
The Problem of Consumer Ethics in the Context of AI Application - Scoping Review

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Abstract:

Purpose: The aim of the study was to identify the current state of knowledge on consumer ethics in the context of artificial intelligence used and to appointment the main knowledge gaps based on this analysis.

Design/Methodology/Approach: To achieve the stated objective, the scoping review method was employed to map the existing knowledge on the studied issue. Bibliometric analysis was conducted based on 116 articles from the Web of Science and Scopus databases, using a variety of bibliometric tools and techniques.

Findings: The results indicate an upward trend in scientific publications between 2019 and 2024. Frequent author keywords include topics such as artificial intelligence ethics, business ethics, consumer privacy, and AI marketing. The analysed publications feature contributions from authors collaborating in countries such as the USA, Canada, South Korea, and Australia. The discourse on artificial intelligence and consumer ethics is dominated by several key research centres and authors. Influential and frequently cited publications have been identified.

Practical Implications: The results indicate the unethical practices towards consumers associated with the application of AI that are identified and discussed in the scientific literature. This enables the outlining of directions for further research and debate on this issue. The findings can also assist companies in identifying ethical challenges related to the use of AI in marketing activities.

Originality/Value: The study provides new insights into the current state of knowledge in the science of ethical risks to consumers associated with AI. It provides valuable information for both the academic community and practitioners.

Keywords: AI ethics, unethical activity to consumers, the PRISMA method.

JEL codes: M30, O33, D80.

Paper type: Research article.

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1. Introduction

Artificial intelligence is undoubtedly beginning to have an increasing impact on the marketing activities of enterprises, and consequently, it influences consumer decisions (Rodgers and Nguyen, 2022).

A preliminary review of the literature enabled the identification of a research gap in bibliometric analyses that assess the current scientific achievements related to consumer ethics in the context of artificial intelligence. This topic can be described as emerging, with knowledge in this area being unstructured.

Identifying key research trends and knowledge gaps that have been overlooked in this subject area could help outline potential and relevant directions for further studies. It is also important to determine which organisations and authors are leading in this field.

The research problem selected by the authors is significant, as the scientific literature lacks a comprehensive review of previously published studies addressing ethical challenges for consumers in the context of artificial intelligence. This study aimed to fill the identified research gap through a scoping review of the literature and a bibliometric analysis.

Bibliometric analysis is a crucial tool for evaluating the state of knowledge and scientific contributions in a given area. Among other functions, it enables the identification of the most frequently cited publications, key authors, and research organisations actively engaged in this field.

The aim of the study was to identify the current state of knowledge on consumer ethics in the context of artificial intelligence use and to appoint the main knowledge gaps based on this analysis.

The main research question was formulated: What is the current state of knowledge regarding the issue of consumer ethics in the age of artificial intelligence?

Additionally, supporting questions were formulated:

- *Q1. What are the main research directions in the scientific literature on consumer ethics risks posed by artificial intelligence?*
- *Q2. Which research organisations and authors are the most active in this field?*
- *Q3. Which publications from the analysed dataset are the most frequently cited?*

A research thesis was proposed: the current state of knowledge on potential risks and abuses in consumer ethics related to the use of artificial intelligence is only minimally recognised.

The indicated issue is quite broad and multifaceted; however, it currently represents an important research problem that has been identified and explored in this study.

2. Literature Review

The use of artificial intelligence in the context of companies' marketing activities brings both benefits and risks related, among other things, to consumer ethics. Regarding the benefits, AI enables the personalisation of offers for customers, the optimisation of marketing strategies, building better relationships with consumers, and increasing their loyalty (Hermann, 2022).

However, the application of AI also comes with risks, including breaches of consumer data privacy, discrimination in ad targeting, and marginalisation of certain customer groups through the implementation of inappropriate data into AI systems (Mgiba, 2020). The increasing use of artificial intelligence in data-driven targeting, especially in the context of ethnic data, underscores the need for reflection on the ethics of collecting and using this information by companies (Zhang and Rodgers, 2023).

The implementation of AI by organisations significantly changes the form of marketing communication, and consumers are increasingly encountering artificial intelligence in many areas of interaction with companies (Hermann, Williams and Puntoni, 2023). The growing use of AI in organisations raises concerns about violations of consumer protection regulations, particularly in the context of manipulating customers' decisions.

There is a risk that improper use of AI may limit consumers' freedom of choice. This highlights the need for the development of self-regulation mechanisms and tools that allow companies to assess the ethical risks arising from their algorithms (Marcellis-Warin *et al.*, 2022).

As for the areas covered in the literature related to consumer ethics in the context of artificial intelligence, they include the impact of AI on customers' purchasing decisions as noted by Piotrowski and Orzeszko (2023), ethical issues related to ethnic targeting discussed by Zhang and Rodgers (2023), and the perception of consumer autonomy in decisions made by algorithms explored by Neri (2022).

The impact of AI on the purchasing process may lead to narrowing choices or even fully delegating decisions to artificial intelligence. Whether the influence of AI on consumer decisions is ethical is debatable, as it can affect how certain areas are perceived in the context of shopping and consumption. Both directly and indirectly

formulated recommendations, likely tailored to an individual, may be exploited purely for business purposes without delivering real added value for the customer (Schneider-Kamp, 2024).

Rodgers and Thinh (2022) raised the issue of ethical aspects of AI-generated advertising, emphasising the importance of ethical philosophy in marketing departments. Volkmar, Fischer and Reinecke (2022) conducted research on the barriers and facilitators of AI adoption in marketing, where ethics was identified as one of the dilemmas in using AI in this field.

Globally, corporate investments in AI surpassed \$100 billion in 2020, showing significant growth compared to \$5.23 billion in 2013. The year 2020 marked a substantial acceleration in AI development, and since then, the topic has become a highly popular subject of discussion (Hermann, Williams and Puntoni, 2023).

3. Research Methodology

As part of this discussion, a scoping review of the literature was conducted following the PRISMA (2019) guidelines, alongside a quantitative bibliometric analysis of scientific publications.

A scoping review of the literature is a method aimed at identifying and delineating the scope of a given research problem. This procedure is characterised by a high degree of methodological rigour, similar to a systematic literature review, but its primary goal is to map the scientific literature in a given area. This allows for the identification of key concepts, prevailing directions of discussion, and research gaps. This method is typically used to explore new and emerging research areas, often fragmented and unstructured (Naveen *et al.*, 2021).

The bibliometric analysis method enables a relatively objective presentation of the body of scientific work on a given topic. Increased methodological rigour and the collection of a large volume of data reduce the researcher bias that can be present in traditional critical literature reviews. Such analyses also facilitate the examination of knowledge flows in a given field, the identification of potential research gaps, and an analysis of the most commonly explored areas (Zupic and Čater, 2015).

Quantitative research in the form of bibliometric analysis offers the possibility of presenting the general state of knowledge on a given topic in a structured manner, based on predefined criteria such as keywords, authors, journals, institutions, or citations (Merigó and Jian-Bo, 2017).

Bibliometric analysis is a popular exploratory method, enabling the identification of specific details in the research problem and new research areas (Naveen *et al.*, 2021). This method also helps to comprehensively outline the main trends and

research streams within the selected topic, scientific journal, or country (Hood and Concepción, 2001).

The Scopus and Web of Science databases, commonly used in such review studies, were utilised to conduct the literature review and gather data. During the publication search, no restrictions were applied regarding the publication date. The oldest identified publication was from 1950.

The keywords used in the literature collection process are presented in Table 1. The search for scientific publications was performed using the logical operators OR for individual words within a single part of the query and AND between the two parts of the query structure for the databases. A limitation of the collected data is the date on which the study was conducted, in this case, 8 September 2024.

Table 1. List of keywords used to build queries in scientific databases

The first half of the query			
AI		artificial intelligence	
The second part of the query			
consumer ethics	consumer decision-making	marketing ethics	consumer value
consumer manipulation	consumer choice	algorithmic marketing	consumer satisfaction
ethical concerns	consumer behavior		
consumer consent	consumer preferences	personalized recommendations	personalized recommendations
consumer privacy	consumer autonomy	ethical data use	
consumer protection	consumer perception	customer loyalty	consumer trust
consumer exploitation	consumer empowerment		

Source: Own elaboration.

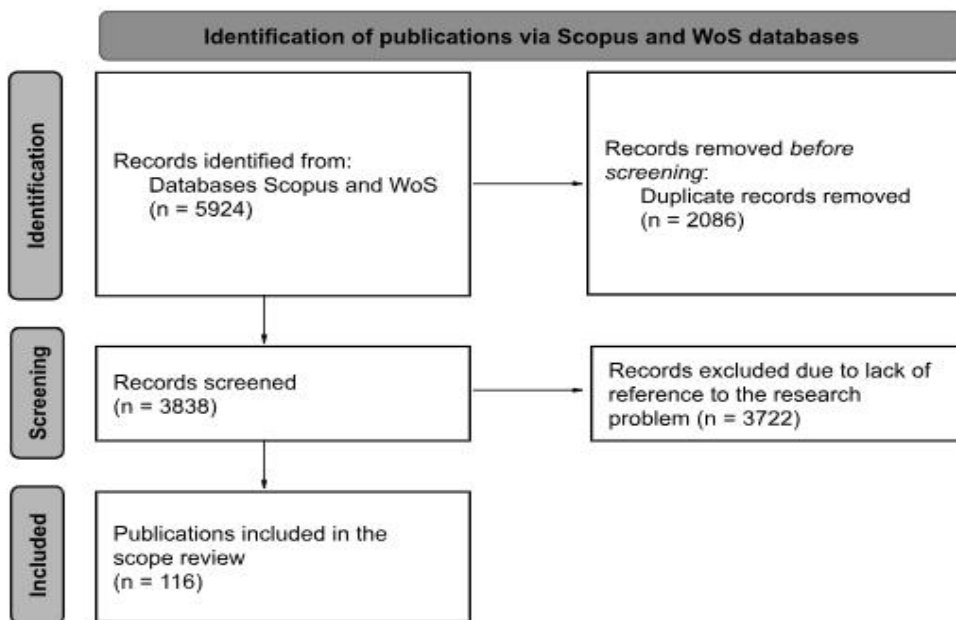
The data search in the selected scientific databases included publication titles, abstracts, and author keywords, resulting in 5,924 records retrieved from the two databases used. A database was then created using Google Sheets software for further analysis of the collected data.

As part of this scoping review process, visually presented using the PRISMA diagram in Figure 1, the collected records were filtered based on predefined criteria: duplicates and direct relevance to the analysed topic. This was done to exclude potential articles that were not directly related to the subject matter.

As part of the selection process for the collected records, 2,086 duplicates were excluded. Subsequently, records were screened for lack of direct relevance to the analysed topic, resulting in the rejection of 3,722 publications. Finally, 116 scientific publications directly addressing the issue of consumer ethics in the use of artificial

intelligence, particularly focusing on unethical practices, were selected for further bibliometric analysis.

Figure 1. Process scoping review in the PRISMA diagram



Source: Own preparation based on the PRISMA scheme.

The scientific publications were analysed in terms of: publication date, thematic clusters based on authors' keywords, associations by country and research institutions of the authors, citation counts, authors' affiliations, and the sources where the articles were published. For the bibliometric analysis, the software programs VOSviewer and Bibliometrix were used.

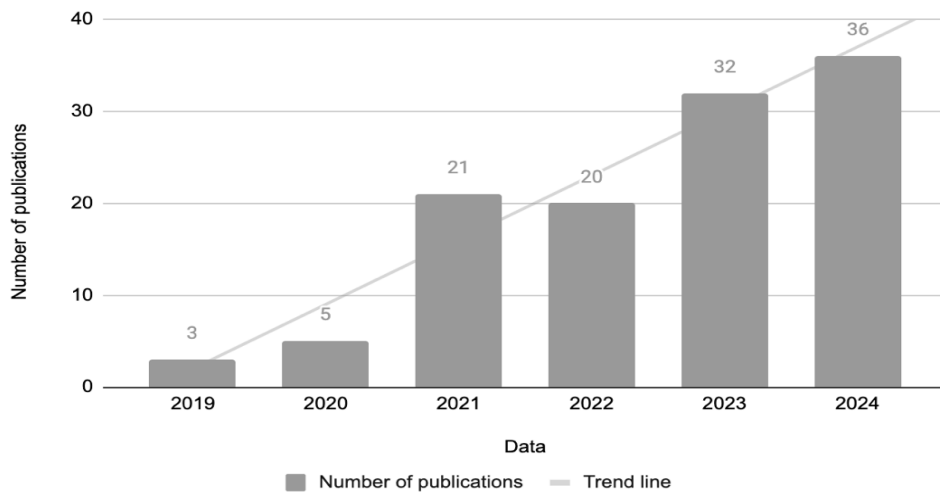
4. Research Results and Discussion

Figure 2 presents the number of scientific articles published between 2019 and 2024. A growing number of publications can be observed during the analysed years, as indicated by the marked trend line.

This trend can be associated with the dynamic development of artificial intelligence technologies during these years, as highlighted in the literature review.

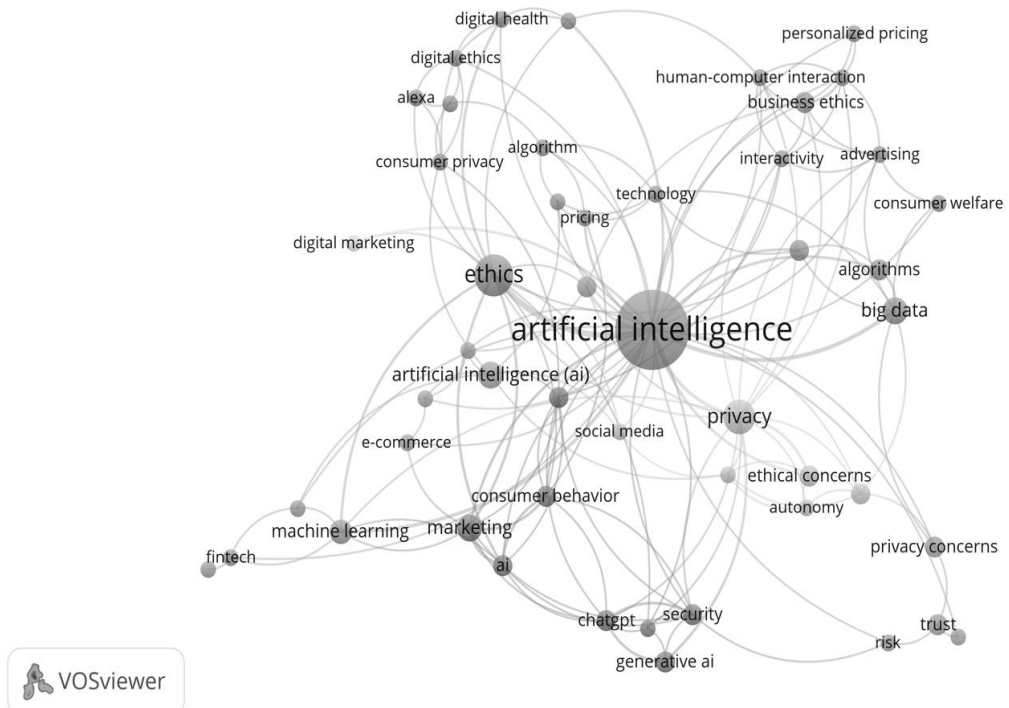
Using the VOSviewer software, thematic clusters based on authors' keywords in the analysed 116 scientific publications were visualised. The resulting map is presented in Figure 3.

Figure 2. Number of publications placed between 2019 and 2024 in the scientific databases surveyed



Source: Own elaboration.

Figure 3. Cluster linkage diagram based on authors' keywords



Source: Own elaboration in Vosviewer software.

A total of 350 keywords were identified; however, for the visualisation presented in Figure 3, a minimum occurrence threshold of 2 was applied. Based on the 50 keywords meeting this criterion, 9 clusters were constructed in this analysis.

The network map in Figure 3 illustrates the relationships between keywords in the analysed publications. The central point is artificial intelligence, around which terms such as ethics, privacy, big data, consumer behaviour, and machine learning are positioned. The interconnections among these keywords indicate that topics such as ethics, privacy, big data, machine learning, and their impact on consumer behaviour are key research themes in the analysed subject area.

Table 2. A summary of keywords that appear at least twice in the analysed set of publications published between 2022 and 2024

chatgpt	privacy concerns	consumer behavior
generative ai	ethical concerns	customer experience
artificial intelligence (ai)	ethical issues	digital marketing
ai	transparency	e-commerce
chatgpt	ethical considerations	robo-advice
robots	predictive analytics	pricing

Source: Own elaboration using Vosviewer software.

Based on the analysis conducted in VOSviewer, keywords were identified within the set of scientific publications published between 2022 and 2024. These keywords occurred at least twice and were additionally linked to other keywords in some manner. The results are summarised in Table 2. The identified keywords highlight certain knowledge gaps and topics currently addressed in scientific publications discussing the issue of consumer ethics in the use of artificial intelligence.

Through a deeper analysis of abstracts, seven ethical issues were identified as recurring themes in the reviewed scientific publications, as summarised in Table 3. Each ethical issue was matched with the number of publications in which it is addressed.

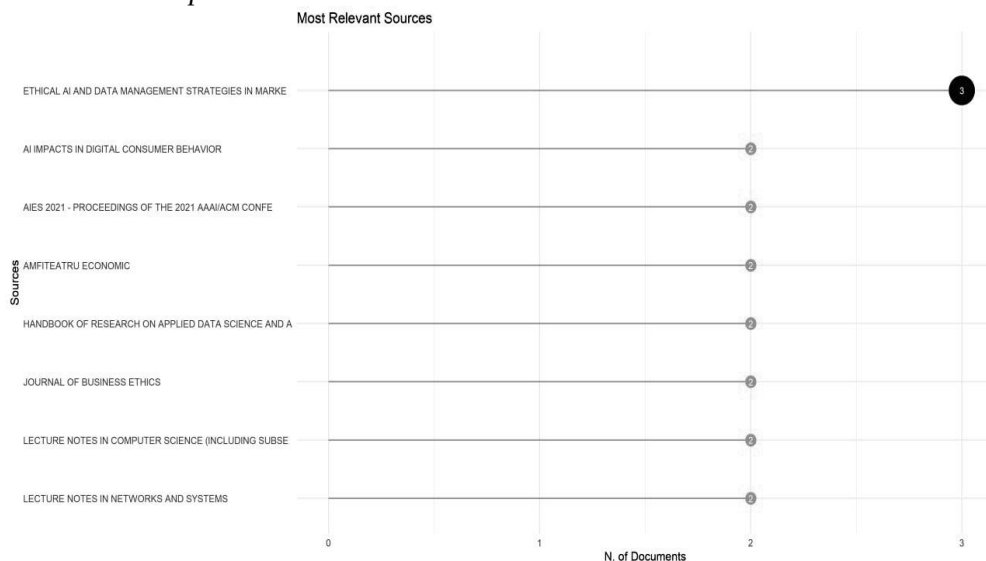
Table 3. Identified ethical issues considered in the analysed set of publications.

Ethical Issue	Number of Publications
Lack of transparency in algorithmic decisions	90
Violations of sensitive data	75
Algorithmic discrimination based on consumer characteristics	45
Manipulation of consumers during the purchasing decision process	41
Unethical business practices, manipulations	39
Personalised pricing and price discrimination	14
Impact of AI on unethical consumer actions towards companies	2

Source: Own elaboration.

According to the results presented in Table 3, the most frequently discussed consumer ethics issues are: lack of algorithmic transparency, breaches of sensitive data, algorithmic discrimination based on consumer characteristics, and manipulation of consumers during the purchasing decision-making process.

Figure 4. *The most relevant sources in which publications from the analysed collection were published*



Source: Own elaboration in Bibliometrix software.

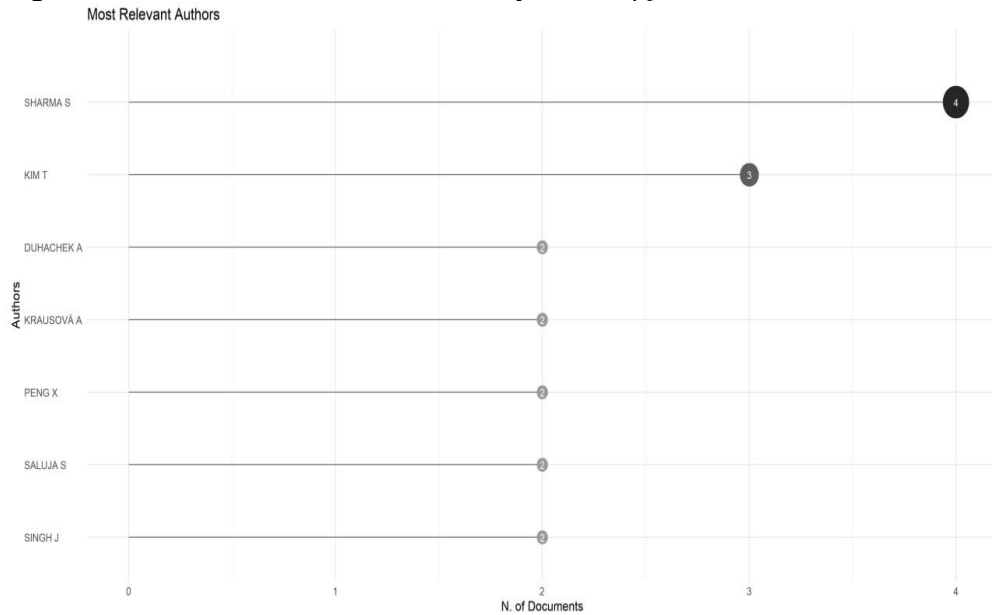
Figure 4 presents the key sources of literature where the scientific articles analysed in this review were published, along with the number of documents attributed to each source. The dominant source is Ethical AI and Data Management Strategies in Marketing, with three publications, while other sources in this dataset, such as AI Impacts in Digital Consumer Behavior and the Journal of Business Ethics, each have two publications. Based on this data, a significant diversity in the publication venues of the literature can be observed.

Figure 5 shows the authors with the highest number of publications in the analysed body of literature. Sharma S. stands out with four publications, while Kim T. has three publications, highlighting their significant contribution to the development of the examined topic.

Other authors, including Duhachek A., Krausová A., Peng X., Saluja S., and Singh J., each have two publications in the dataset.

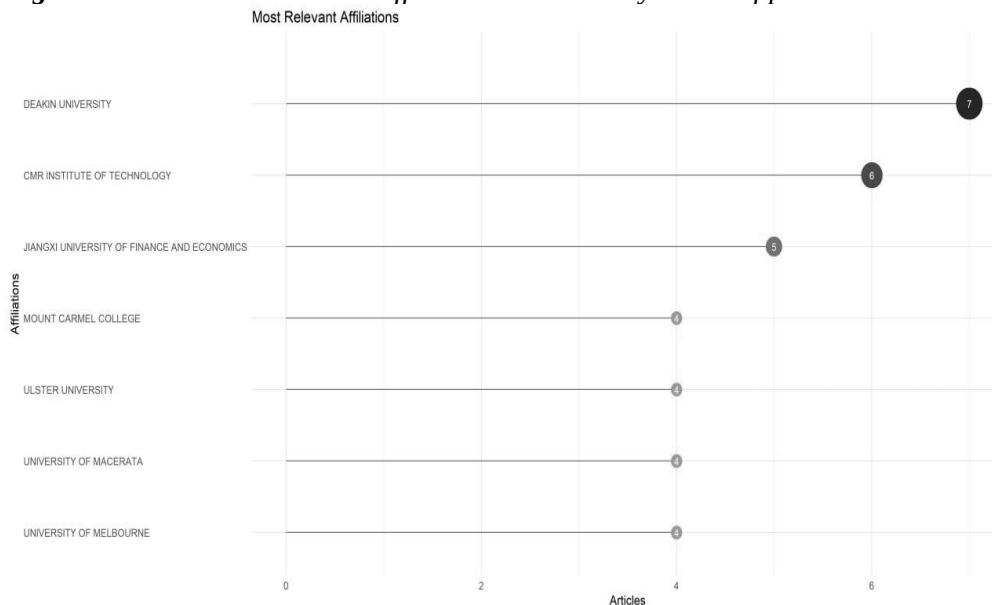
The bibliometric analysis of organisational units and countries listed in the authors' affiliations identified recurring organisations. Figure 6 highlights the academic and research institutions with the highest number of published articles in the analysed body of literature.

Figure 5. Most-relevant authors in the analysed set of publications



Source: own elaboration in Bibliometrix software

Figure 6. Most relevant author affiliations in the analysed set of publications

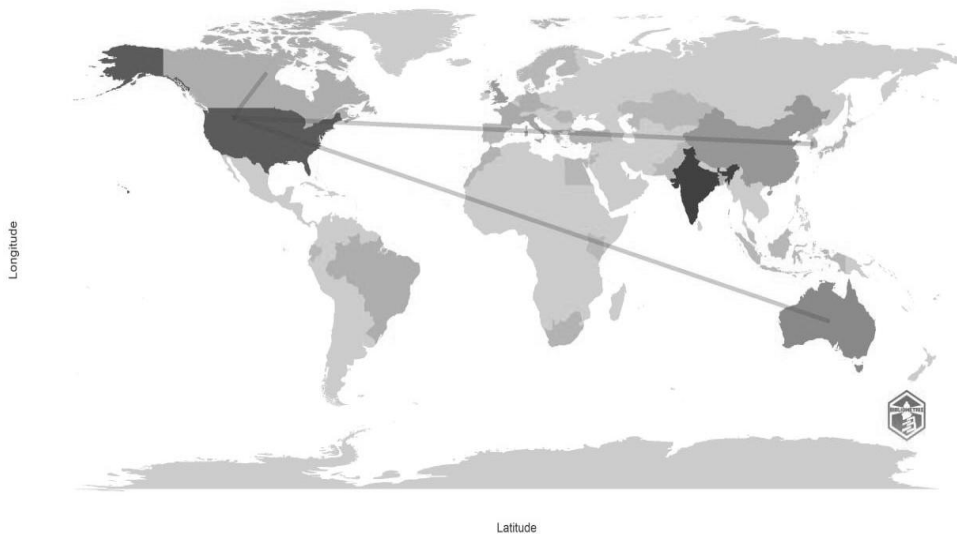


Source: Own elaboration in Bibliometrix software.

The most frequently cited affiliation was Deakin University, appearing in 7 publications, followed by CMR Institute of Technology, mentioned in 6 articles, and

Jiangxi University of Finance and Economics, cited in 5 publications. These results indicate geographical and institutional diversity in the analysis and study of consumer ethics issues related to the use of artificial intelligence.

Figure 7. Map of country collaborations



Source: Own elaboration in Bibliometrix software.

The analysis of countries listed in the affiliations of co-authors from the analysed dataset enabled the identification of international collaborations concerning consumer ethics issues in the use of AI.

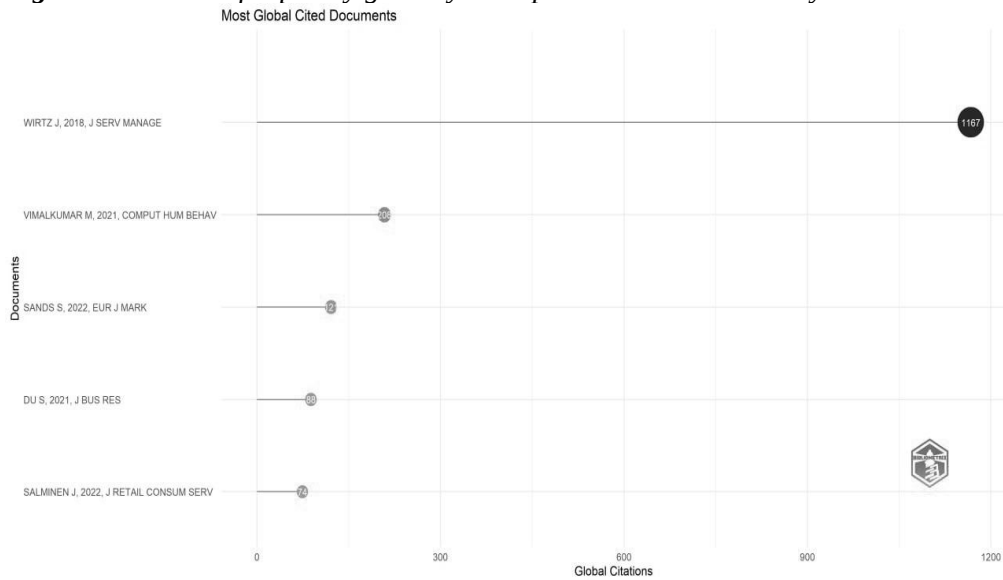
Figure 7 presents a world map illustrating these identified collaborations between countries in scientific publications. The most intensive collaboration was identified between the United States, Canada, South Korea, and Australia. This level of collaboration highlights the global nature of research on the analysed topic and the broad interest in this area.

Figure 8 lists the scientific publications from the analysed dataset with the highest number of global citations. By far, the most cited publication is *Brave New World: Service Robots in the Frontline* by Wirtz, Patterson, Kunz, Gruber, Lu, Paluch, and Martins (2018), published in the *Journal of Service Management*, with 1,167 citations. This indicates its high scientific value and potential influence on further research in this area.

The publication explores the role of service robots in the future of the service sector, highlighting their potential driven by artificial intelligence, big data, and robotics. It examines consumer perceptions of robots, proposes a model for their acceptance, and addresses key ethical issues related to their impact on individuals, the market,

and society as a whole. The authors emphasised the need for a mindful approach to the implementation and use of AI in services, particularly in the context of consumer ethics.

Figure 8. The most frequently globally cited publications in the analysed dataset



Source: Own elaboration in Bibliometrix software.

Other works, such as that by Vimalkumar, Sharma, Singh, and Dwivedi (2021), with 208 citations, and by Sands, Campbell, Plangger, and Ferraro (2022), with 121 citations, have also significantly contributed to the development of this subject, underscoring its importance in the literature on artificial intelligence and its applications.

5. Conclusions, Proposals, Recommendations

The conducted scoping review and bibliometric analysis, as presented in the results, provided answers to the research questions and shed light on the examined topic. Considering the limited number of scientific publications addressing the issue of consumer ethics in the use of artificial intelligence, the research hypothesis is confirmed: The current state of knowledge on potential risks and abuses in consumer ethics related to the use of artificial intelligence is only minimally recognised.

There is a noticeable upward trend in publications between 2019 and 2024, with the number increasing more than tenfold when comparing 2019 to 2024. This reflects the growing popularity of this topic in scientific research.

The most frequently used keywords by authors in the analysed dataset include artificial intelligence, ethics, privacy, big data, consumer behaviour, and machine

learning. In-depth analysis identified keywords specific to articles published in 2024, such as ethical considerations, transparency, customer experience, consumer behaviour, ChatGPT, and generative AI. All the identified keywords in this analysis point to potentially significant gaps and research areas.

Quantitative analysis of abstracts revealed that the most frequently discussed ethical issues in the analysed publications involve a lack of algorithm transparency (90 publications), breaches of consumers' sensitive data (75 publications), manipulation during purchasing decisions (41 publications), and algorithmic discrimination of consumers (45 publications). These topics form the foundation of the ethical issues discussed in the analysed scientific literature and may serve as a starting point for further research.

The bibliometric analysis of the sources of the analysed scientific literature indicated a high diversity of publication venues and identified the dominant monograph, *Ethical AI and Data Management Strategies in Marketing*, with three publications.

The reviewed publications revealed moderate connections between authors, affiliations, and countries, indicating significant fragmentation of this topic. The most frequently mentioned research institutions were Deakin University and CMR Institute of Technology. International collaborations among authors in the dataset were most commonly observed between the United States, Canada, South Korea, and Australia.

Based on the bibliometric analysis, several key authors were identified, such as Sharma S., who authored four articles, and Kim T., with four publications. Additionally, the influential work *Brave New World: Service Robots in the Frontline* by Wirtz et al. (2018), which garnered 1,167 global citations, was highlighted. This publication represents a significant contribution to the development of knowledge about consumer ethics issues in the context of AI use.

Several key research centres and authors dominate the discourse on artificial intelligence and consumer ethics. Influential and frequently cited publications have been identified as foundational to the study of ethical issues related to AI.

The results of the analysis and the identified ethical issues emphasise the significance of this topic for both researchers and business practitioners. Companies should address concerns such as algorithm transparency and the protection of sensitive data to avoid potential abuses and unethical practices towards consumers. The growing investments in artificial intelligence may lead to increased risks for consumers, making the development of self-regulation mechanisms and effective regulatory frameworks crucial.

Given the ongoing development of artificial intelligence and the increasing allocation of time and resources by companies to implement this technology, it can

be assumed that risks related to corporate misuse of AI towards consumers are likely to grow. This study highlights the need for further, broader scientific research to more precisely identify and analyse potential threats associated with AI in the context of consumer ethics.

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