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Abstract

Artificial Intelligence (AI) is revolutionizing marketing by enhancing traditional methods and driving innovation. This research investigates the adoption of AI by marketing executives in Greece, regardless of business size, using the Technology Acceptance Model (TAM) and the RACE framework. AI plays a crucial role in personalized marketing, data analysis, and customer service, significantly improving consumer engagement and business profitability. Through a LinkedIn-based survey of 157 marketing executives, with 71 respondents, the study reveals a strong positive attitude towards AI, emphasizing its ease of use and usefulness. Widely used tools such as ChatGPT and Canva AI are shown to enhance marketing strategy efficiency. Statistical analysis indicates that perceived ease of use positively influences perceived usefulness and attitudes towards AI, which in turn affect the intention to use AI tools. Despite the numerous articles on how AI supports marketing activities, there is a notable lack of empirical studies demonstrating the adoption and utilization of AI tools by marketing executives. This research highlights AI's transformative impact on marketing and proposes future research directions, including the long-term effects of AI on marketing strategies and its acceptance across various sectors and regions.

Keywords: Artificial Intelligence (AI), Technology Acceptance Model (TAM), Race framework

Introduction

Artificial intelligence (AI) has emerged as a transformative force in marketing, significantly enhancing traditional methodologies and creating new avenues for innovation. By automating and optimizing marketing processes, AI facilitates data-driven decision-making and provides profound insights into consumer behavior and trends(Hicham et al., 2023).

As the marketing manager at the largest classifieds website in Greece, I have witnessed firsthand the substantial impact AI can have on marketing strategies. Our platform, dealing with extensive data, has benefited greatly from AI-driven tools and it is just the start of this journey. AI is instrumental in personalized marketing, automated data analysis, and improved customer service through chatbots. These AI-driven tools enable marketers to develop more precise strategies by quickly integrating and analyzing data from diverse sources. For instance, AI-powered chatbots enhance customer service by providing instant responses and information, thereby improving the overall user experience (Lakshmipriyanka et al., 2023).

In campaign optimization, AI offers critical insights and recommendations, enabling businesses to refine their strategies based on predictions of consumer behavior and economic trends. This capability leads to more effective advertising campaigns, increased customer engagement, and higher returns on investment (Şalvarli & Kayişkan, 2022).

AI adoption spans enterprises of all sizes, including small and medium-sized businesses, which can leverage AI tools for data integration, sales forecasting, and process enhancement (Agostino G. Bruzzone et al., 2020). This research investigates the adoption of AI by marketing executives, regardless of the size of the business.

Furthermore, AI's role in digital marketing is significant, as it delivers customized content and personalized experiences to consumers, strengthening customer relationships and loyalty. Integrating AI into marketing strategies has proven to be revolutionary, providing businesses with the tools needed to remain competitive in the digital marketplace (Chávez Bravo, 2021).

In summary, AI substantially impacts marketing by transforming communication with consumers, optimizing traditional marketing methods, and managing economic agents' behavior in marketing activities. This integration ultimately leads to increased profitability and enhanced customer satisfaction, underpinning its importance for modern businesses (Cho et al., 2023). Given my role and the transformation we experience in our daily routine, this research is particularly relevant and insightful for the ongoing process of adopting AI tools by marketing executives.

Literature review

Artificial intelligence (AI) is a broad field focused on creating systems capable of performing tasks that typically require human intelligence, such as decision-making, problem-solving, and learning. AI aims to mimic human cognitive functions through computational processes, producing highly reliable and sophisticated systems. It has the potential to revolutionize various disciplines by transforming how data is analyzed and used to make decisions (Sanoff, 1985). AI is defined as the capacity of a computer to perform tasks commonly associated with human beings, aiming to reduce the efforts related to daily jobs (Scotti, 2020).

Frameworks are essential instruments for marketing executives, providing structured approaches for strategy development, implementation, and evaluation of marketing campaigns.

The RACE framework, an acronym for reach, act, convert, engage, is described by Dr. Dave Chaffey as an alternative method for analyzing objectives throughout the customer lifecycle (Chaffey, 2017). From the initial contact with the company to full customer loyalty, each stage of this cycle can have measurable KPIs (Bauer, 2004).

Reach involves increasing brand awareness and encouraging visits. This stage focuses on getting your message out to a broad audience to build awareness for your brand. Act refers to prompting users to take some action that results in engagement with your content, which then generates potential leads. This stage is about engaging visitors and encouraging them to participate in a way that begins to build a relationship. Convert is the stage where visitors are turned into customers. This conversion can occur online through an e-commerce platform or offline in a physical store. The goal in both situations is to make the final sale. Engage involves post-purchase interaction, which is aimed at creating long-term loyalty and commitment to the

company. This stage aims to build enduring relationships with customers to keep them continually engaged with the brand.

Figure 1: Race Model funnel (https://belfastacademyofmarketing.co.uk/get-ready-to-race/)

In addition to the above, at the top of the framework is the “Plan”, which requires special attention for goal setting. It represents the initial strategy design to be followed using the RACE framework.

In practical terms, artificial intelligence refers to applications or programs capable of performing tasks that would previously require human analysis and interaction. Dave Chaffey attempted to capture these processes in the following infographic that represents the use of AI in the different sections of the framework.

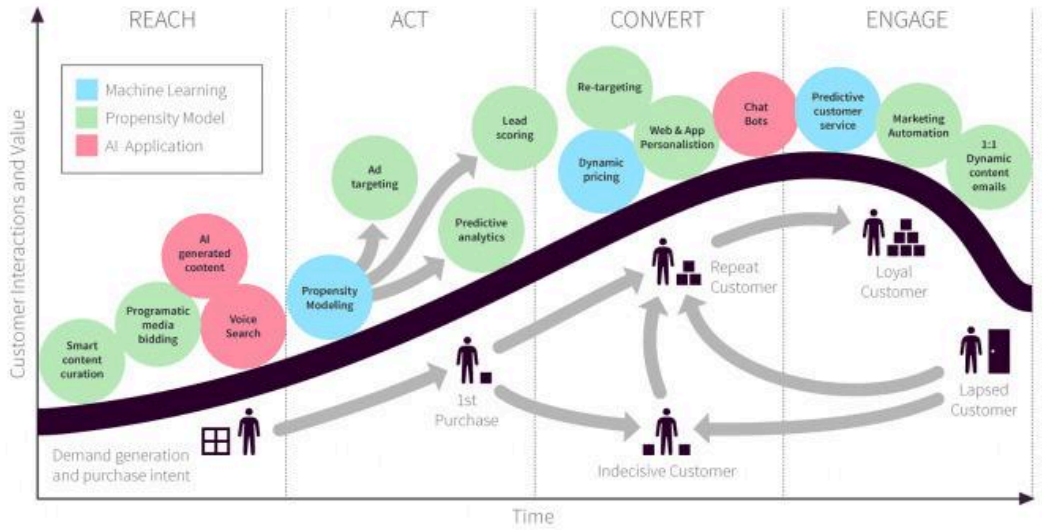

Figure 2: 15 Marketing applications of Artificial Intelligence across the RACE marketing model, Dr Dave Chaffey -personal site

Technology Acceptance Model for AI in Marketing

The Technology Acceptance Model (TAM), developed by Davis in 1989, predicts and assesses user acceptance and use of technology, particularly useful for evaluating artificial intelligence tools (Davis, 1989).

Researchers, such as Cho et al., have further expanded TAM and emphasized its utility for analyzing the adoption of digital tools and technologies (Cho et al., 2022).

TAM in Digital Marketing: has been utilized in digital marketing to examine the popularity and adoption of various digital tools and platforms. For example, TAM has been applied to study the adoption of technology in online advertising (Pandey et al., 2020).

TAM at Marketing Agencies: The introduction of artificial intelligence (AI) in advertising agencies requires developing the capability to digitize the company and build employee trust in such solutions. This shift is likely to focus primarily on optimizing the design of advertisements and measuring their effectiveness. Technological advancements are significantly reshaping various stages of the advertising process, including research, design, copywriting, scheduling, media buying, and effectiveness evaluation. For instance, the use of Reinforcement Theory in retargeting advertising on e-commerce websites helps persuade potential customers to revisit and complete their shopping experience, thereby enhancing advertising effectiveness (Yang et al., 2015). However, the adoption of technology by advertising agency managers can be crucial for a successful transition to AI-based processes. This is largely due to the perception that AI does not yet fully replace human labor. This is reflected in their views, which overwhelmingly suggest that widespread adoption is expected within a 10-year horizon, with only one anticipating a shift within 2 months (Leszczynski, 2022).

TAM for measuring user experience: For the purposes of the questionnaire, which will be analyzed in detail below, a revised model similar to the one developed by Davis in 1989 was used. In this specific model, the term "product" in the questions was replaced with "AI tools." The model was presented in two versions: a numerical scale from 1 to 7, and a version as seen in the research questionnaire, with the two extremes being "strongly agree" and "strongly disagree" on a seven-point Likert scale (Lewis, 2019).

TAM for Pharmaceutical Marketing Executives: Oamen (2023) conducted a study titled "Technology Acceptance Model (TAM) for Pharmaceutical Marketing Executives: Validation and Implications for Human Resource Management," which explored the relationship between perceived ease of use, perceived usefulness, and behavioral intention among marketing executives in Nigeria's pharmaceutical industry. The research validated the applicability of TAM in this professional context and highlighted significant factors influencing technology adoption. Key insights include the necessity for HR management to focus on enhancing the perceived ease of use and usefulness of new technologies to drive positive behavioral intentions among executives (Oamen, 2023).

TAM in Social Media Marketing: George Cristian Nistor (2019) in his study, "An Extended Technology Acceptance Model for Marketing Strategies in Social Media," expands the TAM to explore its application in social media marketing. The research highlights how the perceived ease of use and perceived usefulness of social media tools significantly shape marketing executives' attitudes and intentions toward adopting these technologies. This extension of TAM underscores its relevance in today's digital marketing landscape, where enhancing customer engagement,

streamlining content creation, and boosting campaign effectiveness are crucial. Nistor's findings suggest that advancements in social media technology are transforming various facets of marketing, from audience targeting and content scheduling to performance analytics. Additionally, the study points to the critical role of social influence in determining the perceived value and usability of social media platforms, recommending further investigation into these social dynamics to optimize technology adoption strategies (Nistor, 2019).

TAM in Marketing Research: Çelik and Uslu's (2022) study, "A Bibliometric Analysis of the Literature on the Origins of the Technology Acceptance Model (TAM) and a Marketing-Sided Approach to TAM," delves into the vast body of TAM literature with a keen focus on its marketing applications. Their comprehensive bibliometric analysis traces the evolution of TAM, spotlighting pivotal empirical studies that illustrate its significance in the marketing realm. This research emphasizes how TAM has been instrumental in deciphering consumer and marketer behaviors regarding technology adoption. By meticulously examining a wide range of sources, Çelik and Uslu not only highlight TAM's theoretical foundations but also its practical implications for marketing strategies. Their work provides a critical overview of TAM's role in fostering marketing innovation, thereby offering valuable insights and identifying new avenues for future research in the intersection of technology acceptance and marketing (ÇeliK & Uslu, 2023).

The Technology Acceptance Model (TAM) has been widely researched across multiple disciplines. However, there is a lack of empirical studies examining the acceptance of AI tools by marketing executives. Thus, this study attempts to employ TAM relating perceived usefulness, ease of use and attitude towards use to behavioral intention in order to examine the acceptance of Artificial Intelligence tools by marketing executives in Greek businesses.

Research Hypotheses

Based on previous research, this study investigates the application of the Technology Acceptance Model (TAM) to the adoption of AI tools. The following relationships between the components TAM are proposed:

1. Attitude towards use (ATT) and perceived usefulness (PUS) of AI tools have a positive effect on behavioral intention to use (BEI) these tools.
2. Perceived usefulness (PUS) and perceived ease of use (EOU) of AI tools have a positive effect on attitude towards use (ATT).
3. Perceived usefulness (PUS) of AI tools is positively influenced by perceived ease of use (EOU).

Methodology

Sampling

In this chapter, we provide a detailed description of the sections included in the questionnaire. Additionally, we discuss the sample and the categories that were developed.

The population under investigation was marketing executives at all levels of the corporate hierarchy. They were selected randomly through the popular professional social network LinkedIn.

For random sampling, the keyword "marketing" and the location filter "Greece" were used on the social network LinkedIn. Random selection was then conducted by sending connection requests to marketing executives. Once they accepted the connection request, they were informed about the questionnaire and the opportunity to participate in the research.

The response rate to participate in the research was approximately 20%, with 71 questionnaires completed out of a total population of 355 marketing executives.

The research was conducted during the months of March and April 2024.

The widely-used application Google Forms was utilized for the questionnaire due to its efficiency in facilitating data collection and its cost-effectiveness (Walonick, 1993).

Variables measurement

The survey instrument was a structured questionnaire consisting of four parts. In the first part, there were four sections regarding the TAM model, which includes: 1. Attitude towards use (6 questions), 2. Perceived ease of use (6 questions), 3. Perceived usefulness (6 questions) and 4. Intention to use (6 questions). In the second part there were general questions (6 questions) including sales funnels and the RACE framework. The third part includes professional activity-related questions (3 questions), and in the last section there were questions related to demographic characteristics of the respondents (5 questions).

To ensure the reliability of the research tool and, consequently, the validity of the data and results, data collection was conducted using a pre-existing questionnaire that had been applied in previous related studies. The creation of the questionnaire was based on the Technology Acceptance Model (TAM) (Davis, 1989) for the first four categories. These four categories utilized a seven-point Likert scale for the questions.

The next category of questions aimed to understand participants' perceptions of marketing and their use of AI tools, including naming specific tools. Additionally, it gathered information on the use of frameworks like RACE. The following category collected data related to the participants' work environment, and the final category gathered demographic information.

Results

Demographics and descriptive statistics

The sample's demographics consist of more females than males (54.9% and 45.1% respectively). In terms of age groups, it includes young adults, a significant portion in their mid-20s to mid-30s, followed by those in their late 30s to mid-40s, and a smaller group in their late 40s to early 50s (8.5% are aged 18-24, 43.7% are aged 25-34, 36.6% are aged 35-44, 11.3% are aged 45-54). It's worthy to mention that no participants are aged 55 and above. Geographically, participants are primarily from the Attica region, with others residing in Central Macedonia, Crete, Eastern Macedonia, Central Greece, Epirus, and some living abroad (49.3% in the Attica region, 31% in Central Macedonia, 7% in Crete, 4.2% in Eastern Macedonia, 2.8% in Central Greece, 2.8% in Epirus, and 2.8% who live abroad).

Regarding work experience, the sample is evenly split between those with a few years of experience and those with a decade or more, with a smaller group having over two decades of experience (29.6% have 0-4 years, 29.6% have 5-10 years, 32.4% fall within the 11-19 year range). The remaining 8.5% boast over 20 years of experience . Most participants work in larger companies, while the rest are divided between very small businesses and mid-sized companies (52.1% of participants work in companies with more than 50 employees, 25.4% in companies with up to 10 employees, and 22.5% in companies with 11-49 employees). Professionally, the majority (51.5%) identify as marketing executives, with others (30.3%) working in marketing agencies, holding director positions (10.6%), managing e-commerce (4.5%), or occupying other roles (3%).

The most commonly used marketing frameworks and AI tools

More than half (57.75%) of marketing executives use the RACE framework, while the rest of the participants (36.62%) responded that they use other frameworks such as REAN, SOSTAC, ACCD, Honeycomb, and others.

Moreover, there is widespread use of ChatGPT, with the overwhelming majority (91%) of respondents stating that they use it. Canva AI ranked second, with more than half (55.2%) of respondents reporting its use. At a considerable distance were Google's Gemini and Grammarly, both with 29.9%, reflecting the widespread use of the text assistance tool. DALL-E 2, which is part of ChatGPT, was used by 26.9% of respondents, and DeepL, the famous translation tool, was used by 23.9% of executives. The remaining AI tools gathered less than 20% of the responses. Indicatively, we mention Mailchimp and Brevo AI, which are used for newsletter purposes, Semrush, which is used for SEO purposes, smartly.io, which is used to manage and optimize ad campaigns, and other marketing activities.

Verification of the TAM model

		MeanATT	MeanBEI	MeanEOU	MeanPUS
MeanATT	Pearson Correlation	1	.373**	.245*	.191
	Sig. (1-tailed)		.001	.020	.055
	N	71	71	71	71
MeanBEI	Pearson Correlation	.373**	1	-.024	.076
	Sig. (1-tailed)	.001		.423	.265
	N	71	71	71	71
MeanEOU	Pearson Correlation	.245*	-.024	1	.768**
	Sig. (1-tailed)	.020	.423		.000
	N	71	71	71	71
MeanPUS	Pearson Correlation	.191	.076	.768**	1
	Sig. (1-tailed)	.055	.265	.000	
	N	71	71	71	71

**. Correlation is significant at the 0.01 level (1-tailed).

*. Correlation is significant at the 0.05 level (1-tailed).

Figure3: Pearson Correlation

Pearson correlation was applied to test the hypotheses formulated in the “Research and Hypotheses” section as figured above.

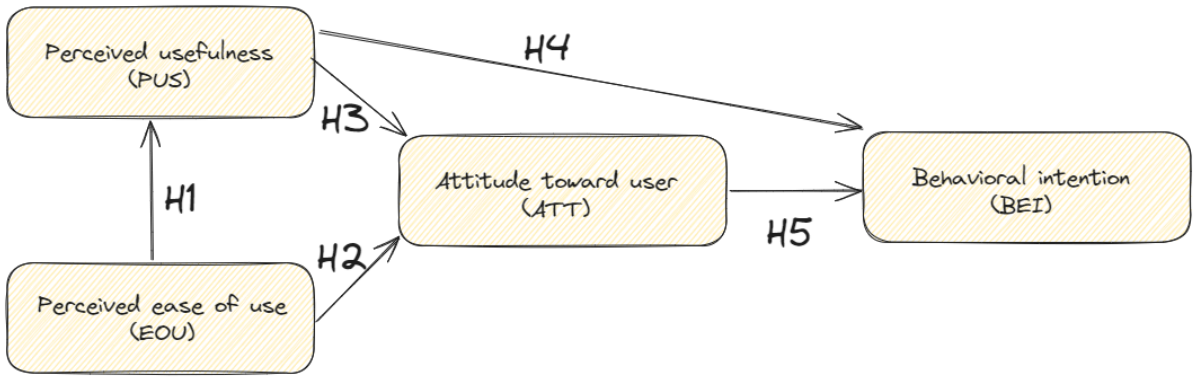

Figure4: Conceptual Model & Hypotheses testing

H1: The perceived usefulness (PUS) of AI tools is positively influenced by the perceived ease of use (EOU).

The Pearson correlation between "PUS" and "EOU" is approximately 0.768. This indicates a strong positive correlation, meaning that as the perceived ease of use of AI tools increases, their perceived usefulness also tends to increase.

H2: The perceived ease of use (EOU) of AI tools has a positive effect on attitudes towards use (ATT).

The Pearson correlation between "EOU" and "ATT" is approximately 0.245. This indicates a moderate positive correlation, meaning that as the perceived ease of use of AI tools increases, the attitude towards their use tends to improve.

H3: The perceived usefulness (PUS) of AI tools has a positive effect on attitudes towards use (ATT).

The Pearson correlation between "PUS" and "ATT" is approximately 0.191. This indicates a weak positive correlation, meaning that as the perceived usefulness of AI tools increases, the attitude towards their use tends to improve slightly.

H4: The perceived usefulness (PUS) of AI tools has a positive effect on the behavioral intention to use (BEI).

The Pearson correlation between "PUS" and "BEI" is approximately 0.076. This indicates a very weak positive correlation, meaning that the perceived usefulness of AI tools has a very small effect on the intention to use them.

H5: The attitude towards the use (ATT) of AI tools has a positive effect on the behavioral intention to use (BEI).

The Pearson correlation between "ATT" and "BEI" is approximately 0.373. This indicates a moderate positive correlation, meaning that as the attitude towards the use of AI tools improves, the behavioral intention to use them tends to increase.

Finally marketing executives generally have a positive attitude towards the use of AI, rating it highly in terms of ease of use and usefulness. They find AI tools easy to use and consider them extremely beneficial, which significantly enhances their perceived usefulness. Consequently, there is a strong behavioral intention among these executives to adopt and integrate AI tools into their marketing strategies.

Conclusions, Limitations & Further Research

This research paper investigated the acceptance of artificial intelligence (AI) tools by marketing executives in Greek businesses, providing significant insights into their use and perceptions of these tools. Specifically, the study examined the adoption of AI through the Technology Acceptance Model (TAM) and the application of frameworks such as the RACE framework.

Key Conclusion

One of the key conclusions of the research is that no previous studies were found that specifically focus on the acceptance of artificial intelligence by marketing executives, and even more specifically, by marketing executives in Greece. This highlights the value of this work, as it represents the first attempt to document and analyze this aspect.

Conclusions from the Research

Marketing executives in Greece demonstrate a strong positive inclination towards adopting AI tools in their strategic processes. They recognize AI's high utility and ease of use, which significantly motivates them to integrate these technologies into their marketing strategies. A substantial number of these professionals employ the RACE framework and other similar frameworks to develop and assess their marketing initiatives. The incorporation of AI tools within these frameworks notably enhances the efficiency and impact of digital campaigns. Notably, ChatGPT and Canva AI are among the most frequently utilized AI applications, providing considerable advantages to marketing efforts.

Marketing executives in Greece find AI tools to be beneficial and enhancing their performance in marketing tasks, indicating that AI can offer real advantages and efficiency. They also find these tools easy to use, which facilitates their adoption. This is crucial because, regardless of how useful a technology is, if it is not user-friendly, users may hesitate to adopt it. Consequently, when users perceive a technology as both useful and easy to use, they are more likely to have a positive intention to adopt and utilize it.

Limitations

One of the main limitations of this study is that it relied solely on LinkedIn to identify and contact marketing executives. This approach might have led to a selection bias, as the sample may not fully represent all marketing executives in Greece. Furthermore, since the study focused specifically on Greek businesses, the findings may not apply to other regions or industries. Further research should aim to use a broader and more varied sampling method, incorporating different professional networks and databases, to ensure a more comprehensive understanding and to confirm and extend these results.

Suggestions for Further Research

In order to enhance the understanding and application of AI tools in marketing, the following directions for future research are proposed: researching the long-term impacts of using AI tools on marketing strategies, analyzing AI acceptance across different economic sectors and various geographical regions. Authors are currently working and investigating the acceptance and use of specific AI tools by marketing executives.

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