

The Ethical Limits of the Use of Artificial Intelligence for Marketing in the Brazilian Context

Débora Dias Panicachi ¹, Eric David Cohen ¹

¹ Faculdade de Ciências Aplicadas – Universidade Estadual de Campinas (Unicamp)
R. Pedro Zaccaria, 1300 - CEP 13484-350 – Limeira, SP – Brazil

deboradiaspanicachi@outlook.com, ecohen@unicamp.br

Abstract. *This research explores the perceptions of marketing professionals regarding the use of Artificial Intelligence (AI) in marketing practices within the Brazilian context, focusing on key areas such as product recommendations and market segmentation. A central theme is the ethical boundaries that must guide the application of AI in marketing, particularly in balancing technological advances with consumer expectations. The findings emphasize the importance of ensuring consumer privacy during data collection and managing the risks of information sharing and overload. The paper discusses the limits that should accompany these technological advancements, considering ethical concerns, current legislation, state-of-the-art practices, and regulatory frameworks.*

1. Introduction

This research was conducted within the Hub of Artificial Intelligence and Cognitive Architectures, located at the Institute of Computing at UNICAMP to stimulate the development of knowledge related to Cognitive Architectures. The AI for Marketing project focuses on the use of cognitive architectures to analyze consumer behavior, recommendation systems and marketing offers that make use of cognitive and AI architectures in mobile devices, with a particular interest in two classic problems in the field of marketing knowledge: customer segmentation and customer churn prediction.

The study adopts an interdisciplinary approach, incorporating concepts from Information Technology, Law, and Management. Based on a methodology that includes qualitative and quantitative research, it seeks to understand the perception of Brazilian marketing practitioners about the risks and benefits of using AI in marketing, as well as to identify ethical and legal practices related to the collection and use of personal data, as well as to understand if the use of Marketing tactics in the current Brazilian scenario is ethically justified. The study focuses particularly on these ethical dilemmas: (a) transparency of AI decision-making processes, (b) the tension between personalization and privacy, and (c) the risk of overexposure through excessive marketing offers.

To support the development of this research and direct interest towards the formulation of initial hypotheses about the ethical limits of marketing practices, at the outset we held a *focus group* session on the University campus in Limeira (SP) with ten Marketing practitioners. The project fully adheres to the University's research guidelines and was formally approved by the Research Ethics committee. All respondents received and acknowledged their rights and principles according to the Informed Consent form. The ensuing *focus group* question was presented: **do**

participants feel that companies are *de facto* collecting personal information to use it as a form of targeted advertising?

The respondent's perception is that this situation does occur. For instance, they perceive that targeted advertisements on social networks are based on search history (not only for consumption instances, but in entertainment apps as well). Respondents also feel uncomfortable as they perceive that the advertisements are generated from within applications; hence, they manifest there is a lack of protection; they perceive that the marketing offers are directed from the subjects surveyed; and feel uneasy with regards to advertising that is mediated by information that is captured by the apps.

One concern is the presentation of cookies and authorization for sharing data, which often has long text or small print, making it difficult to understand the implications; they feel firms should provide more detailed explanations about the manner that the data will be used in the future. In addition, respondents feel that the excessive advertising produces a reverse effect, since, instead of stimulating consumption, this practice refrains product consumption from that company, due to a personal feeling of exhaustion and concern from consumption practices.

2. Literature review

In recent years, the advancement of AI has brought significant changes in business strategies and activities, especially in the field of marketing. In this field of knowledge, recommendation systems seek to promote automatically and increasingly personalized advertising experiences for the consumer (Grewal *et al.*, 2020). Currently, the use of AI technologies raises important ethical concerns (Gonçalves *et al.*, 2023), especially with regards to the collection and use of consumer data for marketing actions.

Along these lines, Silva (2023) studied the use of ethical techniques in AI applications to assess undesirable effects, based on the guiding principles in the technology life cycle, leading to the following list of concepts related to the ethical aspects of AI: (a) transparency – understanding of "how" and "why" AI makes decisions; (b) fairness, which concerns the need to be fair and equitable; (c) AI mechanisms should mitigate risk and cause low or no impact; (d) responsibility, i.e. attributing accountability to the developers; (e) privacy, custody, and protection of individual data and adherence to personal data protection laws; (f) well-being of the user and humanity; (g) freedom, autonomy, guarantees of human rights and full control of choice; (h) trusting, reliable and safe actions; (i) sustainability and preservation of the environment; (j) respect for human dignity and values, and solidarity.

Advocating ethical AI guidelines reflects a broader effort to control technological development and prevent it from threatening fundamental rights in democratic societies (Ehrhardt Júnior & Silva, 2020). In Brazil, AI regulation focuses on promoting research, innovation, and ethical practices. The 2021 Brazilian Artificial Intelligence Strategy (EBIA, 2021) outlines guidelines for ethical use and development, shaped through public consultations and international benchmarking. With over a thousand contributions, the strategy addresses governance, public safety, health, education, and agriculture. While these efforts are underway, the regulation of AI must

further define ethical boundaries to protect fundamental human rights, such as privacy, and ensure accountability by clarifying responsibility for AI decisions and actions.

Briefly, firms' rights and duties should be conveyed along with its culture, mission, and social positioning. However, as new social phenomena and communication applications emerge, they come with complex challenges that affect ordinary life. One example would be the need to consolidate minimally acceptable parameters for verifying the reliability of recommendation systems.

3. Methodology

Given the customer perceptions that arise from the focus group study, at the outset quantitative research was conducted to describe the opinions of the consumer public, attitudes, and behavior, as well as perceived risks and benefits of the usage of personal data for product recommendation. To that end, an online Google Forms questionnaire inspired by the work of Zhang and Dafoe (2019) was developed, and subsequently distributed to approximately 2,500 marketing professionals through social networks, such as LinkedIn, Facebook, and Instagram, as well as email addresses. During distribution, we sought to reach professionals from all over the country, sharing the questionnaire in different stages, each focusing on a specific region of Brazil (North, Northeast, Central-West, Southeast and South).

From this distribution, 146 effective responses were obtained. Although the response rate was limited, we emphasize that the sample is valuable, as respondents were required to be marketing professionals with current or previous experience with AI. Respondents typically are in the high-income bracket, are formally employed in the public and private sectors, have a degree or a doctoral degree, and live in households with one or two people. Thus, the sample can be characterized as highly qualified, with a high standard of living. Respondents are predominantly male, but there were a considerable number of female respondents. Most are Caucasian and live in the Southeast region of Brazil. It is relevant to note that, since the survey is exploratory, it seeks to describe the phenomenon studied to achieve a better understanding. Accordingly, the sample is a convenience, non-probabilistic and hence our findings may not be generalized for the population.

Regarding education, respondents are practitioners (not IT professionals), even though they are conversant and have experience in the use of AI tools. Regarding the frequency of usage of social media, respondents are quite active and can be characterized as heavy users. With regards to perceptions of privacy issues, data security, and sharing their data, they indicate concern, but remain neutral with regards to the safety of firms using AI, meaning they are willing to accept AI if they perceive that there are sufficient guarantees that it will not cause them problems. Now turning to the issue of acceptance of Marketing offers, the respondents actively look for products, and they do so frequently. We may interpret this result as indicative of the fact that Marketing recommendation systems need to be more effective, to prevent consumer rejection. Lastly, respondents are clearly in favor of stricter rules to regulate the use of AI by companies to preserve privacy, and implement adequate rules regarding data sharing, moderation of marketing offers and security and protection of personal data.

4. Theory development

An important contribution of this work concerns the review of extant research, which has shown a gap with regards to empirical evidence, using an inductive approach. Since no studies were found that measure the phenomenon with a questionnaire, the construction of theory in the field represents a key contribution of the present research.

Using the survey data, we defined the following latent variables (constructs) and used the Principal Components analytical technique: (a) High Utilization, comprised of the “frequency of use of social media”, “posting” and “recommendation frequency” items, the variance captured corresponds to 48.7%; (b) Formal Training, comprised of the “IT education”, “IT experience” and “usage of AI” items, and the variance captured corresponds to 47.2%; (c) Consumer Perception, comprised of the “recommendation based on history”, “perception of sharing data”, “perception of privacy” and “data security” items, and the variance captured corresponds to 62.5%; (d) Offers, comprised of the “product search”, “excessive marketing offers” and “frequency of offers” items, and the variance captured corresponds to 41.8%; and (e) Consumer Satisfaction, comprised of the “need to regulate” and “general perception of the usage of AI” items, and the variance captured corresponds to 50.6%. An important conclusion it that the Principal Components analysis indicates the dimensionality of the constructs and suggests that these are promising results, which will lead to the construction of a measurement scale, and in turn result in the proposition of an emerging theory.

References

- Ehrhardt Júnior, M.; Silva, G. (2020) “Diretrizes éticas para a inteligência artificial confiável na União Europeia e a regulação jurídica no Brasil”.
- Gonçalves, A.; Costa Pinto, D.; Rita, P.; Pires, T. (2023) “Artificial Intelligence and Its Ethical Implications for Marketing”, *Emerging Science Journal*, Vol. 7, No. 2, ISSN: 26109182.
- Grewal, D.; Hulland, J.; Kopalle, P.; Karahanna, E. (2020) The future of technology and marketing: A multidisciplinary perspective.
- MCTI (2024) “Inteligência artificial”, accessed august 24, 2024, at 12 pm.
- Silva, J. (2023), “Avaliação de Ferramentas de Ética em Modelos de Linguagem”, Master’s Project in the Instituto de Computação da Universidade Estadual de Campinas.
- Ullah, I.; Raza, B.; Malik, A.; Imran, M.; Islam, S.; Kim, S. (2019) “A churn prediction model using random forest: analysis of machine learning techniques for churn prediction and factor identification in telecom sector”. *IEEE access*, 7, 60134-60149.
- Zhang, B.; Dafoe, A. (2019) “Artificial Intelligence: American Attitudes and Trends, Center for the Governance of AI”, University of Oxford, available in <http://dx.doi.org/10.2139/ssrn.3312874>, accessed august 24, 2024, at 12 pm.