Integration of Emotionally Intelligent Artificial Intelligence into Neuromarketing: Attitudes, Opportunities, Challenges

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Abstract: The integration of emotionally intelligent artificial intelligence into neuromarketing promises to revolutionize the way organizations interact with consumers. This research, based on a survey of 510 marketers and 708 consumers, reveals the complex picture of perceptions and expectations regarding this new technology. Although the potential benefits are significant, ethical dilemmas present a major challenge. The report analyzes the current state of the art of the latest developments in marketing and neuromarketing and thereby contributes to the development of marketing knowledge. At the same time, the authors offer guidelines for developing ethical frameworks for the use of emotionally intelligent artificial intelligence.

1 INTRODUCTION

Although marketers are well aware of the limitations of established traditional market research methods, only in recent years has science allowed the development of a more effective mechanism by which consumer thoughts and emotions can be deciphered. This relatively innovative approach has come to be known as *neuromarketing* (Mihajlovic *et al.*, 2023). According to Gurgu *et al.* (2020), this concept refers to the use of techniques developed by specialists in cognitive neuroscience and psychology to analyze and understand people's reactions to products and promotions. This allows marketers to refine their efforts and make them more effective.

At the same time, the dynamics in the development of technology also exert a significant influence on marketing research and accompanying business decisions. Artificial intelligence (AI), along with emerging neuropsychological tools, has exponentially changed and continues to change the way marketers collect, store, and analyze the marketing data they need (Adeola *et al.*, 2022). It is widely believed that AI has changed the marketing landscape, enabling improved prediction, precise personalization, and increasing automation (Lakshminarayana *et al.*, 2024).

What if a different concept, namely emotional intelligence, was applied to this data-driven approach? Emotional intelligence (EI) is defined broadly as the ability to recognize, understand, and manage emotions, both in oneself and in others. In recent years, this phenomenon has emerged as a game-changer and crucial in various aspects of human development, including interpersonal relationships, academic and professional success, and overall well-being (Igbokwe *et al.*, 2023).

The convergence of AI and EI in marketing, and specifically in neuromarketing, is laying the groundwork for a transformative era that transcends traditional approaches to increasing customer engagement. This synergy, emphasized by modern marketers, harmonizes data-driven insights with empathic understanding, creating deeply personalized consumer experiences. EI's role is to interpret customer emotions and add depth to AI's analytical capabilities. The collaboration paradigm between AI and EI goes beyond transactions to create empathic connections with customers. As technology evolves, these insights provide a roadmap for crafting holistic marketing strategies that resonate on both a rational and emotional level, promising a future where businesses create lasting connections in the dynamic technology landscape (Velmurugan *et al.*, 2024).

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The purpose of this report is to explore the attitudes, opportunities and challenges towards and towards the integration into neuromarketing of the common construct of AI and EI called emotionally intelligent artificial intelligence (EI$_{AI}$). Two groups of respondents from Bulgaria were studied – marketers (N=510) and consumers (N=708). Although the application of the EI$_{AI}$ is analyzed specifically in *neuromarketing*, the study uses the general term *marketing*. The reason for avoiding the term neuromarketing is that the authors of the study explore the expectations and barriers to and to the implementation of EI$_{AI}$ in general, assuming that they can also be seen as opportunities and challenges to the upgrade of traditional marketing to neuromarketing.

The study is structured as follows: 1) The literary background examines the three key concepts – artificial intelligence, emotional intelligence, and neuromarketing, as well as the intersection between the first two – emotionally intelligent artificial intelligence; 2) The methodology was built and the research sample was formed; 3) Analyzing and discussing the obtained results; 4) Relevant conclusions are formulated.

2 LITERARY BACKGROUND

Many studies have highlighted the limitations of traditional market research methods, as these studies are mainly based on declarative data and information – what the interviewee states, which may differ from their actual thinking. These established methods can be upgraded through neuromarketing or the application of neuroscientific methods and knowledge in marketing approaches. Neuromarketing is defined as an interdisciplinary field that combines psychology, neuroscience, and economics (Mouammine & Azdimousa, 2019). It is also described as a method that measures brain waves, eye movements, and skin conductance to analyze reactions to advertisements and information related to a given brand. It is a relatively new field of marketing that draws heavily from neuroscience and psychology in its quest to market brands inspired by human cognitive and emotional responses (Yadav, 2024).

In neuromarketing, the brain and nervous system are observed, with the aim of understanding instinctive human behaviour in terms of cognitions and emotions, as well as conscious and unconscious states, in response to marketing stimuli and activities. Thus, the knowledge resulting from each neuromarketing study contributes to the advancement and development of marketing theory in general and

the planning and implementation of marketing strategies and commercial marketing objectives in a specific organization (Varghese, 2022).

For its part, AI is defined as the creation of intelligent computer systems composed of analytical processes whose purpose is to propose solutions and algorithms that improve our daily lives and also to study human behaviour through data collection (Mouammine & Azdimousa, 2019). Machine learning algorithms can look at vast amounts of data to predict how people will act, make marketing strategies more effective, and send personalized materials to each person in real time (Lakshminarayana *et al.*, 2024). Results of a recent empirical study conducted among Bulgarian entrepreneurs show that business considers as positive aspects of AI a reduction of time and financial costs by automating routine processes and tasks, including in the marketing of the activities of extracting data from customers and in the analysis of extensive market data (Kirova & Boneva, 2024).

Neuromarketing and AI will be very important in the future of marketing in order to understand people's behaviour and create personalized experiences. Market research, data analysis, and the application of AI are valuable tools for gaining deeper insight into consumer behaviour (Juárez-Varón *et al.*, 2024). As it turns out, neuromarketing uses methods from neuroscience to peer into people's subconscious and know what they like and how they make decisions. Against this backdrop, AI-powered chatbots and virtual assistants are expected to improve customer interactions by providing them with instant assistance and personalized suggestions. Combined with a common tool, neuromarketing insights and AI capabilities help marketers craft campaigns that are both highly targeted and emotionally powerful. In this way, customer engagement will be achieved at a deeper level (Lakshminarayana *et al.*, 2024).

From what has been said so far, it is clear that AI refers to the technique of creating computer systems that can perform tasks that require human intelligence. AI is a discipline that tries to emulate human behaviour based on immutable, reproducible and universal hardware. However, AI has been criticized for its lack of understanding of the basic principles of life – emotions, ethical and moral issues, and environmental criteria (Vicci, 2024), leading scientists to try to create emotionally intelligent artificial intelligence.

But why exactly is emotionally intelligent? EI has been identified as vital to human interactions. People with higher EI scores are thought to suffer from less

stress and show better professional performance. This leads several authors to conclude that higher levels of EI positively affect the performance of managers (Todorova, 2024). EI_{AI}, on the other hand, is defined as an in-depth study of the application of emotional processes in learning and reasoning. AI with emotional capabilities, or emotional AI, assists AI systems in better understanding a given task or problem. Indeed, EI_{AI} refers to technologies that are claimed to be able to recognize and sense human emotions successfully (Vicci, 2024).

The intersection of AI and EI – EI_{AI} – ushers in a revolutionary era in the marketing landscape and a paradigm shift. It leapfrogs traditional approaches and introduces innovative and hyper-personalized data-driven strategies with empathic understanding to increase customer engagement. This harmonization paves the way for the creation of profoundly personalized and engaging customer experiences, where AI augments analytical capabilities and EI provides a nuanced understanding of human emotions (Velmurugan *et al.*, 2024). Decoding consumer emotions and behaviour through the application of EI_{AI} changes the marketing game in at least the following aspects (Mouammine & Azdimousa, 2019; Yadav, 2024; Velmurugan *et al.*, 2024): *Loyalty*: Building customer loyalty to a specific brand is fostered by emotional connections and leads to scaling success for both parties; *Personalization*: The insights reached through EI_{AI} tools allow for more precise personalization in relation to the marketing campaigns carried out; *Satisfaction*: Respecting and accepting the specific expectations of specific users improves the satisfaction of the latter; *Forecasting*: EI_{AI} and the reading of emotions increase the competitive advantage of the respective brand by allowing closer planning and forecasting and reducing the risk of errors; *Effectiveness*: Including an emotional aspect in communications – an aspect that resonates positively with the emotions of the relevant target group of users, will make the messages even more impactful and effective;

The application possibilities of EI_{AI} and emotions in marketing cannot be covered in the highlights summarized above. The unifying factor behind all of the listed, but possibly unaddressed, aspects of the importance of emotions and the EI_{AI} is the understanding that emotions play a significant role in the decision-making process. It should not be underestimated that the market and digital advancements are pressuring the modern consumer with various "special" offers, just a click away. It is not surprising that this often leads to impulsive and

irrational buying (Mouammine & Azdimousa, 2019), i.e. based on emotions.

Although research related to EI_{AI} has grown significantly over the past five years, there is still a lack of comprehensive studies on the degree of adoption (attitudes, expectations, fears) of this data- and emotion-based marketing tool by the two most affected by its implementation groups: *marketers* and c*onsumers*. The authors of this report set themselves the goal of researching this niche precisely, placing the question in the context of the Bulgarian market and the accompanying marketing activities and consumer behaviour.

3 METHODOLOGY

The purpose of the research is to identify attitudes, opportunities and challenges towards and in the use of marketing tools with EI_{AI}. Achieving the objective thus formulated requires an approach that encompasses both qualitative and quantitative data. The research methodology is based on the following research methods: 1) *Systematic Review*: This is included in the Literature Background. The aim is to build a theoretical understanding of the research object – EI_{AI} – by tracing the correlations between EI, AI, and neuromarketing concepts. The applied method is a systematic review of scientific articles, books, reports, and other relevant sources found in databases such as Scopus, ResearchGate, Web of Science, Google Scholar, *etc.;* 2) *Surveying*: necessary to obtain primary data on the perceptions, attitudes and experiences of consumers, marketers and marketing experts. Questionnaires were developed and used, and they were distributed online and through face-to-face meetings with different groups of respondents. The time frame of the conducted surveys is *June 1-September 30, 2024*. In this case, the survey aims to cover the two main groups interested in the use of EI_{AI} in marketing, namely *marketers* and *consumers*:

▪ *Marketers*: the sample was formed on the database of the National Statistical Institute (NSI) in Bulgaria (NSI, 2023a), according to which those employed as of 31.12.2023 in *Sector M "Professional activities and scientific research"* (to which Marketing is included (OPHRD, 2021) as an activity) are over 114 thousand people. Therefore, the recommended sample size is 383 people (at a confidence level of 95% and a margin of error of 5%). The survey form was distributed among representatives and employees of marketing

agencies through personal communication, industry e-mail newsletters, webinars, conferences, *etc.* The questionnaire includes 9 questions (RQ_M) with a selectable answer on a Likert scale. Also included is one question with four preset answers and an option for respondents to write in.

▪ *Consumers*: The sample was formed on the basis of Bulgaria's population, conditionally assuming that every citizen is a potential consumer. According to NSI data (2023b), the population of Bulgaria as of 31.12.2023 is 6,445,481 people. Therefore, the recommended sample size is 385 (at a confidence level of 95% and a margin of error of 5%). The survey form was distributed among Bulgarian citizens through personal communication, social networks, e-mail newsletters from various social organizations, training, *etc.* The questionnaire includes 8 questions (RQ_C) with a selectable answer on a Likert scale.

The wording of the questions avoided referring to neuromarketing as potentially new and/or insufficiently known by both marketers and consumers. Such a limitation is placed because, above all, the research seeks information in general about attitudes, opportunities, and challenges towards and for the implementation of EI_{AI}, which can also be seen as opportunities and challenges for the upgrade of *traditional marketing* to *neuromarketing*.

4 RESULTS AND DISCUSSION

Five hundred ten employees (N=510), experts and managers employed in the field of marketing responded to the survey. The questions for those employed in the field of marketing are:

RQ1$_M$: *Your level of familiarity with marketing tools using EI_{AI} is.*

RQ2$_M$: *Using EI_{AI} marketing tools would improve the effectiveness of marketing campaigns.*

RQ3$_M$: *The use of marketing tools with EI_{AI} would lead to a better understanding of consumer behaviour.*

RQ4$_M$: *Do you think the use of EI_{AI} marketing tools will increase in the next 5 years?*

RQ5$_M$: *Do you think the use of EI_{AI} marketing tools poses a threat to data privacy?*

RQ6$_M$: *I expect that EI_{AI} marketing tools will become more accessible to small businesses.*

RQ7$_M$: *I believe it is crucial to invest in the development of EI_{AI} marketing tools.*

RQ8$_M$: *I believe that personalized marketing messages based on emotions are more effective.*

RQ9$_M$: *I think it is necessary to create strict regulations for the use of marketing tools with EI_{AI}.*

The results of the survey are presented in Table 1 and Figure 1. The data show that Bulgarian marketing specialists have a relatively good knowledge of marketing tools using EI_{AI} ($RQ1_M$). With varying degrees of certainty, 150 people or 29% of respondents confirm this. At the same time, a significant share of marketers – more than half of the respondents or 287 (56%) are not aware of this relatively new concept. On the other hand, a considerable number of respondents – 407 (79%) agreed that EI_{AI} would improve the effectiveness of marketing campaigns ($RQ2_M$). Only 18 people, or 4% of the respondents, disagreed with this statement. Respondents were no less adamant about whether marketing tools with EI_{AI} would lead to a better understanding of consumer behaviour ($RQ3_M$). This conclusion is supported to varying degrees by 453 (68%) of the respondents. There are 8 (2%) who disagree, with a significant share of specialists without a clear opinion – 152 (30%) of the respondents.

Table 1: Answers to the questions asked to those employed in the field of marketing, according to a 5-point Likert scale: 1 = Not at all; 2 = Rather not; 3 = I'm not sure; 4 = Rather yes; 5 = For sure. Source: The authors.

Likert Scale	1	2	3	4	5
RQ1$_M$ (N=510)	190 (37%)	97 (19%)	73 (14%)	36 (7%)	114 (22%)
RQ2$_M$ (N=510)	0 (0%)	18 (4%)	85 (17%)	170 (33%)	237 (46%)
RQ3$_M$ (N=510)	0 (0%)	8 (2%)	152 (30%)	103 (20%)	247 (48%)
RQ4$_M$ (N=510)	0 (0%)	6 (1%)	79 (15%)	146 (29%)	279 (55%)
RQ5$_M$ (N=510)	10 (2%)	111 (22%)	139 (27%)	145 (28%)	105 (21%)
RQ6$_M$ (N=510)	15 (3%)	27 (5%)	174 (34%)	214 (42%)	80 (16%)
RQ7$_M$ (N=510)	96 (19%)	30 (6%)	99 (19%)	102 (20%)	183 (36%)
RQ8$_M$ (N=510)	0 (0%)	0 (0%)	22 (4%)	198 (39%)	290 (57%)
RQ9$_M$ (N=510)	0 (0%)	0 (0%)	0 (0%)	85 (17%)	425 (83%)

These results can be explained by the lack of knowledge (from the point of view of $RQ1_M$) about marketing tools with EI_{AI}, which quite naturally includes mistrust of their effectiveness. At the same time, 425 (84%) of marketers confirm to varying degrees that the use of EI_{AI} marketing tools will increase

in the next 5 years (RQ4$_M$). A considerable number of respondents – 79 (15%) – cannot take a definite position on the formulated statement, and only 6 people (1%) rather disagree.
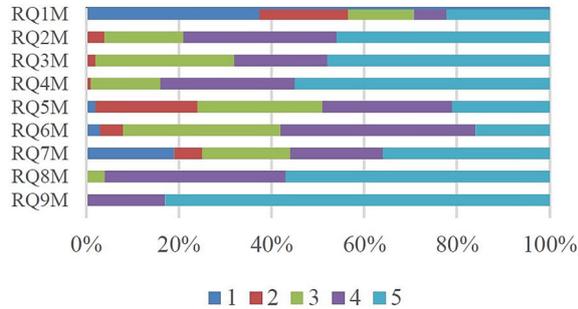

Figure 1: Answers to the questions asked to those employed in the field of marketing (N=510), according to a 5-point Likert scale: 1 = Not at all; 2 = Rather not; 3 = I'm not sure; 4 = Rather yes; 5 = For sure. Source: The authors.

Regarding the question of whether the use of EI$_{AI}$ marketing tools poses a threat to data privacy, a moderate assertiveness of the expressed positions is observed (RQ5$_M$). Although 121 (24%) of those asked disagree with the statement to varying degrees and 139 (27%) have no opinion, almost 1/2 of the respondents or 250 (49%) agree. A similar result is seen in the following statement, namely that EI$_{AI}$ marketing tools will become more accessible to small businesses (RQ6$_M$). 294 (58%) of the respondents share this opinion, while 42 (8%) disagree. The number of respondents whose answers were without a clearly expressed opinion increased significantly – 174 (34%) of the respondents. An interesting finding can also be made when examining the results of the seventh statement and whether it is essential to invest in the development of EI$_{AI}$ marketing tools (RQ7$_M$). This opinion is shared by 285 (56%) of the marketers, and those who disagree to varying degrees are twice as many – 126 (25%). 99 (19%) of the respondents have no expressed opinion. The data here correlates somewhat negatively with the data from (RQ3$_M$), where nearly 70% of respondents believe that EI$_{AI}$ marketing tools would lead to a better understanding of consumer behaviour. At the same time, only half (56%) of respondents believe that it is essential to invest in the development of EI$_{AI}$ marketing tools. It is unclear how these specialists would have achieved the effectiveness they expected without counter-investment in the development and improvement of such marketing tools.

The responses to the statement that personalized marketing messages based on emotions are more effective (RQ8$_M$) are striking in their categoricalness. The opinion is shared by 488 (96%) of the marketers,

with only 22 (4%) not having a clear opinion. None of the respondents expressed disagreement. These results reinforce the established opinion about the power of emotions in marketing, also identified in the theoretical background of this report. As Mouammine and Azdimousa (2024) point out, emotions are ubiquitous in the marketing context and play a significant role in processing information, influencing responses to persuasive messages, and measuring the effects of marketing stimuli. Even more unequivocal is marketers' opinion regarding the need to create strict rules for the use of marketing tools with EI$_{AI}$ (RQ9$_M$). Although to varying degrees, 510 (100%) of the respondents fully agree with the statement. This demonstrates an important fact – legislation on the protection and use of personal data by companies lags or does not match the development of AI applications.

The answers to the last question to marketers confirm the formulated conclusion regarding the use of personal data in marketing based on EI$_{AI}$. When it was possible to mark more than one answer, as well as to specify a different one from those specified, to the question *The biggest challenge in implementing EI$_{AI}$ marketing tools is…*: 425 people (83%) indicated *Ethical considerations*; 340 people (67%) indicate *Lack of technical knowledge*; 315 people (62%) indicate *The high price*; 85 people (17%) indicate *Employee resistance*. None of the respondents added answers other than those already formulated. A significant number of people identified a lack of knowledge and high development costs as barriers to implementing EI$_{AI}$ tools. Even less of a factor is employee resistance. It is obvious that the most significant obstacle to the integration of EI$_{AI}$ is the ethical considerations, which, to some extent, are available due to the lack of an established norm for the application of this type of marketing tool. Moreover, the question of how ethically it is to use the emotionality of consumers to move them along the consumer funnel or path is a delicate one. The answer to this question is also the dividing line between manipulation and conscious consumer decision.

On the consumer side, the survey managed to reach 708 people (N=708). The results of the survey are presented in Figure 2 and Table 2. From a consumer perspective, the research seeks answers to the following questions:

RQ1$_C$: *I believe that companies that use EI$_{AI}$ marketing tools are transparent about how they collect and use my data.*

RQ2$_C$: *I want to know how EI$_{AI}$ marketing tools analyze my emotions.*

RQ3$_C$: *I appreciate it when marketing messages are personalized based on my emotions.*

RQ4_C: *I believe that personalized marketing messages based on emotions are more effective.*

RQ5_C: *I want to receive more personalized marketing messages based on my emotions.*

RQ6_C: *I believe that using EI_{AI} marketing tools is manipulating and unethical.*

RQ7_C: *I think it is necessary to create strict regulations for the use of marketing tools with EI_{AI}.*

RQ8_C: *I would like to have more control over how my emotional data is used in marketing.*

Respondents' responses showed an interesting polarity regarding whether consumers believe that companies using EI_{AI} marketing tools are transparent about how they collect and use their data ($RQ1_C$). More than half of the respondents – 382 (54%) agree with the statement to varying degrees, 159 (22%) have no opinion, and a similar number –167 (24%) rather disagree or do not agree at all. However, a surprisingly high proportion of consumers express trust in brands using their personal data in their marketing campaigns. This correlates negatively with recent research that shows consumers increasingly focus on whether the companies they provide their personal information to are protecting their privacy by protecting that information and using it responsibly. The majority of consumers do not trust these companies to do this (PwC, 2017). The following question provides a possible explanation.

Absolutely, all survey participants indicated in varying degrees that they would like to know how an EI_{AI} marketing tools analyzes their emotions ($RQ2_C$). This response shows the typical human curiosity about how a process or phenomenon occurs, but it also demonstrates a complete lack of knowledge regarding how companies collect data to power their marketing operations. This conclusion can also be interpreted as a kind of explanation for why so many Bulgarian consumers are convinced that companies collect and use their personal data more transparently. If users are not really aware of how EI_{AI} tools work, do they even treat their emotions as marketable personal data? Do they realize the danger to themselves that comes with such knowledge left in the hands of marketing teams?

When consumers were asked whether they appreciated when marketing messages were personalized based on their emotions ($RQ3_C$), again, a significant polarity was observed in the positions expressed. A substantial number of respondents – 363 (51%) support the statement to varying degrees. Although smaller, the number of those who disagree is no less significant – 283 (40%) strongly or rather disagree. At the same time, the share of those expressing uncertainty is only 9% or 62 of those asked. The inferred

data are somewhat corroborated by the responses to the next question seeking information on whether consumers share the opinion that personalized marketing messages based on emotions are more effective ($RQ4_C$).
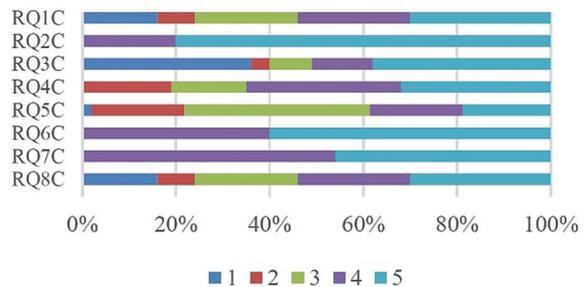

Figure 2: Answers to the questions asked to customers (N=708), according to a 5-point Likert scale: 1 = Not at all; 2 = Rather not; 3 = I'm not sure; 4 = Rather yes; 5 = For sure. Source: The authors.

Although a large percentage of consumers (40%) do not value highly when marketing messages are personalized based on their emotions, a significant share of respondents – 65% or 465 of those asked to varying degrees – believe that personalized marketing messages based on emotions are more – efficient. Accordingly, only 132 (19%) rather disagree, and 111 (16%) do not have a clear position.

Table 2: Answers to the questions asked to customers, according to a 5-point Likert scale: 1 = Not at all; 2 = Rather not; 3 = I'm not sure; 4 = Rather yes; 5 = For sure. Source: The authors.

Likert Scale	1	2	3	4	5
RQ1_C (N=708)	112 (16%)	55 (8%)	159 (22%)	167 (24%)	215 (30%)
RQ2_C (N=708)	0 (0%)	0 (0%)	0 (0%)	142 (20%)	566 (80%)
RQ3_C (N=708)	254 (36%)	29 (4%)	62 (9%)	92 (13%)	271 (38%)
RQ4_C (N=708)	0 (0%)	132 (19%)	111 (16%)	237 (33%)	228 (32%)
RQ5_C (N=708)	11 (2%)	141 (20%)	283 (40%)	142 (20%)	131 (19%)
RQ6_C (N=708)	0 (0%)	0 (0%)	0 (0%)	284 (40%)	424 (60%)
RQ7_C (N=708)	0 (0%)	0 (0%)	0 (0%)	385 (54%)	323 (46%)
RQ8_C (N=708)	112 (16%)	55 (8%)	159 (22%)	167 (24%)	215 (30%)

The subsequent question directly answers whether consumers would like to receive more personalized marketing messages based on their emotions ($RQ5_C$). The highest is the share of respondents who are not

sure of their answer – 40% or 283 of those asked, followed by those who strongly agree – 39% or 273 of those surveyed, and those who strongly or rather disagree – 22% or 152 respondents.

Again, a likely reason for not giving a definite answer on the part of almost one second of the respondents is the ignorance of EI_{AI} tools and their application by marketers.

The distinction between the fine line of manipulation and conscious consumer decision explores the following question posed in the survey, namely whether consumers believe that using EI_{AI} marketing tools is manipulating and unethical. Expectedly or not, the opinion of the respondents was strongly expressed, with 100% of respondents to varying degrees supporting the statement (RQ6$_C$). This corresponds positively with the concern expressed by 83% of marketers that ethical considerations are an obstacle to EI_{AI} integration. Therefore, both stakeholders – both consumers and marketers, need a more clearly constructed and accordingly communicated ethical framework of the application in marketing activities of AI, in general, and of EI_{AI}, in particular.

The next question in the survey reinforces this conclusion by analyzing the users' need for strict rules for using marketing tools with EI_{AI} (RQ7$_C$). To varying degrees, 100% of those who took part in the survey shared this statement positively. The proportion of positive responses to the last question, namely whether consumers would like to have more control over how their emotional data is used in marketing (RQ8$_C$), is similar.

Based on the studies conducted, fundamental generalizations can be made, and specific directions for future research and policy development on the responsible use of EI_{AI} in (neuro)marketing can be proposed. That contributes to a more accountable use of EI_{AI} in marketing but would also bring peace of mind to consumers that their personal data, including their specific emotions, would be used in a more transparent and responsible, but not manipulative, manner.

The present research shows that it is necessary to: *1)* Conducting long-term studies to assess how the use of EI_{AI} in marketing affects consumer behaviour, brand loyalty, and market trends in the long term. The results must be communicated to all interested parties, including the consumers whose emotions are being studied; *2)* In-depth analysis of the interaction between users and specific marketing tools powered by EI_{AI} (e.g. chatbots) to understand if and how customer satisfaction and loyalty are actually affected; *3)* Developing a comprehensive ethical framework defining the permissible and impermissible uses of not only AI but also tools based on EI_{AI}. This is necessary

so that it is completely transparent when the fine line between immoral, manipulative behaviour on the part of companies and brands is crossed.

Limitations of the Study

A significant limitation of the research is the apparent lack of clarity regarding the object of study – EI_{AI}, among the respondents. For many of them, AI, EI, and EI_{AI} are just modern terms that are emptied of meaning at this stage. In this sense, asking for opinions on issues about which the respondents are not sufficiently knowledgeable is undoubtedly possible to distort the final results, especially regarding attitudes and perceptions. It is essential in future similar studies that the respondents, especially the user group, are in advance and at least partially familiar with the meaning of neuromarketing, EI, AI, and EI_{AI}.

The survey's avoidance of the term *neuromarketing* should also be seen as a limitation. However, as stated, the aim is to explore attitudes, challenges, and opportunities for the implementation of EI_{AI} marketing tools, which essentially relate to neuromarketing.

Applicability

To realize the full potential of EI_{AI}, close cooperation between academia, business, government institutions and civil society is needed. Only through joint efforts is it possible to develop an effective regulatory framework and encourage the responsible use of these technologies. The long-term goal should be to create an environment where EI_{AI} serves the interests of society as a whole, stimulates innovation and competition, and provides an inclusive environment that places ethics above the maximization of profits or at least does not pit them against each other. In this sense, the present study enriches disciplines such as management, marketing, consumer behaviour, and neuromarketing. Still, it is also a good starting point for starting a more active discussion in the direction of building a normative and ethical framework for the use of EI_{AI} applications.

5 CONCLUSIONS

Emotionally intelligent artificial intelligence opens up a horizon of unsuspected possibilities in marketing. At the same time, its development and subsequent implementation require constant pursuit of a balance between innovation and ethical considerations. In this sense, the survey among Bulgarian respondents, to some extent, demonstrates an underestimation by consumers regarding their own emotions as potential personal data of high value for marketers and brands.

It is also significant that both researched groups are convinced of the potential and effectiveness of EI_{AI}. Still, they do not know enough about it as a paradigm but already realize that there are a number of ethical dilemmas that need to be resolved before actively using this attractive new technology. There are also concerns that EI_{AI} can be used to manipulate users by acting on their unconscious desires and fears. Brands should alleviate these concerns transparently and proactively.

In conclusion, the combination of EI_{AI} and neuromarketing undoubtedly opens up new and exciting opportunities for marketers. By understanding consumers' emotional responses, companies can create products and services that are better tailored to the individual needs and preferences of their most loyal customers. It is precisely this that is among the most essential expectations of both marketers and consumers.

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