular. Many studies explore AI's potential, but few research how marketing professionals handle these daily challenges. This thesis addresses this gap by examining the factors influencing the adoption of AI in marketing through the lens of the Technology Acceptance Model (TAM). The primary

research question guiding this study is:

"How do marketing professionals perceive, adopt, and integrate artificial intelligence into their strategies, and do they experience regret after adoption?"

To achieve an answer to this question, the thesis combines a thorough review of existing literature with empirical analysis, leveraging the Technology Acceptance Model as a guiding framework. A mixed-methods approach is adopted to explore the perceptions, adoption patterns, and potential regrets experienced by marketing professionals when integrating artificial intelligence into their strategies. Quantitative data is complemented by qualitative insights to comprehensively understand the drivers, barriers, and outcomes associated with AI adoption. The findings aim to provide actionable recommendations for both academic and practical applications, offering a nuanced perspective on the role of AI in digital marketing.

2. LITERATURE REVIEW

The integration of artificial intelligence (AI) into digital marketing has profoundly transformed how businesses connect with their audiences, primarily by enabling advanced personalisation, sophisticated data analysis, and efficient automation (Mauz et al., 2022). AI technologies are critical for creating tailored consumer experiences, allowing targeted content delivery across multiple platforms, including social media, email, and websites (Priyanga, 2023). AI's analytical power is why it can operate with extensive datasets, producing important insights into consumer interactions (Priyanga, 2023). This AI application enables companies to better tailor customer engagement and base their strategies on real-time data (Zimmermann et al., 2023).

The use of AI in digital marketing is not limited to improving customer interactions; it also provides automation of several repetitive tasks (Desai, 2021). This automation includes, for example, email marketing, social media management, and customer support, which are important elements of digital marketing strategies that free marketers to focus on innovation and strategy (Desai, 2021). AI-powered tools enhance the productivity of marketing initiatives and facilitate innovative audience identification for scaling efforts, which is impossible by traditional means (Chaitanya et al., 2023). For instance, AI-based predictive analytics exploit previous data to make assumptions about forthcoming user actions. This allows marketers to learn about upcoming customer needs and tailor their messages as per the requirements (Zimmermann et al., 2023). This predictive expertise is the first step toward changing digital marketing from traditional linear campaigns to flexible, consumer-driven engagements that constantly change depending on market needs (Desai, 2021).

AI’s influence is also strongly felt in content and advertising optimization. The use of AI for predictive modelling has enabled brands to automate tasks such as content creation and ad placement, allowing for real-time delivery of relevant materials (Venkateswaran et al., 2024). Machine learning and natural language processing technologies are increasingly applied to improve website navigation and elevate search engine rankings by utilising dynamic SEO strategies (Desai, 2021). These strategies enable marketers to produce articles based on customer interests, moving away from earlier methods of static content calendars. This transition to flexible, self-service advertising models was crucial to adapting to market changes (Zimmermann et al., 2023). The alteration not only improves engagement but also maximizes the return on investment, thereby establishing AI as a pivotal instrument in the evolution of digital marketing into more personal and responsive strategies (Priyanga, 2023).

2.1. ENHANCED PERSONALIZATION

AI has been at the forefront of the evolution of hyper-personalised marketing. Enhanced personalization goes beyond merely adapting messages for the target audience; it instead employs real-time data analytics, customer profiling, and predictive modelling in order to become a highly customised experience that is congruent with the user's individual preferences and behaviours (Priyanga, 2023). AI algorithms, particularly machine learning models, excel in analysing extensive datasets, which facilitates the collection of customer preferences and the formulation of personalised recommendations and marketing messages (Desai, 2021).

Enhanced personalization is the art of augmented AI, which keeps track of all customers' changing needs and wants, as well as evaluating what customers need from the business at the moment (Zimmermann et al., 2023). It is through this procedure that companies can relate to their customers as their `friends', showing them the offers they might be interested in based on the history of their purchases or the information shared in real-time (Desai, 2021). Hyper-personalization neither engages the cognitive resources of the users nor does it overload them with irrelevant content, but it provides the users with the right content at the right time to increase satisfaction and loyalty (Zimmermann et al., 2023).

Moreover, advanced personalisation strategies have demonstrated efficacy in omnichannel settings, wherein AI can harmonise content across digital and physical platforms, including the incorporation of augmented reality shopping assistants in physical retail locations (Desai, 2021). This method enables customers to access recommendations or product information via their devices, thereby enhancing the shopping experience by establishing a seamless digital-physical interface (Zimmermann et al., 2023). Real-time customer understandings are effectively generated by AI-driven personalisation tools such as IBM Watson which assist marketers in conveying targeted messages and offers to improve brand-customer relationships and conclusively augment brand loyalty (Venkateswaran et al. 2024). Hyper-personalisation aids in customer adventure mapping and AI tools discern important engagement points while they customise marketing strategies according to consumer preferences at every phase (Desai, 2021).

2.2 CUSTOMER JOURNEY MAPPING

Businesses can track and gain a deep understanding of the stages a customer experiences, from initial interest to post-purchase, with AI-enabled customer journey mapping. AI-powered tools collect and analyse data from multiple touchpoints, assisting brands in pinpointing essential

engagement moments and comprehending customer needs instantaneously (Priyanga, 2023). By delineating these journeys, marketers can foresee potential challenges, tailor interactions, and refine each stage to improve the customer experience (Desai, 2021). Hyper-personalization, a data-driven journey mapping proposition, builds on predictive analytics to predict customer needs and preferences, which results in customised marketing strategies that involve individuals to all stages of interaction (Wang et al., 2023).

The AI improves customer segmentation quality and sends relevant messages quickly through the best channels by precisely representing customer journeys (Desai, 2021). The hyper-personalization strategy employs many data sources and provides a thorough profile of each customer so that tailored messages and discounts relevant to that specific customer can be proposed by the company at multiple stages of their journey (Chaitanya et al., 2023). AI tools are used for mapping and refining customer journey by these brands so that dynamic customer demands are more effectively addressed, which improves customer loyalty and increases retention rates (Wang et al., 2023).

2.3. CHATBOTS

Artificial intelligence transforms how companies use chatbots: chatbots are necessary for easing conversational marketing and enable businesses to engage with customers in real time across digital platforms (Desai, 2021). Chatbots use Natural Language Processing and machine learning to help brands provide immediate assistance and answer enquiries while easing purchasing decisions (Desai, 2021). This capability greatly improves the customer experience because it reduces wait times and provides accurate and helpful responses that increase engagement and satisfaction (Wang et al., 2023).

Chatbots actively ease an easy transfer of information during the customer adventure and improve conversational marketing (Venkateswaran et al., 2024). Customers are supported by chatbots as specific needs and preferences are promptly addressed through natural interaction with users (Venkateswaran et al., 2024). This constant communication not only keeps customers interested and trusting, but it also frequently turns initial inquiries into existing customer relationships. (Venkateswaran et al., 2024). Also, chatbots can collect important data related to user activity and user preferences and this in turn improves future communication so that the brands involved can optimize their strategies (Venkateswaran et al., 2024). Brands can encourage trust and empower loyalty when they present tailored recommendations and better

product understandings through AI-driven features on digital platforms (Zimmermann et al., 2023).

4.1 Ethical Considerations and Privacy Compliance

The ongoing transformation of digital marketing by AI has heightened concerns regarding ethical considerations and privacy compliance (Sarp, 2023). Hyper personalisation powered by AI provides unrivalled details about the customer behaviour and preferences, but it is also a cause of ethical dilemmas about transparency, data security, and the potential abuse of consumer information (Desai, 2021). Along with the growth of AI learning and adaptive mechanisms, it is necessary for companies to create the all-inclusive ethical framework of responsible data usage that will protect the customer and build trust (Desai, 2021). Ethical application of AI in marketing and privacy is the one that goes hand in hand since the data that is used to develop the system is based on the users' sensitive and identifiable information (Wang et al., 2023). This data frequently includes understandings regarding users' preferences and behaviours and purchase histories (Zimmermann et al., 2023).

Marketers must handle this data carefully and they should comply with data protection rules like the General Data Protection Regulation (GDPR) in Europe which advocates for clear data collection practices and grants users their rights regarding personal information (Zimmermann et al., 2023). Research shows that people are now more aware of how businesses utilise data and when these businesses violate privacy laws, they may seriously damage their reputation and financial stability—consequently harming their success (Sarp, 2023).

AI-driven marketing platforms incorporate explainable AI (XAI) mechanisms that provide transparency and elucidate the reasoning behind targeted recommendations to reduce privacy concerns (Wang et al., 2023). This transparency can elucidate AI decision-making for users, and it encourages trust and adherence to privacy regulations (Zimmermann et al., 2023). AI systems can be designed to anonymise and aggregate data so that the risk of identifying individual users is reduced and precise and personalised marketing strategies can be eased (Zimmermann et al., 2023).

Another ethical issue is the possibility of AI perpetuating biases in marketing strategies. Machine learning algorithms dependent on historical data may unintentionally sustain previous biases, resulting in discriminatory outcomes or reinforcing stereotypes in personalised marketing campaigns (Desai, 2021). Ethical AI design in marketing necessitates continuous

auditing and supervision to detect and rectify biases, thereby guaranteeing equitable treatment of all users (Priyanga, 2023).Ensuring privacy compliance in AI-driven marketing necessitates the implementation of stringent data security protocols. AI-driven personalisation platforms must protect consumer data from breaches by employing sophisticated security protocols and encryption techniques to secure both stored and transmitted information (Venkateswaran et al., 2024). These measures are essential for regulatory compliance and for sustaining consumer trust in a progressively data-centric marketing environment (Wang et al., 2023).

4.2 CONCEPTUAL MODEL

This study adopts the Technology Acceptance Model (TAM) as the theoretical framework to analyse the adoption and use of AI in digital marketing. Developed by Davis in 1989, the TAM is a widely recognized model for understanding the factors that influence technology acceptance (Na et al., 2022). The model concentrates on two key aspects that importantly influence technology adoption: one aspect is how users strongly believe that the technology can improve their performance, known as Perceived Usefulness (PU), while the other aspect is how they perceive the level of effort they need to put in to effectively use the system, referred to as Perceived Ease of Use (PEOU) (Na et al., 2022). Users' attitude toward using (AT) the technology and their behavioural intention to use (BI) are conclusively influenced by these dimensions, which predict actual adoption (Na et al., 2022).

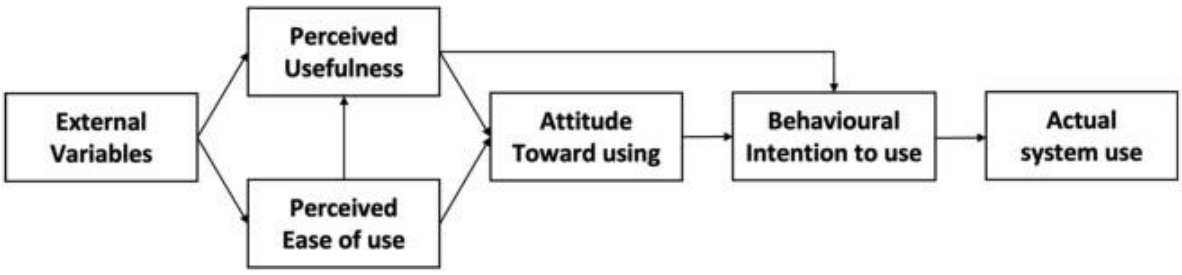

Figure 1 – TAM model

TAM offers several advantages, such as its simplicity, and adaptability, while many instances of empirical validation across multiple contexts have made it a strong tool for evaluating technology adoption in the ever-changing field of digital marketing. However, the model has certain limitations (Sarp, 2023) and it has been questioned if it applies in the AI context (Mogaji et al., 2024). Critics point to its focus on cognitive variables while overlooking external factors such as organizational support, ethical considerations, or cultural influences, which can also

shape adoption decisions (Sarp, 2023). Despite these limitations, the TAM provides a strong foundation for understanding how marketing professionals perceive and integrate AI technologies into their workflows, highlighting critical relationships between usability, utility, and behavioural intention (Sarp, 2023).

Three hypotheses were developed based on the TAM framework and the empirical evidence gathered to examine the interplay between these constructs. These hypotheses aim to explore how marketing professionals perceive and integrate AI technologies into their workflows, focusing on the critical roles of perceived utility, ease of use, and attitudinal influences. The following hypotheses are proposed to guide the study's analysis:

H1: Perceived Usefulness (PU) has a significant positive influence on Behavioral Intention (BI) to adopt AI-driven marketing tools

H2: Attitude Toward (AT) AI positively influences Behavioral Intention (BI) to adopt AI-driven marketing tools.

H3: Perceived Ease of Use (PEOU) positively moderates the relationship between Perceived Usefulness (PU) and Behavioral Intention (BI).

3. METHODOLOGY

This research uses the Technology Acceptance Model (TAM) as its main theoretical framework to investigate how digital marketers accept and use artificial intelligence (AI) technologies in their strategies. The model effectively analyses the integration of emerging technologies and provides the necessary understanding of the factors that drive or obstruct adoption (Na et al., 2022).

S. Number		Construct/Items adapted	Source
1.	PU	**Perceived Usefulness**	(Priyanga, 2023)
	PU1	I believe that using AI improves marketing campaign performance	
	PU2	I believe that leveraging artificial intelligence facilitates faster completion of daily marketing tasks.	
	PU3	I believe that using AI enhances my ability to learn new concepts or adopt new approaches	
2.	PEOU	**Perceived Ease of Use**	(Davis, F. D., 1989)
	PEOU1	I personally rate the mental effort required to implement AI in my marketing activities as not very challenging.	
	PEOU2	When I use artificial intelligence, I can easily get the outcomes I want.	
	PEOU3	Using AI in my marketing activities is user-friendly and intuitive.	
3.	ATUT	**Attitude Toward Using the Technology**	(Venkateswaran et al., 2024)
	ATUT1	I have a positive attitude toward using AI during my job.	
	ATUT2	I believe that incorporating AI into my marketing strategy would improve my outcomes or provide me an alternative perspective.	
	ATUT3	I am enthusiastic about the potential of AI.	
4.	BITU	**Behaviour Intention to Use**	(Chaitanya et al., 2023)
	BITU1	I recommend to my colleagues to adopt AI for their jobs activities.	
	BITU2	Staying updated on the most recent developments in the integration of AI in the field of marketing is very important.	
	BITU3	I actively seek opportunities to implement AI solutions in my marketing work.	
5.	RM	**Regret Measurement**	(Zimmermann et al., 2023)
	RM1	I regret incorporating AI into my marketing processes.	
	RM2	I feel disappointed with the outcomes I achieved after using AI in my marketing activities.	
	RM3	If given the choice, I would choose not to implement AI in my marketing activities again.	

Table 1 - Measures and Sources

The research predominantly used a quantitative methodology to examine the acceptance and integration of AI technologies among marketing professionals. Quantitative methods were adopted because they can systematically gather and analyse structured data, allowing the identification of patterns and relationships among variables as outlined in the TAM. Data were collected through an online survey that included closed-ended questions rated on a 5-point Likert scale and two open-ended questions to catch qualitative understandings. The survey targeted to collect responses from at least 150 participants, to ensure a varied and representative sample of marketing professionals with varying experience and expertise. A non-probability sampling approach used convenience and snowball methods to gather data effectively. Participants were recruited from professional networks, LinkedIn connections, and online marketing communities such as Reddit groups to guarantee a broad spectrum of perspectives on AI adoption in marketing. These constructs were measured using Likert-scale questions, allowing respondents to express their agreement or disagreement with statements relevant to their perceptions, attitudes, and behaviours regarding AI. The Perceived Usefulness (PU) construct sought to measure how participants view AI's value in improving their professional effectiveness and efficiency, and it aims to understand their perspectives better. This included exploring whether AI acted as a tool for improving marketing performance streamlining workflows and promoting innovation by easing the adoption of new approaches. The PU construct caught understandings about how respondents believed AI could improve their work outcomes and overall productivity. The cognitive and running effort required to adopt AI tools in marketing activities was examined by the Perceived Ease of Use (PEOU) construct, the implications of this examination were considered for effective implementation. We assessed if respondents found AI systems intuitive, user-friendly, and effective in delivering desired outcomes with minimal effort.

The Attitude Toward using (AT) construct evaluated participants' emotional and evaluative responses to using AI in their professional roles. This construct explored whether respondents held positive perceptions of AI, believed it would improve their marketing strategies, or felt enthusiasm for its potential. By measuring these attitudes, the study sought to identify the factors that shape marketers' openness to adopting AI technologies.

The Behavioural Intention to use (BI) construct focused on the willingness of participants to incorporate AI into their professional activities and their tendency to recommend its application to others. This construct additionally evaluated the degree to which respondents actively explored opportunities to integrate AI solutions into their workflows and their interest in remaining informed about developments in AI applications for marketing. Behavioural

intention is a crucial predictor of actual technology adoption, rendering it an indispensable element of the analysis. Measures of regret associated with AI adoption were included in the survey, in addition to the core TAM constructs. These items examined how respondents reflected on decision-making and outcomes while evaluating post-use experiences to determine whether challenges or limitations influenced their overall perspective on AI. The participants shared their experiences, challenges, and expectations for AI in marketing: the open-ended questions allowed them to elaborate finally. These qualitative responses offered richer understandings into how AI effects daily workflows and improves calculated planning and creativity. The survey combined these ideas and assessed how marketing professionals view and use AI technologies. The study uncovered patterns in adoption and drew attention to areas for future exploration using structured quantitative measures and qualitative inputs. Regret theory explores how anticipated feelings of regret influence decision-making (Phillips & Pohl, 2020; Zhang et al., 2016). The theory predicts regret aversion leads to information avoidance and risk aversion, ultimately leading to a negative intention behavior (Bleichrodt et al.,2010). Moreover, the regret theory provides a framework for exploring the motivations behind digital adoption. In this context, it is applied to examine the relationship between enablers, inhibitors, and the anticipated regret associated with AI adoption intention.

4. EMPIRICAL STUDY

The survey collected responses from 151 marketing professionals, encompassing diverse demographics such as gender, age, education, and years of experience in the workforce. Female respondents constituted 58.3% of the total, male respondents accounted for 41.1%, and non-binary individuals represented less than 0.7% (Figure 1).

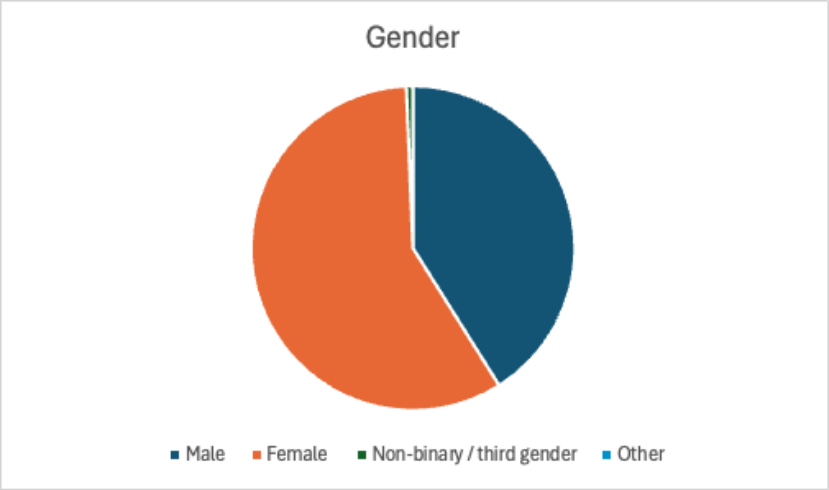

Figure 2 - Gender

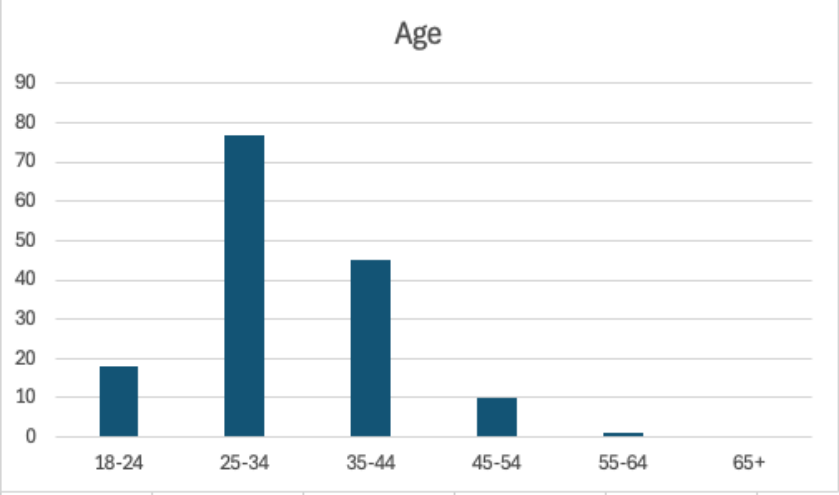

Figure 3 – Age

Most respondents, 51%, were aged 25-34, while 29.8% were in the 35-44 age range (Table 2). This demographic profile reveals a predominantly youthful and engaged professional group. Regarding educational qualifications, 47% of respondents possessed a master's degree, whereas

40.4% held a bachelor's degree, indicating the participants' high level of education. The distribution of work experience was notably diverse, with the predominant cohort, 23.8%, indicating seven to ten years of experience, whereas 23.2% possessed one to three years of professional involvement in marketing.

The variety in education and experience established a strong basis for analysing viewpoints on AI integration in marketing.

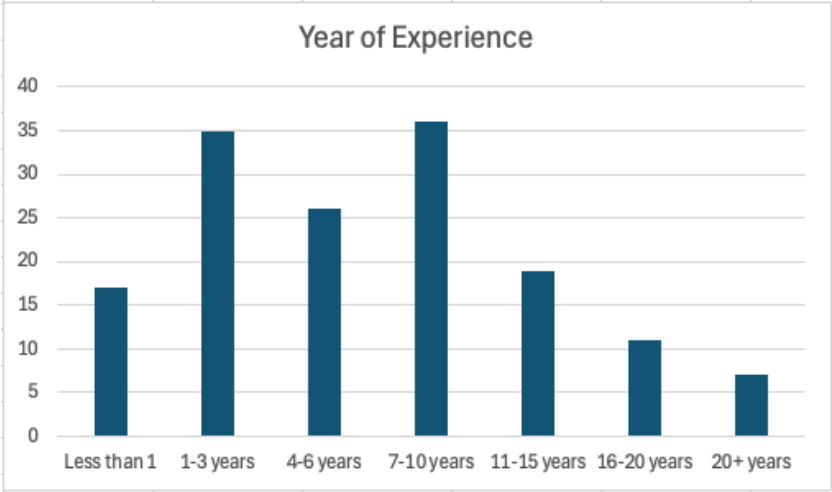

Figure 4 – Year of Experience

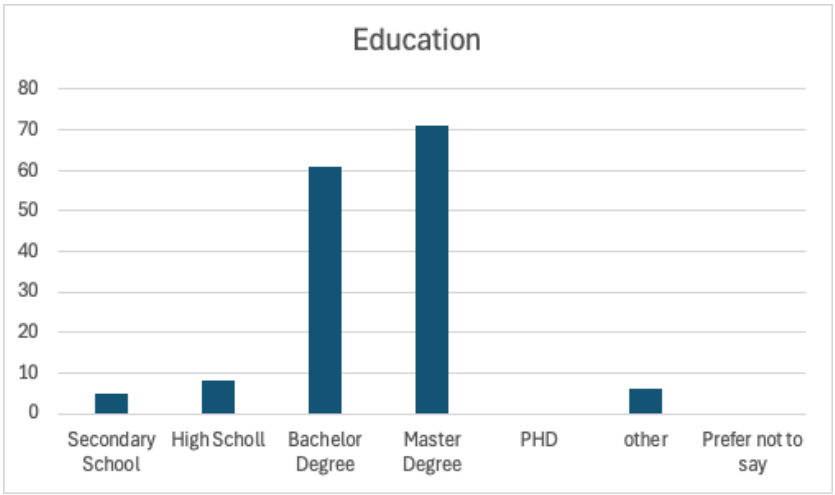

Figure 5 – Education

4.3. MODEL ASSESSMENT

The empirical study adopted a mixed-methods approach, leveraging the Technology Acceptance Model (TAM) as the core theoretical framework. Quantitative data was collected via a structured online survey targeting marketing professionals. This survey included key TAM constructs, such as Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Attitude Toward Using (AT), Behavioral Intention to Use (BI), and an additional Regret Measurement (RM) scale to assess adoption sentiment.

The data analysis was conducted using Jamovi software, which facilitated both descriptive statistics and correlation analysis. Initially, the means of each construct were calculated to summarize the participants' overall perceptions, attitudes, and behavioral intentions. A clear overview of each variable's central tendencies emerged from this step, helping to contextualize respondents' overall sentiment. Standard deviations were also reviewed to understand the variability within the dataset. Correlation analysis was subsequently conducted to examine the interrelationships among the TAM variables, offering insights into the strength and direction of associations between constructs. These quantitative results were further enriched by qualitative data, which provided nuanced perspectives on the practical benefits, challenges, and barriers experienced by marketing professionals in integrating AI into their workflows. The qualitative responses added depth to the numerical findings, enabling a more comprehensive understanding of AI adoption dynamics in digital marketing.

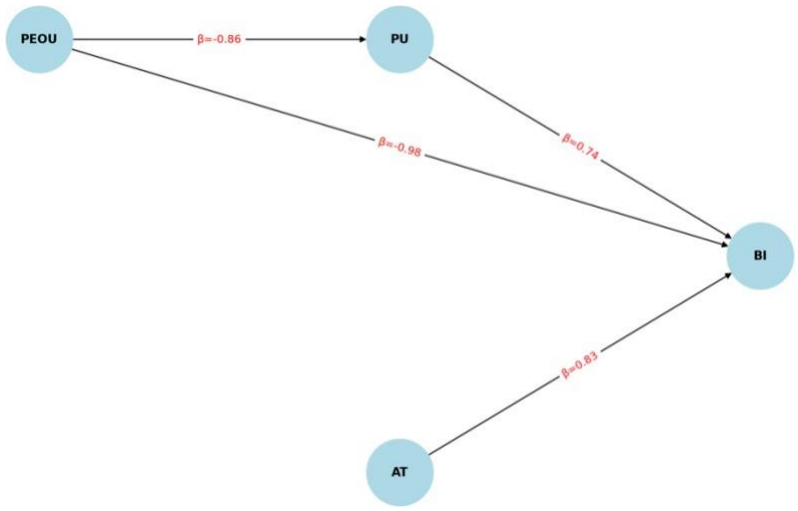

Figure 6 - Estimated Model

The correlation analysis demonstrated significant relationships among the TAM constructs, offering essential insights into the acceptance of AI technologies in digital marketing. A robust positive correlation was identified between perceived usefulness and behavioural intention, with a correlation coefficient of 0.74. This strongly supports H1, which proposes that PU has a significant positive influence on BI. This discovery highlights the importance of perceived usefulness in influencing marketers' intention to embrace AI tools, closely aligning with the core tenets of the TAM framework. The correlation between attitudes towards AI and behavioural intention was notably strong at 0.83, confirms H2, signifying that favourable attitudes are a crucial determinant of the intention to adopt AI. These findings underscore the necessity of cultivating positive perceptions of AI among marketing professionals to promote its widespread adoption.

Nonetheless, not all relationships conformed to conventional TAM anticipations. The relationship between perceived ease of use and behavioural intention was identified as strongly negative, at -0.98, contradicting the assumption that ease of use directly facilitates adoption. This unexpected finding does not align with H3, which suggests that PEOU positively moderates the relationship between PU and BI. This outcome indicates that, in this context, tools regarded as more user-friendly may not correspond with marketers' anticipations of efficacy or utility, warranting additional investigation to comprehend this relationship. The correlation between perceived usefulness and perceived ease of use was negative, at -0.86, suggesting that tools regarded as highly useful may be viewed as more complex or difficult to implement. These unforeseen results indicate a complex relationship between usability and utility regarding AI adoption in marketing, necessitating further exploration of user perceptions.

The data also indicated minimal levels of regret concerning AI adoption. The average regret score was 3.49 on a scale where one signifies high regret and five denotes no regret, suggesting that despite difficulties with usability, marketers predominantly expressed satisfaction with their decision to incorporate AI into their workflows.

Regression analysis confirmed that perceived usefulness is a strong predictor of behavioural intention, and it plays an important role. Perceived ease of use directly affected behavioural intention and showed an inverse relationship that reflected the correlation findings. This finding shows that in this context ease of use may not be as important as usefulness or perceived efficacy.

Qualitative responses provided important context that improved the quantitative findings and allowed for a deeper understanding of the overall data and trends. Participants concentrated on that tools like AI improve efficiency and decision-making, and they particularly noted their

effect on audience segmentation and campaign optimisation as well as predictive analytics. Participants often noted usability concerns and requested more intuitive interfaces and better workflows. These challenges likely cause a negative correlation between perceived usability and behavioural intention and could affect users' decisions. Participants drew attention to the need for active training and organisational support to improve the benefits of AI and they stressed the importance of education in bridging the gap between perceived usefulness and usability. The survey included open-ended questions to complement the quantitative data and catch richer and more nuanced understandings of participants' views and experiences with AI in marketing. The qualitative responses helped explore how AI adoption affects daily workflows and creativity, calculated approaches and emotional or cognitive considerations. The closed-ended questions measured key constructs of the TAM, and the open-ended responses let participants elaborate on benefits, challenges, and moments of regret, which provided a broader understanding of the data.

The analysis of open-ended questions revealed multiple themes that contribute to the overarching narrative of how marketing professionals perceive and integrate AI into their work. Respondents frequently noted how AI streamlines repetitive tasks such as data analysis and content generation while saving time and increasing efficiency. These findings closely adjust with the quantitative results, and they particularly draw attention to the strong positive correlation of 0.74 that researcher observed between Perceived Usefulness (PU) and Behavioural Intention (BI). Few participants wrote that AI has drastically decreased the time spent on routine tasks and it allows me to focus on calculated decision-making and this shows how useful AI is for improving productivity.

Respondents discussed how AI helps them brainstorm and overcome original blocks. Many people see AI as a helpful tool for generating initial ideas and structuring content, but some people point out that the quality of content produced by AI often needs a lot of improvement. A participant said that it helps him brainstorm campaign structures and ad copies daily and he noted that the outputs are generic and need a lot of polishing, and this perspective shows a strong positive correlation of 0.83 between Attitude Toward AI and Behavioural Intention in the analysis.

At the planned level, participants recognized the importance of AI in supporting data-driven decision-making and they also concentrated on the role of AI in improving customer personalization. The ability of AI to improve customer segmentation and to optimise targeting and to improve campaign performance was emphasised by many responses. One respondent noted that AI makes our work more efficient and enables precise targeting and frees up time for

more value-driven tasks and this adjusts with the TAM framework's emphasis on perceived usefulness as an important driver of adoption. Certain tools pose steep learning curves while some participants express concerns about usability challenges and they particularly battle with creating effective prompts and achieving high-quality outputs. These challenges reveal an unexpected negative correlation of -0.98 between Perceived Ease of Use (PEOU) and Behavioural Intention (BI) in the quantitative data and they suggest that usability issues may weaken the perceived benefits of AI.

The open-ended responses illuminate concerns about over-reliance and regret as they reveal participants' deeper feelings. Some participants were worried that AI could diminish creativity or promote dependency on automated solutions, and the mean regret score (3.52) was indicated to reflect generally low levels of regret. Several participants raised ethical and technical concerns: these included the sourcing of AI-generated content and the implications for data privacy.

The qualitative analysis improved the quantitative findings as context and depth were provided to the observed relationships. The quantitative data revealed strong positive correlations between constructs like PU, AT, and BI while the qualitative responses illuminated the underlying drivers and barriers that influence these relationships. Efficiency emerged as a key factor that enabled the adoption of AI and challenges with usability and concerns about over-reliance represented possible obstacles that could obstruct this progress. Actionable understandings for organisations seeking to integrate AI tools effectively are provided by these findings, and the complication of AI adoption in marketing is concentrated on. Organizations can maximize the benefits of AI and minimize its drawbacks by dealing with usability challenges and encouraging positive attitudes toward ethical standards.

5. RESULTS AND DISCUSSION

The findings of this study contribute to a nuanced understanding of the adoption of AI technologies in digital marketing, framed through the lens of the TAM. Through a combination of quantitative and qualitative analyses, the research highlights both the opportunities and challenges of AI adoption, particularly emphasizing its impact on marketing efficiency, creativity, and strategy.

One of the central conclusions of this research is the significant role of Perceived Usefulness in driving Behavioural Intention to adopt AI. The strong positive correlation of 0.83 between these constructs supports the core principles of TAM since it draws attention to the perceived ability of AI to improve efficiency, customer targeting, and support data-driven decision-making acts as a key determinant of adoption. This finding is supported by existing literature, and usefulness is often seen as the basis of technology adoption. Many participants highlight how AI streamlines repetitive tasks and eases content creation while allowing for a more precise approach to customer segmentation, which reinforces this conclusion through qualitative data. These observations show that AI improves running efficiency, and its challenges are less important.

Attitude Toward AI (AT) influences behavioural intention—this is another important understanding. Participants were enthusiastic about AI's role in brainstorming and idea generation and described it as a precious assistant for original processes. Many people note that AI-generated content often needs refinement, and existing research shows that current AI tools have limitations in producing high-quality, original outputs (Zimmermann et al., 2023).

The relationship between Perceived Ease of Use (PEOU) and behavioural intention showed a complicated dynamic and a negative correlation (-0.99) that challenges the conventional TAM hypothesis which states that ease of use directly eases adoption. Participants provided qualitative responses that supported this interpretation, they cited difficulties in creating effective prompts and they also described challenges in navigating the steep learning curves associated with some AI platforms. This finding adjusts with Desai (2021) because he draws attention to how important user training and organisational support are in overcoming usability barriers and improving the benefits of AI.

The study shows that respondents feel little regret about AI adoption with a mean regret score of 3.49 where one means high regret and five means no regret. Although most participants reported being satisfied with their decision to integrate AI into their work, some expressed concerns that relying too much on AI tools could potentially lessen their creativity and reduce

their intellectual engagement. One participant said that AI makes people “lazy” and worries that it could limit intellectual capacities over time; these thoughts match broader discussions inthe literature about the risks of relying too much on AI and the need to keep a balance between automation and human oversight (Venkateswaran et al., 2024).

Ethical and technical considerations emerged as important themes and played an important role in the qualitative analysis. Participants raised concerns about ethical implications, and they also noted issues with sourcing AI-generated content. These findings concentrate on the importance of transparency and explainable AI mechanisms while also guaranteeing compliance with data protection regulations such as GDPR—this approach helps build trust and reduces ethical risks (Zimmermann et al., 2023).

6. CONCLUSIONS AND FUTURE RESEARCH

This study clarifies the factors affecting AI adoption in digital marketing, emphasising its transformative effects on efficiency, creativity, and strategic planning. The results highlight the critical importance of Perceived Usefulness (PU) and Attitude Towards AI (AT) in influencing Behavioural Intention (BI), validating the fundamental principles of the Technology Acceptance Model (TAM). The unexpected negative correlation between Perceived Ease of Use (PEOU) and Behavioural Intention highlights the intricacies of incorporating AI into marketing strategies, suggesting that usability issues may mitigate its perceived advantages. This highlights the necessity for continuous training and organisational support to facilitate a seamless transition and optimise the potential advantages of AI.

In addition, although regret concerning AI adoption was predominantly minimal, qualitative feedback indicates significant apprehensions about excessive dependence on AI, ethical implications, and the possible effects on creativity and intellectual involvement. These findings underscore the necessity of a balanced strategy in utilising AI, wherein human oversight enhances automation to promote both innovation and accountability.

Future studies should expand beyond these findings by investigating the enduring consequences of AI integration, especially its transformative influence on decision-making, creativity, and ethical standards in marketing. Analysing emerging AI tools and their effects on specialised areas of digital marketing, along with cross-industry analyses, could provide a deeper understanding of AI's transformative capabilities. Also, longitudinal studies monitoring changes in attitudes and behaviours over time would enhance comprehension of how professionals adjust to the ongoing advancement of AI technologies in marketing. By focussing on these areas, subsequent research can yield practical insights that enhance the responsible and effective incorporation of AI into the dynamic marketing environment.

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APPENDIX A

This is to certify that
Project No.: **DDMKT2024-10-66205**
Project Title: **AI in Digital Marketing: Exploring Adoption, acceptance, and potential regrets among the industry professionals**
Principal Researcher: **Esteban Colucci**

according to the regulations of the Ethics Committee of NOVA IMS and MagIC Research Center this project was considered to meet the requirements of the NOVA IMS Internal Review Board, being considered **APPROVED** on 10/6/2024.

It is the Principal Researcher's responsibility to ensure that all researchers and stakeholders associated with this project are aware of the conditions of approval and which documents have been approved.

The Principal Researcher is required to notify the Ethics Committee, via amendment or progress report, of
- Any significant change to the project and the reason for that change;
- Any unforeseen events or unexpected developments that merit notification;
- The inability of the Principal Researcher to continue in that role or any other change in research personnel involved in the project.

Lisbon, 10/6/2024

APPENDIX B

Start of Block: Information Message

Q1 Dear Participant, If you have any questions, please feel free to contact me at: 20221044@novaims.unl.pt. Thank you very much for your time and valuable insights! Informed Consent Form I declare that I am 18 years or older and agree to participate in this research. I understand that my participation is voluntary, and I may withdraw from the survey at any time without any consequence. I acknowledge that all data collected will remain confidential and that this study poses no significant risks.

- ○ Yes (1)
- ○ No (2)

End of Block: Information Message

Start of Block: Marketing Experience

Q2 Are you currently working, or have you recently worked, in the field of marketing?

- ○ Yes, I am currently working in marketing. (1)
- ○ Yes, I have worked in marketing recently. (2)
- ○ No, I have not worked in marketing recently. (3)

End of Block: Marketing Experience

Start of Block: Perceived Usefulness (PU)

Q 3 - 4 - 5 To what extent do you agree or disagree with the following statements?

	Strongly agree (1)	Somewhat agree (2)	Neither agree or disagree (3)	Somewhat disagree (4)	Strongly disagree (5)
I believe that using AI improves marketing campaign performance (1)	○	○	○	○	○
I believe that leveraging artificial intelligence facilitates faster completion of daily marketing tasks. (2)	○	○	○	○	○
I believe that using AI enhances my ability to learn new concepts or adopt new approaches (3)	○	○	○	○	○

End of Block: Perceived Usefulness (PU)

Start of Block: Perceived Ease of Use (PEOU)

Q 6 - 7 - 8 To what extent do you agree or disagree with the following statements?

	Strongly agree (1)	Somewhat agree (2)	Neither agree or disagree (3)	Somewhat disagree (4)	Strongly disagree (5)
I personally rate the mental effort required to implement AI in my marketing activities as not very challenging. (1)	○	○	○	○	○
When I use artificial intelligence, I can easily get the outcomes I want. (2)	○	○	○	○	○
Using AI in my marketing activities is user-friendly and intuitive. (3)	○	○	○	○	○

End of Block: Perceived Ease of Use (PEOU)

Start of Block: Attitude Toward Using the Technology (AT)

Q 9 - 10 - 11 To what extent do you agree or disagree with the following statements?

	Strongly agree (1)	Somewhat agree (2)	Neither agree or disagree (3)	Somewhat disagree (4)	Strongly disagree (5)
I have a positive attitude toward using AI during my job. (1)	○	○	○	○	○
I believe that incorporating AI into my marketing strategy would improve my outcomes or provide me an alternative perspective. (2)	○	○	○	○	○
I am enthusiastic about the potential of AI. (3)	○	○	○	○	○

End of Block: Attitude Toward Using the Technology (AT)

Start of Block: Behaviour Intention to Use (BI)

Q 12 - 13 - 14 To what extent do you agree or disagree with the following statements?

	Strongly agree (1)	Somewhat agree (2)	Neither agree or disagree (3)	Somewhat disagree (4)	Strongly disagree (5)
I recommend to my colleagues to adopt AI for their jobs activities. (1)	○	○	○	○	○
Staying updated on the most recent developments in the integration of AI in the field of marketing is very important. (2)	○	○	○	○	○
I actively seek opportunities to implement AI solutions in my marketing work. (3)	○	○	○	○	○

End of Block: Behaviour Intention to Use (BI)

Start of Block: Regret Measurement

Q 15 - 16 - 17 To what extent do you agree or disagree with the following statements?

	Strongly agree (1)	Somewhat agree (2)	Neither agree or disagree (3)	Somewhat disagree (4)	Strongly disagree (5)
I regret incorporating AI into my marketing processes. (1)	○	○	○	○	○
I feel disappointed with the outcomes I achieved after using AI in my marketing activities. (2)	○	○	○	○	○
If given the choice, I would choose not to implement AI in my marketing activities again. (3)	○	○	○	○	○

End of Block: Regret Measurement

Start of Block: Demographics Questions

Q 18 Gender:

- ○ Male (1)
- ○ Female (2)
- ○ Non-binary / third gender (3)
- ○ Prefer not to say (4)

Q 19 What is your age?

- ○ 18-24 (1)
- ○ 25-34 (2)
- ○ 35-44 (3)
- ○ 45-54 (4)
- ○ 55-64 (5)
- ○ +65 (6)

Q 20 Years of work experience in Marketing

- ○ Less than 1 year (1)
- ○ 1-3 years (2)
- ○ 4-6 years (3)
- ○ 7-10 years (4)
- ○ 11-15 years (5)
- ○ 16-20 years (6)
- ○ More than 20 years (7)

Q 21 What is the highest degree or level of school you have completed?

- ○ Secondary School (1)
- ○ High school diploma (2)
- ○ Bachelor Degree (3)
- ○ Master Degree (4)
- ○ PHD (5)
- ○ Other (6) _____
- ○ Prefer not to say (7)

End of Block: Demographics Questions

Start of Block: Open Question 1

Q 22 How has the integration of AI into your marketing processes influenced your day-to-day work, your strategic approach, and your sense of control or creativity in campaign management? Please share any specific benefits, challenges, or moments of regret that you have experienced with AI adoption, and how these experiences have shaped your overall perspective on using AI in marketing.

_____

End of Block: Open Question 1

Start of Block: Open Question 2

Q 23 what do you expect to be the next development of AI in the marketing field?

_____

End of Block: Open Question 2

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