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A Bibliometric Analysis to Study the Evolution of Artificial Intelligence in Business Ethics

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ABSTRACT

The contemporary world is witnessing the pervasive diffusion of artificial intelligence (AI) across diverse societal domains. Concurrently, the implementation of these technologies in numerous management areas raises novel and critical ethical considerations. Considering that AI is not a neutral technology, this study employs a bibliometric approach to conduct a systematic literature review, aiming to understand the evolution of this nascent field within management studies. Our analysis is limited to publications from 2016 onward, a year widely recognized as marking the onset of significant AI dissemination. By examining the recent years of diffusion and the evolution of this phenomenon, our work reveals a fragmented field. To investigate thematic evolution, we used the Cobo method, partitioning the corpus into three distinct time slices with cut-off points at 2020 and 2022. The findings indicate that, despite the emergence of key themes and a substantial body of research exploring AI from both technical and philosophical standpoints, the field remains in its initial stages of development. This analysis underscores the increasing relevance of research in management science concerning the responsible and ethical application of AI technologies. Consequently, this area presents considerable opportunities for future management research employing diverse managerial and theoretical frameworks, particularly in relation to the antecedents of ethical AI adoption and the implications of AI for ethical leadership.

1 | Introduction

In light of the current social, environmental, and economic landscape, governments and social and economic actors are cooperating to reduce inequality as a social and economic goal. Furthermore, these actors may leverage new technologies such as IoT and artificial intelligence (AI) to enhance their effectiveness in these efforts. Consequently, it is highly relevant to analyze and systematize theories and practices to fully understand the role of ethics in the evolving relationships between businesses and these novel technologies. Academics, practitioners, and policymakers anticipate a significant role for AI in advancing humanity's ability to achieve substantial social innovations that may represent a "moonshot" that will deeply influence both

the future of work and the future of humanity (e.g., Davenport and Ronanki 2018; OECD 2019; Maslej et al. 2023).

AI's early applications have spanned various fields, resulting in promising outcomes in business, healthcare, transportation, and many other sectors. This has led to a reassessment of the role of businesses in addressing systemic global challenges facing humanity and society, such as ongoing and increasing inequalities and environmental unsustainability. In many cases, this innovation demonstrates its "disruptive" nature, significantly altering the relationships between humans and machines, and even transforming industries such as healthcare and hospitality (see Skaria et al. 2020; Zhang and Jin 2023). The last decade has produced a social and

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economic landscape characterized, on the one hand, by numerous crises arising from wars, pandemics, and welfare cuts in Western nations. On the other hand, substantial technological advancements that could impact human beings' social and economic survival have emerged. Consequently, the ability of social actors to operate ethically has become increasingly important (Quarshie et al. 2016; Endenich and Trapp 2020), underscoring the necessity to systematize current studies more than ever (Denyer and Tranfield 2009; Snyder 2019). Understanding these ethical implications requires consideration of established ethical frameworks.

Given the increasing need to understand the primary risks associated with implementing new technologies within organizations and the factors that may encourage their ethical integration, it is important to frame the discussion within established ethical frameworks in business and management studies. These frameworks, encompassing approaches such as utilitarianism, deontology, and virtue ethics, offer different perspectives on how ethical decisions should be made, particularly concerning the role of AI in management (Soppe 2013; DeGeorge 2014). Utilitarianism assesses the ethicality of actions based on their consequences, striving to maximize overall well-being for the greatest number (Mill 1998). This often involves a cost-benefit analysis that considers the impact on a wide range of stakeholders (Johnson 2012). Deontology, conversely, emphasizes adherence to moral rules and duties, irrespective of the outcomes, often focusing on universal principles and individual rights (Micewski and Troy 2007; Soppe 2013; Boatright and Smith 2017). Virtue ethics offers a distinct approach, prioritizing the cultivation of virtuous character traits such as honesty, integrity, and responsibility in the moral agent (Solomon 1992; DeGeorge 2014; Constantinescu and Kaptein 2020).

However, while these frameworks provide a valuable foundation, the specific ethical themes that dominate the discussion of AI in management remain fragmented and are not yet fully understood. It is pertinent to address the following research question: How are ethics-related themes addressed in the emerging field of studies on AI in management?

To answer this question, we conducted a systematic literature review (SLRs) using a bibliometric approach to discern its evolution and future direction. The research focused on a corpus of 102 academic papers (selected from a sample of 701) from Clarivate's Web of Science and Elsevier's Scopus databases.

We adopted this approach because SLRs and the bibliometric method provide a robust framework for comprehending complex research landscapes and can play a crucial role in informing evidence-based decision-making. This study investigates how the analytical methods associated with this SLR approach can be utilized to identify key trends, highlight critical research gaps, and reveal hidden insights within this specific discipline. By systematically organizing and analyzing existing research, SLR and bibliometric techniques facilitate the development of taxonomies (Fellnhöfer 2019), the mapping of intellectual structures within an academic discipline (Delgado-Aleman et al. 2022), and the exploration of behaviors and/or practices that may be perceived negatively (Manelkar and Mishra 2024). Additionally, these approaches clarify the most commonly

employed methodologies, assisting in the design of future research studies. Ultimately, SLR and bibliometric analyses offer policymakers and scholars vital tools to navigate ethical challenges, support evidence-based decision-making, and contribute to the advancement of knowledge within their respective fields (Ammirato et al. 2023; Delgado-Aleman et al. 2022; Vazquez 2018).

This paper is organized as follows. The next section discusses how SLRs can benefit business ethics studies and provides a definition. Then, in Section 3, we outline the conceptual boundaries of our research, leading into Section 4, where we explain the methodology employed and the related research protocol. In Section 5, we present our performance analysis. In contrast, Section 6 introduces concepts related to science mapping, starting with those connected to the structural approach and followed in Section 6.2 by those associated with thematic evolution analysis. Finally, in Section 7, we present, in separate subsections, the main theoretical implications of this research, its implications for the development of slr methodology, and the primary implications for practitioners, concluding in Section 7.4 with the main limitations of our study and proposing some avenues for further research.

2 | SLR in the Business Ethics Field

Studies on ethics have often been confined to a niche (Quarshie et al. 2016; Endenich and Trapp 2020). However, current needs and challenges, coupled with increased data availability and a growing demand for related information from businesses, are prompting various stakeholders to explore ethical business practices and the factors influencing managerial decision-making (Endenich and Trapp 2020). Up to now, managerial studies have addressed ethics-related issues primarily in specific areas, such as CSR (Tari 2011; Quarshie et al. 2016; Hassan et al. 2023; Felicetti et al. 2022), family businesses, small and medium-sized enterprises (Vázquez-Carrasco and López-Pérez 2013; Vazquez 2018), entrepreneurship (Vallaster et al. 2019), consumer behavior (Küster and Vila 2023), and even particular business functions like accounting (Endenich and Trapp 2020) and human resource management (Ameer and Halinen 2019). Consequently, the field of business ethics has been described as "an elephant in motion" (Kumar and Srivastava 2023).

Systematic literature reviews in business ethics and studies analyzing the relationship between business and society research offer a structured and essential approach to ensuring rigor and relevance in reviews (McLeod et al. 2016). These crucial points are central in guiding research and in effectively synthesizing existing knowledge in the field (Aria and Cuccurullo 2017), such as identifying the most relevant countries and the principal authors, while highlighting key studies linked to specific ethical themes (Fassin 2022). SLRs provide specific and multifaceted perspectives on a phenomenon. For instance, they allow for examination from the viewpoint of a particular domain or in pursuit of answers to specific research questions (Paul and Criado 2020). Clearly defining the scope and objectives is a fundamental starting point for an SLR, representing one of its main strengths; this enables researchers to grasp the research clearly and adhere to a rigorous protocol from the outset (Boell

and Cecez-Kecmanovic 2015). This approach enhances not only the completeness of the review but also its methodological robustness. Precisely defining research questions and the type of systematic review facilitates a focus on key themes related to ethical practices, corporate governance, and societal impacts (Kraus et al. 2022). This precision also aids in selecting relevant literature, deepening results, and facilitating straightforward applications to various ethical themes and moral issues (McLeod et al. 2016).

A thorough research strategy is equally vital. Encompassing diverse sources and establishing detailed search criteria, including specific databases and relevant keywords, ensures comprehensive coverage of pertinent academic contributions. For example, Küster and Vila (2023) employed this method in their study on consumer ethics to elucidate the thematic evolution of consumer ethics over time and to identify specific dimensions for measuring the impact of academic output in this area. Transparency in selection criteria and the study screening process minimizes bias while clarifying study limitations and boundaries. The SLR approach can significantly aid in theory building within business ethics and business and society research. Its qualitative analysis, often combined with bibliometric methods, along with the critical perspective that adheres to precise and rigorous guidelines, helps overcome the limitations of overly simplified content analysis, capturing less examined themes that could emerge as essential research topics and contributing to a clear understanding of how managerial studies address ethical dynamics and the impacts of business on society (Goyal et al. 2024; Delgado-Alemay et al. 2022). This critical step highlights the nuances in contrasting perspectives within the literature, facilitating a balanced view of controversies or divergences in the ethical domain, ongoing debates, and the most pressing ethical issues that require prompt attention from researchers. It may serve as a guide for policymakers' actions in this context. This approach has already been employed in certain studies, such as Fassin (2022), where the author used an SLR to reveal how academic research in new ethical subfields represents a niche strategy for universities and business schools to distinguish themselves, or Vazquez (2018), who applied SLR protocols to identify the potential “crossroad” between two distinct fields, ethics and family business, and to underscore how business ethics is studied and how the characteristics of these enterprises may influence its concepts.

Moreover, even in business ethics and CSR, SLRs can benefit from the possibilities offered by dedicated digital tools designed for them, including VOSviewer, Bibliometrix with Biblioshiny packages for R-Cran, the web-based MySLR platform, and SciMAT software, which ensure precision, scalability, and comparability between similar studies or those that have examined different themes (Al-Zubidy and Carver 2018; Ammirato et al. 2023; Goyal et al. 2024). For instance, Kapil and Rawal (2023), in their SLR on ESG evidence, employed HistCite as this method captures “clashes and crossovers” between themes, while De Falco et al. (2024) utilized both Bibliometrix and VOSviewer to comprehensively analyze focal themes and their interactions within the ESG literature. Furthermore, SLRs may prove to be a valuable tool for structuring AI models aimed at addressing ethical dynamics

such as social issues related to automation, replacement, and decision-making (Owusu and Korankye 2023) or machine washing (Bernini et al. 2025), as well as the ethical implications of text generation (Illia et al. 2023).

The implications of theory and practice derived from SLRs are fundamental in guiding evidence-based decisions and corporate policies, particularly in areas such as Corporate Social Responsibility (Vázquez-Carrasco and López-Pérez 2013) and the circular economy (Stewart and Niero 2018). Synthesizing best practices and empirical evidence supports informed, sustainable, data-driven decision-making, including moderator and mediator information (Anand et al. 2025). This approach facilitates continuous improvement in the ethical and social performance of organizations and potentially reduces distortions by providing a comprehensive overview of a phenomenon, even concerning specific functional business areas. In this context, some researchers, such as Bernini et al. (2025), have adopted SLRs to study and propose anti-greenwashing measures that support the development of sustainability-oriented governance, while Miandar et al. (2023) have classified practices for diffusing sustainability within supply chain networks.

Identifying research gaps encourages further empirical investigations to tackle unresolved ethical issues and enhance existing theoretical models. In their SLR on spirituality and well-being, Koburtay et al. (2023) expand upon the six indicators of Ryff's well-being framework to suggest new directions for future research, highlighting the significance of SLRs in organizing knowledge to facilitate theoretical advancement.

Lastly, systematic reviews offer a more comprehensive perspective on phenomena than other studies. Stefanidis et al. (2022) demonstrate this by showcasing the main trends and evolution of management research on poverty over 25 years.

Adopting rigorous and well-structured methodological approaches in SLRs is essential for advancing our understanding of ethical dynamics and their societal impacts, fostering a more ethical and altruistic stance, and illuminating the darker aspects of practices and sectors that necessitate ethical action and thought. In this context, Anand et al. (2025) conducted an SLR on organizational misconduct in emerging markets, proposing a conceptual model and an overview of current knowledge and findings. This methodological evidence bolsters the credibility of this research methodology and underscores its significant contributions to practice and theory in business ethics.

3 | Conceptual Boundaries of the Review: The Fields of AI and Business Ethics

As highlighted by several authors (Russell et al. 2015; Haenlein and Kaplan 2019), the topic of AI, with its potential applications ranging from weapon systems to biological studies, will significantly impact society as we know it. Accordingly, researchers and academics must address the ethical implications of AI development and operationalization.

Similarly, Morley et al. (2020) provide evidence of an urgent necessity to examine the role of ethics in this area amid the rapid

advancement of AI. Furthermore, Dignum (2018) argues that individuals should adopt a responsible approach to using AI to promote human development. Despite the publication of several review articles in recent years, each has looked into specific aspects of AI ethics, leaving a gap in terms of comprehensive reviews that could offer a holistic overview of this field. While the current literature offers valuable insights into particular domains, only a few research articles thoroughly explore AI issues within the business domain from an ethical perspective. Some SLRs published between 2016 and 2024 focused on the topic of AI ethics across various business areas and functions; however, most SLRs independently address AI-related topics in business or in business ethics. Most of these studies focus on categorizing ethical issues within specific domains (Morley et al. 2020; Borges et al. 2021; Hunkenschroer and Luetge 2022) or establishing guiding principles (Jobin et al. 2019). Below, we highlight SLRs that predominantly concentrate on ethics concerning AI adoption in organizations.

Hagendorff (2020) and Ryan and Stahl (2020) are among the first SLRs focused on AI ethics. Hagendorff's work stands out for its meticulous analysis and comparison of 22 guidelines, providing a comprehensive understanding of AI ethics. Similarly, Ryan and Stahl conducted one of the first SLRs dedicated to AI ethics. However, their groundbreaking study has a narrower focus, limited to principles and guidelines, without a specific emphasis on the business domain. Baker-Brunnbauer's (2021) SLR explores the management perspective and awareness of AI ethics, offering valuable insights into these dimensions.

In contrast, Kazim and Koshiyama (2021) contribute to the field by providing a sophisticated conceptual discussion of AI ethics, introducing fundamental concepts and elucidating three main approaches to focusing on AI while identifying six significant themes in related studies: human well-being, safety, privacy, transparency, fairness, and accountability. Ashok et al. (2022) examine the ethical use of AI in digital technologies, aiming to delineate the key ethical implications within the rapidly evolving digitalization landscape. Attard-Frost et al. (2023) carefully scrutinize the ethics of AI-related business practices, assessing the extent to which ethical considerations are integrated into a broad range of guidelines.

Daza and Ilozumba (2022) center their SLR on the ethical dimensions of AI usage in business. They survey articles from business journals published between 2000 and mid-2021 to identify influential journals, articles, authors, ethical schools, and key ethical issues in the business sphere. Conversely, Kronqvist and Rousi (2023) expand the discourse by exploring complex issues at the intersection of AI and ethics, including design thinking, gender dynamics, and AI development. Furthermore, Heyder et al. (2023) focus on the ethical management of human–AI system interaction, emphasizing the need to reevaluate the dynamics of this relationship within organizational contexts. Prem's (2023) contribution provides a comprehensive analysis of various frameworks, process models, and proposals aimed at facilitating the transition from ethical principles to practical implementation in AI ethics within organizations. Finally, Giarmoleo et al. (2024) present a systematic review that analyzes 309 articles up to December 2023, systematizing and elucidating the ethical concerns surrounding AI, delineating issues arising

from the design of AI systems and the interaction between humans and AI.

In this research, we examine academic literature on the ethical concerns linked to AI development and operationalization, employing a broad perspective in management studies to address the following research question: How are ethics considered in the nascent field of studies on artificial intelligence in Management?

Consequently, we excluded from the boundaries of this review all studies examining specific implementations of AI in services, such as its effects on employee learning processes (e.g., Chen et al. 2023), or those utilizing AI as part of their research methodologies (e.g., Xu et al. 2023). Table 1 shows the analysis of the previous SLRs on AI and ethics.

4 | Methodology

Our research focuses on the interaction between two distinct fields; therefore, we adopted the bibliometric approach to systematic reviews (Paul and Criado 2020). This approach has already been applied in several studies within the management domain (e.g., Arnott and Wilson 2007) and business ethics (e.g., Calabretta et al. 2011). The bibliometric method assumes that researchers typically base their studies on previously published work in relevant journals (Van Rann 2003). Furthermore, a bibliometric approach facilitates the analysis of extensive contemporary scientific databases (Aria et al. 2020), highlighting a field's relationship with other domains or showcasing its main topics and schools (Van Leeuwen 2006). Thus, this type of inquiry can provide a foundation for conducting a critical literature review to explore new research questions, ideas, and directions (Ammirato et al. 2023), fostering critical thinking about a specific topic of study—in this case, the intersection of AI and ethics.

Unlike previous SLRs, this review incorporates a wider range of keywords. For instance, Oppioli et al. (2023), who examined AI in decision-making, used only three keywords related to AI: the extended and reduced versions and a reference to the technology, which the authors themselves suggested broadening. In contrast, our broad approach to selecting keywords emphasizes the different types of AI, their various acronyms, and the primary uses of these technologies to date. For example, Chaturvedi et al. (2023) used these terms to investigate the topic of social companionship, while Pentina et al. (2023) employed similar keywords in their literature on the consumer–machine relationship with AI. This more limited approach fails to adequately capture the ethical implications of this disruptive technology and overlooks various related types of AI, including deep learning and machine learning. To ensure a more comprehensive scope, our review also incorporates keywords addressing these broader areas, similar to the work of Lee et al. (2023) on AI in healthcare.

We chose to concentrate on ethics to restrict our discussion to the ethical dimension. As noted by Harris and Anthis (2021) in their systematic review, studies that adopt a general view of AI moral considerations often focus primarily on moral and legal issues or

TABLE 1 | Analysis of the previous SLRs on AI and ethics.

Authors	Title	Year	Journal	Scope	Main findings
Hagendorff	The ethics of AI ethics: An evaluation of guidelines.	2020	Minds and Machine	2014–2019	This article analyzes and compares 22 guidelines, aiming to provide a detailed overview of the field of ethics concerning the adoption of AI by organizations
Ryan and Stahl	Artificial intelligence ethics guidelines for developers and users: clarifying their content and normative implications	2020	Journal of Information, Communication and Ethics in Society	No time constraints	The paper provides an in-depth exploration of the normative implications of existing AI ethics guidelines, tailored towards developers and organizational users. It is considered the most comprehensive resource on current ethical requirements in AI, appealing to both research and policy communities as well as user communities involved in AI system development and deployment
Baker-Brunnbauer	Management perspective of ethics in artificial intelligence	2021	AI and Ethics	No time constraints	This research addressed management's awareness regarding the ethical and moral aspects of implementing artificial intelligence technologies within organizations
Kazim and Koshiyama	A high-level overview of AI ethics	2021	Patterns	2017–2020	The main aim of this article is to present a comprehensive conceptual discussion of the field, elucidating fundamental concepts while outlining central approaches and themes in the realm of AI ethics
Ashok et al.	Ethical framework for Artificial Intelligence and Digital technologies	2022	International Journal of Information Management	No time constraints	Through a systematic literature review comprising 59 articles, this paper delineates 14 ethical implications for digital ethics concerning the utilization of AI across seven DT archetypes, utilizing a novel ontological framework
Attard-Frost et al.	The ethics of AI business practices: a review of 47 AI ethics guidelines	2023	AI and Ethics	2000–2022	This review highlights that the political and economic implications of AI business practices are notably overlooked in current AI ethics guidelines. The authors discuss these challenges and advocate for broadening the ontological and disciplinary scope of future AI ethics guidelines to address them more comprehensively

(Continues)

TABLE 1 | (Continued)

Authors	Title	Year	Journal	Scope	Main findings
Daza and Ilozumba	A survey of AI ethics in business literature: Maps and trends between 2000 and 2021	2023	Frontiers in Psychology	2000–2021	This article aims to explore the state-of-the-art and trends in ethical issues emerging from AI, while also providing a comprehensive overview of AI ethics literature, with a specific focus on the business domain. Additionally, it seeks to establish connections between different ethical perspectives and key AI-related issues in business
Kronqvist and Rouzi	A quick review of ethics, design thinking, gender, and AI development	2023	International Journal of Design Creativity and Innovation	2003–2020	Against the backdrop of critical theory and gender studies, which analyze and raise questions about gender, its formation, and norms within socio-technological discourse, the authors of this article aim to provide insights into the current status of gender in research on design thinking focused on ethics and AI
Heyder et al.	Ethical management of human-AI interaction: Theory development review	2023	The Journal of Strategic Information Systems	no time constraints	This theoretical literature review underscores the importance of rethinking how organizations ethically manage human-AI interaction.
Prem	From ethical AI frameworks to tools: a review of approaches	2023	AI and Ethics	No time constraints	This article constructs a structured list and provides definitions of approaches, introduces a refined segmentation of the AI development process, and highlights areas necessitating heightened attention from researchers and developers

AI-related biases (Chowdhury and Oredo 2023; Varsha 2023). In contrast, when exploring the ethical dimension, the focus narrows to specific topics, such as AI's impact on particular business functions: for instance, accounting (Lehner et al. 2022), recruitment (Chen 2023), product management (Parikh 2023), marketing (Vlačić et al. 2021), and digital technologies (Ashok et al. 2022). Heyder et al. (2023) examined AI through an ethical lens, viewing ethics as a virtue for human subjects and as a responsibility at the level of technical systems. However, they overlooked a substantial portion of the relevant literature, halting their review at 2021, thus not encompassing the most dynamic research interests of the period. Consequently, we utilize various keywords in this literature review to cover the diverse perspectives surrounding the AI phenomenon. This approach allows us to begin with a broader corpus, enabling us to refine our article selection during the subsequent screening phases.

Therefore, we selected articles applying the following broad search string: (“artificial intelligence” OR “AI” OR “machine learning” OR “ML” OR “deep learning” OR “neural network*” OR “natural language process*” OR “NLP” OR “generative AI” OR “machine intelligence” OR “intelligent support” OR “intelligent virtual reality” OR “chatbot*” OR “automated tutor*” OR “personal tutor*” OR “intelligent agent*” OR “expert system” OR “conversational agent*”) AND “ethic*”.

For the selection of articles, we examined the two most widely used databases—Clarivate's Web of Science and Elsevier's Scopus—which aligns with numerous prior articles on SLRs (e.g., Madanaguli et al. 2023; Mariani et al. 2023). Furthermore, to remain within our conceptual boundaries, we limited the analysis to articles published in English and classified under the Business and Management fields in these two databases. Additionally, we implemented a time criterion, selecting publications from 2016 onwards, as we considered Hern's seminal article in *The Guardian* titled “2016: The Year AI Came of age,” which noted that “AI leapt from a science fiction concept to an almost meaningless buzzword with alarming speed” (Hern 2016). Roche (2016) also identified five main conditions associated with AI's dark side in 2016: privacy concerns, security issues, ethical challenges, the empowerment of criminals and terrorists through AI, and trust issues between humans and machines, as well as AI biases. We retrieved 481 articles in Scopus and 364 in WoS using these search parameters. We then merged these two datasets to eliminate duplicate items using a Damerau-Levenshtein distance algorithm, resulting in a corpus of 701 articles (144 were present in both databases) that we analyzed to assess their eligibility for our research. To identify scholarly debates and research trends while conducting a literature review in a specific research area, we refined our review to encompass studies published in peer-reviewed journals ranked 2, 3, 4, or 4* on the ABS 2023 journals list. This approach, consistent with prior SLRs, aims to uphold research quality (Atewologun et al. 2017; Franco-Santos and Otley 2018; Vallaster et al. 2019). Finally, we excluded 11 articles due to incomplete records or improper classification as journal articles when they were, in fact, book chapters. Applying this criterion, we examined a total of 325 articles, and after evaluating their abstracts to verify their relevance to our scope, we arrived at a final count of 102 eligible articles. The process is illustrated in Figure 1 using the PRISMA 2020 flow diagram (Page et al. 2021).

To analyze the corpus of documents, we employed a bibliometric approach to illustrate the state of the intellectual structure and emerging trends in a research topic or field (Donthu et al. 2021). We used an R-Cran Package, specifically Bibliometrix (Aria and Cuccurullo 2017), to conduct this research. After describing the corpus through a performance analysis to evaluate the contributions of research constituents to the field, we adopted a science mapping approach (Börner et al. 2003) to examine our corpus using both a structural approach to understand AI scientific research in management studies and a more dynamic perspective to explore the evolution of the field's themes. In the analysis focusing on the structural approach, we examined structural data by studying the collaboration network (Glänzel and Schubert 2004) and the co-citation network (Chen et al. 2010; Ferreira 2018) in order to comprehend the social structure of the field and its foundations. Finally, we applied the Cobo et al. (2011) approach to grasp how the field has evolved over three main periods (2016–2020; 2021–2022; 2023+). In particular, we separated 2023 from the preceding period because in January 2022, OpenAI introduced InstructGPT, and on 30 November 2022, OpenAI launched the public version of ChatGPT, a large language model-based chatbot that has quickly gained popularity, becoming the fastest-growing consumer application ever and reaching 100 million monthly active users by mid-January 2023 (Hu 2023).

5 | Performance Analysis

Our corpus consists of 102 articles published between 2016 and 2024 (one article is an early access one) in 50 academic journals. The literature's interest in and relevance to the phenomenon are clear. Figure 2 shows the publication frequency over the years, increasing steadily in recent years, with a noticeable surge beginning in the period coinciding with the COVID-19 pandemic.

Figure 3 displays the 10 journals most concerned with these issues. This figure is shaped by our decision to consider only articles published in medium-to-high-ranked journals as eligible for review. The *Journal of Business Ethics*, with 14 publications, is the academic journal that has contributed the most articles to our corpus, likely due to the strong emphasis of the search strategy on the “ethic*” keyword, as evidenced by the total of 20 articles in ethically-related journals (*Journal of Business Ethics; Business Ethics, the Environment, & Responsibility; Business Ethics Quarterly*). Meanwhile, in second and third place, we have two journals that are not strictly ethically oriented—Technology Forecasting and Social Change, with 13 articles, and *Journal of Business Research*, with six—confirming that the field is also being populated by articles focused more on the technological and managerial aspects of the AI topic.

In recent years, the intersection of AI and ethics has evolved significantly, with many scholars focusing on the ethical challenges presented by the development and deployment of AI-related technologies. Research in this field has concentrated on key areas such as corporate and developer responsibility, the impact of AI on services and society, and AI's potential to tackle major global challenges, including the sustainable development goals (SDGs). A central theme in the current debate is the role of AI as an enabling technology capable of transforming industries,

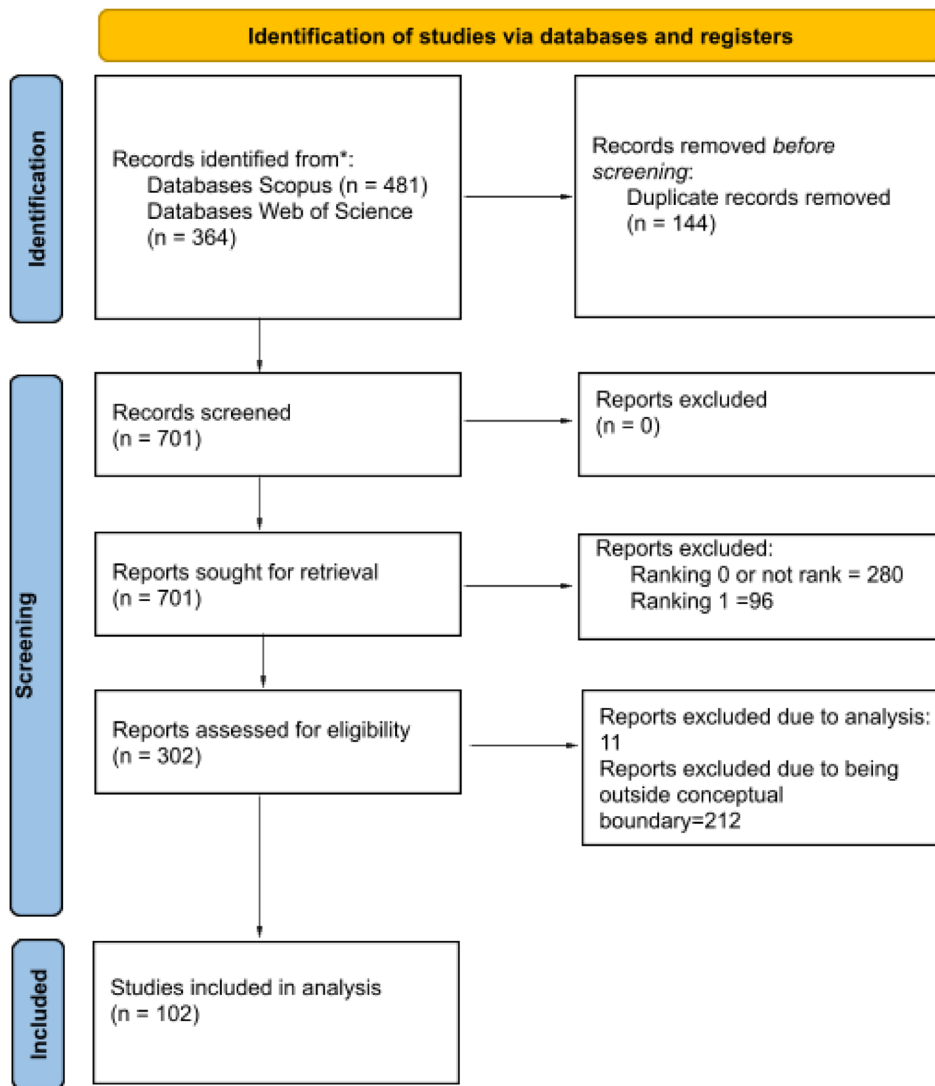


FIGURE 1 | The PRISMA 2020 Flow Diagram. [Colour figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com)]

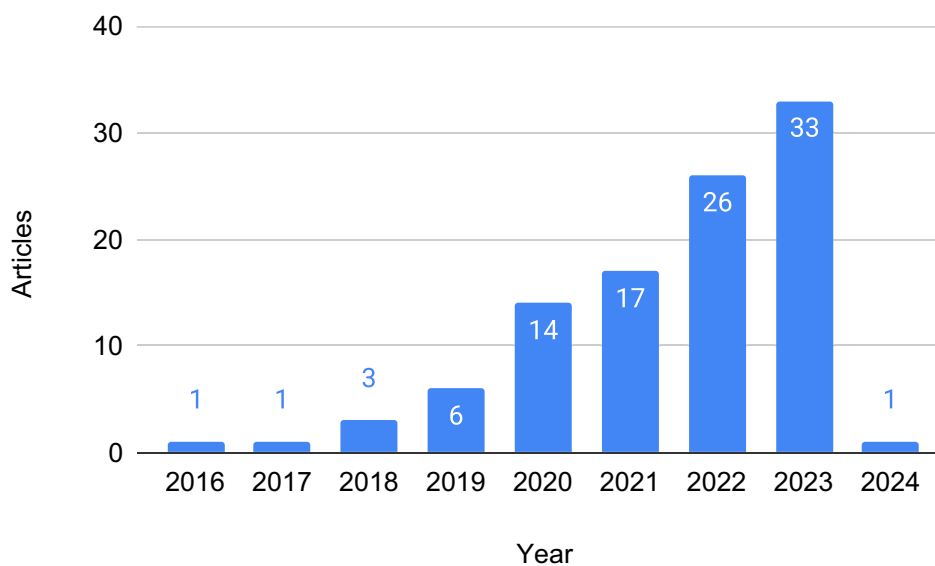


FIGURE 2 | Year of Publication. [Colour figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com)]

Top Journal

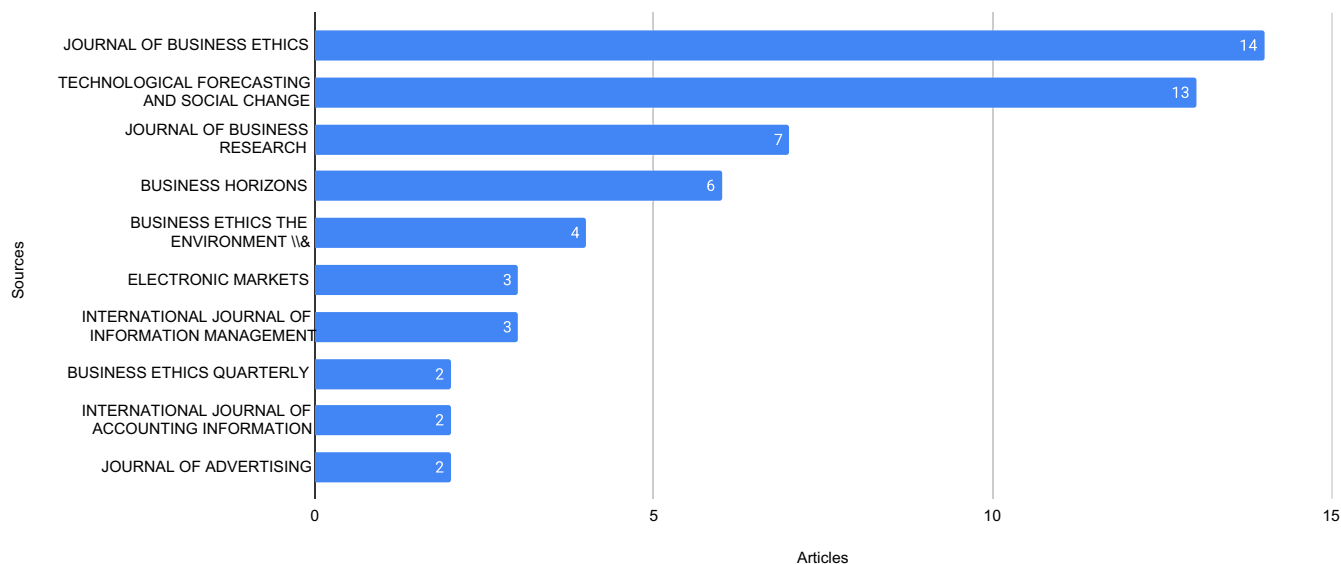


FIGURE 3 | The 10 most relevant sources in the sample. [Colour figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com/doi/10.1111/beer.12797)]

such as the service sector (e.g., Wirtz et al. 2018–689 total citations, 114.83 citations per year). However, ethical concerns have emerged alongside these opportunities, including algorithmic bias, the responsible use of technology, and privacy and security implications (e.g., Dwivedi et al. 2023–139 citations). Recent studies have explored how these technologies, if mismanaged, could worsen global inequalities, while their responsible integration into business models could promote ethical innovation (e.g., Di Vaio et al. 2020–256 total citations, 64 citations per year).

Research on AI and ethics has developed along three main strands: (1) the investigation of corporate responsibilities in the ethical use of AI (e.g., Martin 2019–152 total citations, 30.40 citations per year); (2) the impact of AI in key sectors, with particular emphasis on services and organizational management (e.g., Wirtz et al. 2018); and (3) the analysis of potential risks linked to new, advanced AI models, like large language models (LLMs), which present opportunities but also challenges for security and privacy (e.g., Dwivedi et al. 2023). In this landscape, the most-cited publications significantly contribute to the field by outlining the implications and opportunities of AI. Another relevant contribution comes from the article by Kaplan and Haenlein (2020–128 total citations, 32 citations per year), which reflects on how AI can be leveraged to tackle global challenges, provided it is managed appropriately to avoid potential negative impacts.

An interesting aspect is the predominance of authors from the United Kingdom among the leading contributors in this field. This suggests that the UK academic context, bolstered by policies, funding, and collaborations, has become a focal point for research on AI and ethics. However, this also indicates that UK-specific cultural and regulatory perspectives partially shape the literature. This underscores the need for greater involvement from scholars in other regions to broaden the global understanding of these issues.

In conclusion, this SLR reveals that research on AI and ethics has evolved significantly, with an increasing focus on corporate responsibilities, the risks associated with the use of AI and its potential to address major global challenges. While AI offers vast opportunities for transformation in key sectors such as services, ethical concerns persist, including algorithmic bias and privacy. The literature emphasizes the importance of a responsible approach to innovation, where adopting advanced technologies is balanced with protecting stakeholders' rights and interests.

Table 2 indicates that, even though four keywords were biased because they formed part of the search string, the other six are “new.” In particular, the fourth keyword (human resource management) underscores the significant role of the papers on the impact of AI in the field of HRM, also addressing HR systems

TABLE 2 | Most used keywords (* = keywords in our search string).

Keyword	Frequency
Artificial intelligence*	76
Ethics*	35
AI ethics*	14
Human resource management	12
Data	12
Content analysis	11
Marketing	11
Decision-making	9
Machine learning*	9
Accountability	8

Another central paper is by Jobin et al. (2019), which maps and analyzes the current corpus of ethical AI guidelines, finding that the primary principles are transparency and justice concerning fairness, as well as the prevention, monitoring, and mitigation of unwarranted biases. The authors emphasize, based on their research, the significance of integrating guideline development efforts with substantive ethical analysis and appropriate implementation strategies. They suggest exploring the factors that facilitate these processes and their potential impact on the ethical development of technology. The third article highlighted in this cluster is by Hagendorff (2020), which focuses on the main failures or shortcomings in the guidelines and ethical codes shaping AI system development. Finally, the author examines the extent to which the respective ethical principles and values are applied in the research, development, and application of AI systems, discussing methods to enhance effectiveness in AI ethics demands. He argues that AI ethics efforts should not aim to coerce stakeholders into incorporating ethics into their AI development and usage. Instead, a more effective approach would be to empower them to act responsibly.

The third central cluster features several articles on the impact of AI systems in the service sector. Within this cluster, the most significant paper (Huang and Rust 2018) analyzes how AI is increasingly reshaping the service landscape. The authors define an AI-job-replacement theory to investigate the processes through which AI replaces human workers in various tasks and jobs, underscoring the necessity for service researchers to concentrate on human-machine integration at multiple levels, from the nature of work to policymaking. Another area of research examines the role of intuition and empathy in preserving human jobs. Other seminal works include those by Davenport et al. (2020), exploring AI's role in marketing, emphasizing the need to understand how AI is expected to impact the future of marketing, specifically regarding its influence on marketing strategies, customer behaviors, and even policymaking. Similarly, Rai (2020) examines various AI technologies through the lens of explainable AI (XAI) to facilitate their practical implementation in marketing. The author aims to establish trustworthy AI and achieve fairness, particularly underlining how future AI-related studies in marketing should focus on balancing prediction accuracy and explainability to enhance transparency, thereby increasing trust in the results of these services.

Following these three central clusters, three peripheral ones come next. The first, linked to the initial cluster, examines how companies implement automated hiring systems and how they confront and seek to resolve the discrimination challenges that may arise from these new technologies. For example, Lepri et al. (2018) described a process for utilizing AI services to improve decision-making, address complex societal issues, and promote a world in which data and algorithms bolster democracy and development. The preceding cluster connects with the main clusters and investigates the evolution of the concept of robotics alongside other innovative technologies.

Finally, there is the cluster that investigates the impact of AI on-the-job market and the workplace in general, also reflecting on

the roles of creativity and the power of ideas (Brynjolfsson and McAfee 2014; Autor 2015).

6.2 | Thematic Evolution

After studying the structure of the field, we investigated how it has evolved over time. We decided to limit our examination to three distinct time horizons. The first spans from 2016 to 2020, providing a foundational backdrop for understanding the shifting landscape of AI and its ethical implications, thus setting the stage for subsequent developments and discussions in the field. The second time slice begins in 2021 for two main reasons. First, the second AI100 report was released in 2021, assessing the impact of AI on a global scale; second, that is the year the Massachusetts Institute of Technologies (2021) designates as the year of the ‘monster models’, which are based on trillions of parameters and are expected to become the technological norm, though they carry biases we must be cautious of. Furthermore, global competition in AI models began in 2021, allowing access to these technologies for anyone with the necessary technological devices, prompting the European Union to highlight the need for specific regulation (European Commission 2021). In the same year, Google announced that AI should “be socially beneficial” and promoted its principles (Google 2021; Erman and Furendal 2022). In summary, the events and developments from 2021 to 2022 illustrate the rapid evolution and transformative potential of AI while also emphasizing the urgency for proactive measures to address emerging challenges and ethical considerations in AI governance and deployment.

Finally, the last period was chosen to capture the most recent search trends, thereby identifying the most relevant topics and search questions for the near future, as is typically done in most bibliometric and systematic analyses (Templier and Paré 2015; Ferreira and Ferreira 2024). Additionally, we characterized 2023 as distinct from earlier periods due to significant developments in the AI landscape. In November 2022, OpenAI launched ChatGPT, which quickly gained widespread popularity, becoming the fastest-growing consumer application (Hu 2023; Dwivedi et al. 2023). These milestones underscore the rapid pace of innovation and adoption within the AI domain, necessitating a separate analysis of trends and implications in 2023 compared to previous years.

To conduct this analysis, we adopted the science mapping approach developed by Cobo et al. (2011) which maps the various topics in a given field, starting from the keywords co-occurrence matrix—that is, the number of times two keywords appear in the same document—and then constructing the related network graph, considering a threshold value to highlight the most relevant connections. To identify the clusters, we employed a walktrap algorithm (Pons and Latapy 2006); specifically, this algorithm uses random walks to compute distances between nodes in the graph and creates the clusters, assigning nodes with small intra-community distances and larger inter-community distances using a bottom-up hierarchical clustering approach. The method then adopts Callon's centrality—which measures the degree of interaction of a part of the network with other parts, quantifying the strength of its connections—and Callon's density—which assesses the internal

density of a part of the network, measuring the strength of the internal ties among all keywords describing the research theme—to classify the clusters into four possible areas based on the strategic diagram model (Callon et al. 1991; Cahlik 2000).

Accordingly, Cobo et al. (2011) define four quadrants:

- The so-called motor themes of the field are in the upper-right quadrant (strong centrality and high density). These are well-developed topics that influence the development of a research field as they involve concepts usually applicable to other themes.
- The lower-right quadrant contains the field's so-called basic themes (strong centrality and low density). These themes are relevant to the whole field but may also be considered underdeveloped.
- The niche themes are in the upper left quadrant (low centrality and high density). Although well developed, these themes are specialized topics with a peripheral nature that makes them only marginally important.
- The lower-left quadrant (low centrality and low density) includes both underdeveloped and marginal topics. Depending on their evolution, they may either emerge or disappear.

6.2.1 | First Period: From 2016 to 2020

We find no motor themes in the first period, which confirms the field's emergent quality during those years. The first theme, the most central one in the lower right of Figure 5, pertains to AI and its ethical implications, with particular emphasis on fundamental aspects such as consumer perception, accountability, and trust. The most significant papers within this cluster represent

some of the most influential works in the corpus (see Wirtz et al. 2018; Martin 2019; Di Vaio et al. 2020). A second theme, on the boundary between motor and niche themes, is characterized by studies that focus more on the ethical and societal implications of AI development than on the previous theme. These papers examine AI operationalization in business (Kaplan and Haenlein 2020), its impact on the human-machine relationships (Wright and Schultz 2018), as well as the concerns related to the effects of Industry 4.0 in the workplace due to the increasing presence of automation (Neubert and Montañez 2020). Finally, the third topic, located at the intersection of emerging and niche themes, regards ethical models for guiding AI-based decision-making processes (González-Pachón and Romero 2016) and its broader role in supporting managers' decision-making processes (Elliot et al. 2020).

6.2.2 | Second Period: From 2021 to 2022

As shown in Figure 6 the field began to fragment in the following 2 years, 2021–2022. The three main clusters from the previous period split into nine new ones, encompassing the 43 articles in our corpus published during those 2 years.

During this period, we can identify three primary motor themes. The largest one, and the one with the highest centrality, is illustrated in Figure 6. This cluster addresses the ethical aspects of AI, often in conjunction with service provisioning and robotics (e.g., Belk 2021; Tóth et al. 2022), as well as its influence on decision-making (e.g., Lehner et al. 2022; Omrani et al. 2022), sometimes adopting a multi-stakeholder perspective (e.g., Prikshat et al. 2022). Next, there is a cluster in the upper part of the Motor Themes quadrant that examines topics from a broader perspective, aiming to guide the theoretical development of the field. For instance, Murtarelli

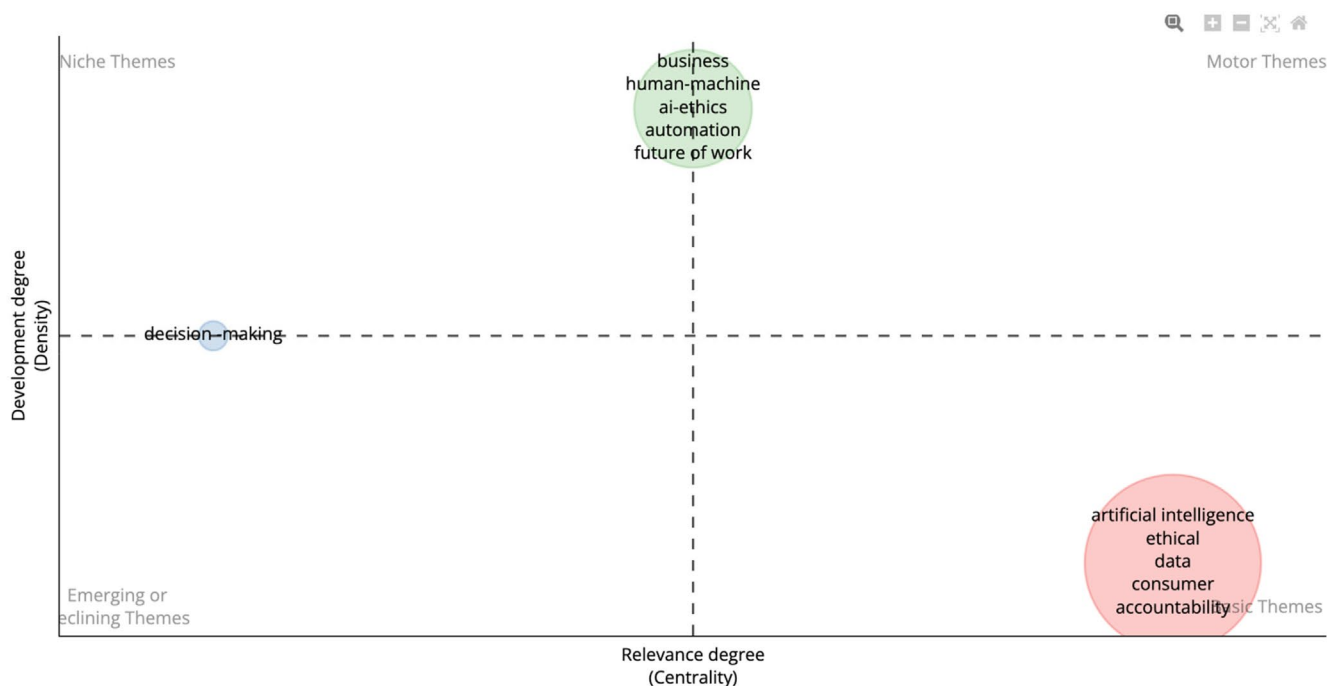


FIGURE 5 | First-period strategic diagram. [Colour figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com)]

et al. (2021) explored AI using a Service-Dominant Logic lens, while Mirbabaie et al. (2021) investigated how to improve human-machine collaboration in hospitals. The final motor theme cluster centers on the potential biases of AI systems in HRM (e.g., Hofeditz et al. 2022).

Considering the Basic Themes, the first one—having the highest centrality in Figure 6—addresses the topic of trust and AI (e.g., Thiebes et al. 2021), also exploring morality in human-AI interaction (e.g., Bonsón et al. 2021; Klockmann et al. 2022). The second cluster comprises studies on the topic of machine learning biases in various fields (e.g., Akter et al. 2021). In this period,

two main Niche Themes emerge. The first, located near the origin of the axes in the strategic diagram of Figure 6, regards the impact of AI on societal issues (e.g., Kazancoglu et al. 2021). The other is a more technical theme, focusing on the effects of algorithm design processes and the possible biases that affect them (e.g., Morse et al. 2022). Three emerging clusters were identified. The first, labeled “data” views AI as a means to leverage the potential of Big Data for social development (e.g., Chang 2021). The other two, which are overlapped in Figure 6, concern the role of values in the adoption of AI (e.g., Kelley 2022), while the last one addresses new topics, including those related to machine-washing (e.g., Seele and Schultz 2022).

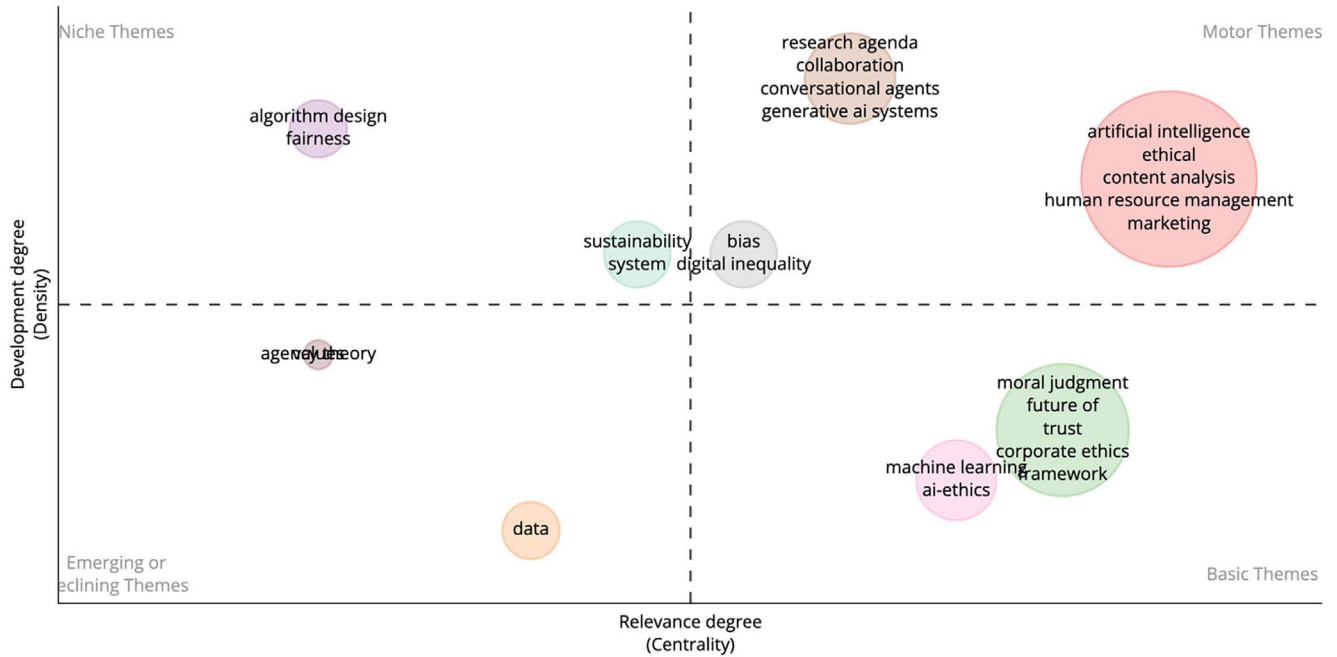


FIGURE 6 | Second-period strategic diagram. [Colour figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com)]

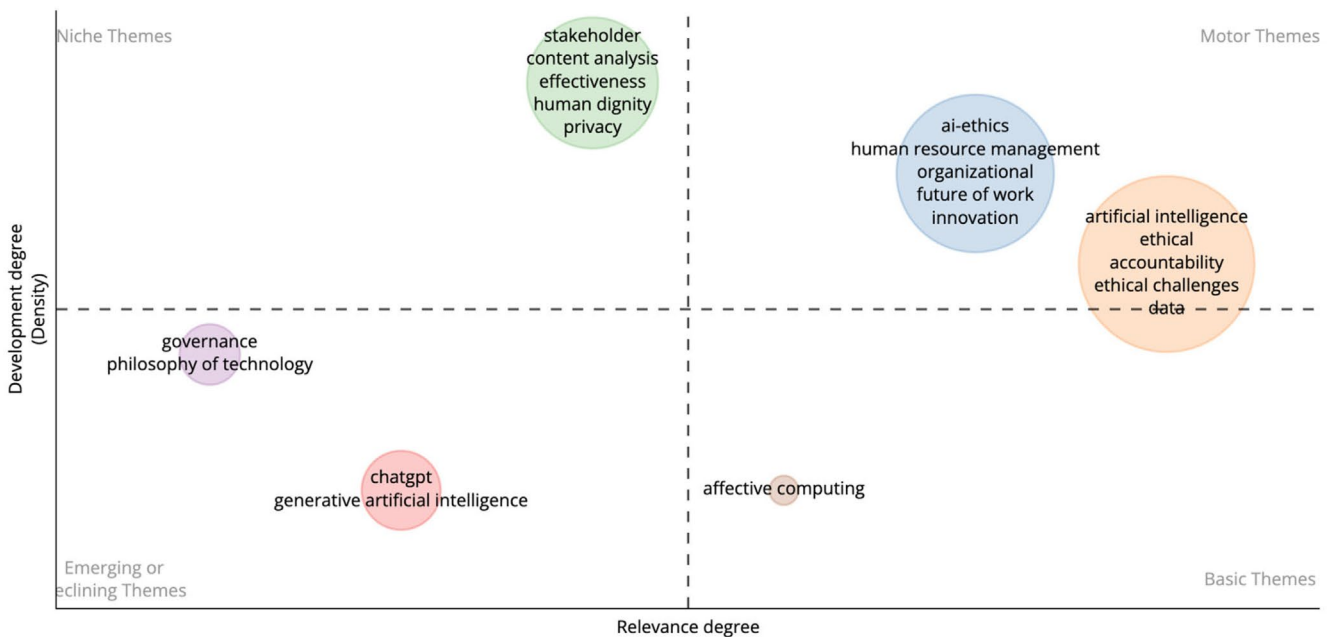


FIGURE 7 | Third-period strategic diagram. [Colour figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com)]

6.2.3 | Third Period: From 2023

In addition, in the third period (starting in 2023, when the topic of AI gained widespread attention), we observe that the fundamental themes are integrating into the core themes, and the field presents fewer topics that can be regarded as distinct.

The first Motor Theme, the rightmost in Figure 7, covers two main topics: studies dealing with AI implementation processes and their success factors (e.g., Merhi 2023; Misra et al. 2023), and those addressing the ethical impacts and concerns of AI in businesses, public organizations, and professional services (e.g., Fülöp et al. 2023; Zhang et al. 2023).

The other Motor Theme concerns AI ethics and responsible innovation. Several articles in this cluster focus on the role of AI in the workplace, including hiring processes (Figuerola-Armijos et al. 2023) and on-the-job applications (Bankins and Formosa 2023). Furthermore, this cluster includes articles addressing the impact of AI on societal issues (Behera et al. 2023; Buhmann and Fieseler 2023).

In this third period, only a single cluster can be considered a Basic Theme: the one on affective computing. In this cluster, Chaturvedi et al. (2023) present a narrowly defined SLR on the various frameworks used to understand and study the conversational agent feature in order to develop an emotional bond with users.

The only Niche theme, in green in Figure 7, comprises articles dealing with the ethical implications of AI (Generative AI) (Illia et al. 2023; Stahl et al. 2023). In one case (Bosse et al. 2023), the authors adopt the lens of Stakeholder Theory to develop a framework for understanding the various actors' perceptions of AI-generated content used to dynamically respond to their needs.

In the emerging or declining themes, there is a cluster that deals with the philosophical aspect of AI (e.g., Lin 2023) and another comprised of articles explicitly addressing ChatGPT, the well-known chatbot. In this last cluster, there are position papers (Dwivedi et al. 2023), articles discussing the consequences of LLMs for businesses (Wamba et al. 2023), and those examining it as a new technology whose implications are still not fully understood (Stahl and Eke 2024).

7 | Discussion, Implications, Limitations, and Further Research

7.1 | Discussion and Theoretical Implications

In this paper, the authors examine how ethics is considered in the emerging field of AI within management studies. To trace the evolution of these studies over time, we conducted a SLR using a bibliometric approach that combines both performance analysis and science mapping tools. Specifically, we gathered all articles published in business and management journals on AI and ethics since 2016, resulting in a final corpus of 102 articles after several rounds of screening.

The performance analysis revealed that a recent position paper has quickly established itself among the leading works (Dwivedi et al. 2023). This suggests that while many researchers are becoming increasingly interested in AI's effects on research and the future operations of academia, others have highlighted the necessity of considering various ethical implications of AI diffusion in research. This discussion has often been limited to plagiarism issues, implying that AI should be avoided. Concurrently, an alternative, more pragmatic approach has been proposed that addresses key concerns (such as privacy and autonomy) while also emphasizing the potential advantages of these methods.

Consequently, the performance analysis reveals a response from academia that balances a utilitarian ethical perspective—akin to the field's milestones that focused on enhancing societal well-being as a result of widespread AI adoption (Wirtz et al. 2018)—with deontological dimensions (i.e., that it is a valid tool to assist researchers/consumers), without overlooking the potential positive outcomes that may arise from its utilization. This is supported by another significant work in the field (Martin 2019), which examines the role of algorithms in shaping decision-making processes and their implications for accountability. The field remains highly fragmented, as evidenced by the ranking of the top journals. Although the top two journals account for around 30% of the articles in the corpus, there are still 50 sources included. Additionally, the collaboration network reflects this fragmentation. Specifically, excluding Dwivedi's 2023 position paper—which gathered perspectives on the future of AI from 73 scholars—there is evidence that several small groups are gradually merging into a more unified cluster.

Moreover, our analysis of thematic evolution within the field reveals that, despite the increasing number of articles and a clear new cluster focused on LLMs, the field is becoming less fragmented. Several schools within the discipline are still not collaborating and are starting to concentrate their efforts on a more limited range of topics.

These findings are reinforced by co-citation analysis, which indicates that the field's foundations lie in three primary clusters of prior works. Various scholars in Management Studies, who are interested in the intersection between AI and ethics, draw on these to establish the theoretical frameworks of their manuscripts based on the specific research gaps they aim to address: Ethics and Decision-Making Processes; Principles for AI Development and Implementation; and AI Implementation Risks.

While the studies in the first cluster generally adhere more closely to the Deontological approach to business ethics, investigating how AI influences the definition of new “moral” principles and how these principles may limit the impact of decision-makers' values on decision-making processes—leading to positive effects (Barocas and Selbst 2016) or even negative outcomes (Martin 2019)—the studies in the second cluster often focus on identifying the appropriate moral principles to guide AI evolution. This theme appears in the common ground between Deontology and Virtue Ethics (see Jobin et al. 2019; Hagendorff 2020). The central article in this cluster (Jobin

et al. 2019) clearly posits that Rawls' Theory of Justice serves as a relevant foundation for supporting the ethical development of AI applications (Kumar and Choudhury 2023). The third cluster is less focused on ethical aspects, although the cost–benefit approach frequently employed in these studies (see Huang and Rust 2018) seems to align more with a utilitarian perspective. Simultaneously, some papers within this cluster are structured around fairness and transparency, suggesting an ethical dimension related to Rawls' Theory of Justice (Rai 2020).

The studies analyzed in this review draw upon, and sometimes challenge, established ethical frameworks within business ethics. These include Utilitarianism, Deontology, and Virtue Ethics. Utilitarianism, rooted in the work of Mill (1998), focuses on maximizing overall well-being and often involves a cost–benefit analysis that considers the consequences of actions for all stakeholders (Johnson 2012). Deontology, often associated with Kant's ethical theory (Micewski and Troy 2007; Soppe 2013), emphasizes adherence to moral rules and duties, regardless of the consequences, with a particular focus on respecting human rights (Boatright and Smith 2017). Virtue Ethics, in contrast, centers on the character of the moral agent, emphasizing the cultivation of virtues such as honesty, integrity, and responsibility (Solomon 1992; DeGeorge 2014; Constantinescu and Kaptein 2020).

Our findings suggest that these different ethical frameworks are applied, debated, and sometimes found to be insufficient in the context of AI in management.

Furthermore, in our SLR, we chose to explore the evolution of the field, adopting a less guided and less focused approach compared to several previous literature reviews that opted instead to concentrate on defining an interpretative model (e.g., Hagendorff 2020; Kazim and Koshiyama 2021; Ashok et al. 2022) or integrating various findings to provide useful guidance for a specific class of potential AI stakeholders (e.g., Baker-Brunnbauer 2021; Attard-Frost et al. 2023; Prem 2023), which were designed to help the reader understand the current state of research on AI, focusing on specific relevant, albeit limited, topics, such as the role of gender (Kronqvist and Rousi 2023) or human-AI interaction (Heyder et al. 2023). Therefore, drawing on Collins' (2000) classification, as elaborated upon in Calabretta et al. (2011), the prevailing ethical issues emerging from this present SLR are those of ethical sensitivities and of corporate culture, as in the case of human resource practices. However, with respect to the previous classification, we can enhance it by introducing a new dimension. Indeed, while the authors also classify in terms of accounting and finance, marketing is an area that has also emerged in this literature, as demonstrated by the studies of Davenport et al. (2020) and Rai (2020), and in line with the marketing literature's focus on ethics and AI in marketing (Kopalle et al. 2022).

This study also positions repositioning as central to the dualism between technology and ethics. The field of techno-ethics, in fact, offers intriguing insights and connects to a growing body of literature, including research on technostress (Berger et al. 2024; Nisafani et al. 2020) and social ethics, particularly regarding worker replacement (Huang and Rust 2018). However, this phenomenon extends beyond the technological dimension.

Recent studies have focused on moral theory to investigate the foundations of ethics and the inherent morality of phenomena such as AI, which remain linked to a more virtual ethical lens (e.g., the recent guidelines explored by Jobin et al. (2019) and Hagendorff (2020)).

The state of the field's development offers new perspectives and dynamics. Occasionally, scholars adopt a more utilitarian viewpoint when articles focus on how AI can help tackle contemporary challenges (Lepri et al. 2018), such as pursuing SDG (Di Vaio et al. 2020) and addressing sustainability decline, particularly in relation to Corporate Social Responsibility and potential deviations. They may also view AI as a means to create or define algorithms that imitate decision-making processes (Elliot et al. 2020). In other instances, researchers seek to identify ethical principles that may assist them in understanding how AI can facilitate decision-making. For example, Gonzalez-Pachon and Romero (2016) adopted a Virtue Ethics approach to examine how AI could aid managers in reaching consensus among various groups, balancing values like freedom and fairness. This perspective is also reflected in other studies on ethical leadership (Dietvorst et al. 2015; Barocas and Selbst 2016). Finally, additional studies have indicated that AI, in certain contexts, is redefining the moral principles applied (Lanz et al. 2024).

Given the complex nature of the field, we examined the entire landscape to understand how the realms of research on AI and ethics have evolved since it became more mainstream. Accordingly, we divided the corpus into three segments to observe how the field has changed over time (the three time slices are 2016–2020, 2021–2022, and 2023+). This analysis, utilizing the Cobo et al. (2011) approach to the Strategic Diagram by Cahlik (2000), indicates that the field, as evidenced by the evolution of the Motor Themes, is coalescing around a small number of intricate clusters. It is worth noting that even in this limited corpus of academic publications focused on business ethics, a new cluster has emerged that examines the effects, both positive and negative, of the increasingly prevalent Large Language Models on service management, on workers' activities, and on the human–machine interaction relationship.

7.2 | Methodological Implications

Our study indicates that the Cobo et al. (2011) approach, which utilizes keyword co-occurrences to highlight the sub-topics within a given field, may be especially practical in observing the evolution of themes in a specific research area, as previously noted by Aria and Cuccurullo (2017). Additionally, employing this method offers a clearer perspective on future research needs already identified in the academic literature, enabling the identification of gaps and potential areas for development as previously pointed out (e.g., Donthu et al. 2021; Paul and Criado 2020). Essentially, applying this technique not only enhances the understanding of the evolutionary dynamics within the studied field of ethics but also aids in planning future research directions, presenting a comprehensive view of emerging trends and unresolved or conflicting issues.

Furthermore, this SLR contributes to advancing science mapping and, more broadly, the bibliometric approach to SLRs by

illustrating how these tools can highlight changes in a specific research field—in our case, that related to AI—when a significant event occurs. The entry of OpenAI into the consumer market and the rapid diffusion of LLMs exemplify the emergence of themes in the literature that build upon previous research efforts and topics. Analyzing keyword co-occurrences has allowed us to trace the emergence of new themes and to understand how they interact with existing topics in the literature. Similarly to previous research—for instance, Bai and Li (2022) used keyword co-occurrence analysis to map the evolution of e-commerce research, and Zhang et al. (2023) used it to show the evolution of research on Knowledge Transfer Partnership and Digital Transformation—this methodology has proven particularly effective in highlighting dynamic changes and emerging trends in the AI field, providing a clear and detailed overview of how research themes evolve in response to significant innovations.

Ethical issues demand particular sensitivity and require an interdisciplinary approach. This is increasingly important in literature reviews, where, as Jamali et al. (2021) suggested, it is essential to remain receptive to diverse visions and perspectives. This assertion holds true at the current stage of the AI ethics field (Huang et al. 2022; Tidjon and Khomh 2022; Gellers 2024).

Adopting a bibliometric approach enabled us to systematically visualize these developments and identify cohesive research clusters, contributing to a deeper understanding of the field's developmental directions. This is particularly beneficial in interdisciplinary fields where interactions between various research areas can uncover new perspectives and insights, with ethics being a crucial aspect due to its cross-cutting nature in management and its interactions with society, philosophy, the environment, and economics, as shown in several articles (e.g., Heim and Mergaliyeva 2024; Heck et al. 2024) that used bibliometric methodologies within SLRs of complex, interdisciplinary topics.

Furthermore, our research supports using the bibliometric approach for revealing interconnections between research areas, connecting their key themes, such as ethics and sustainability (articulated as CSR and SDGs), to other related but distinct fields, such as studies on AI, as demonstrated in prior work (e.g., Donthu et al. 2021, 2022). By leveraging keyword co-occurrences and their social network data, the method used in this SLR highlights several emerging sub-themes, their interconnections, and their evolution over time. For instance, this study illustrates how the impact on human resource management was previously examined as part of the societal implications of AI implementation by business organizations, while in the subsequent period, this topic can be viewed as a Motor Theme, underscoring its growing importance in management studies as companies began utilizing AI-based services in HRM. This trend has gained even more prominence following the spread of ChatGPT, with research on these services now appearing in two distinct motor themes—one focused on implementation and optimization and the other addressing their effects on the companies themselves and society. To fully leverage these findings, researchers cannot rely solely on bibliometric data analysis; they must delve deeper into the content of each cluster to examine the individual papers that compose it and analyze the results of their findings (Cobo et al. 2011; Donthu et al. 2021).

In summary, using a bibliometric approach to SLR enhances the understanding of the evolutionary dynamics of specific research fields and provides a clear map of the interconnections among different topics. This is especially relevant for research on ethics and sustainability, where comprehending the complex interactions between various factors is crucial for developing effective practices and policies. The ability to identify and analyze these interconnections makes the bibliometric approach a powerful tool for scholars committed to understanding and promoting ethical and sustainable behavior in businesses and organizations.

7.3 | Implications for Managers and Policymakers

Our paper has practical implications, offering guidelines for both practitioners and policymakers. In particular, the emerging theme of LLM and the related theme of Affective Computing may support practitioners seeking to integrate these new services into their operations. By examining the two key themes from the previous time slice, we identified several studies that highlight managers' need to adopt a holistic view of AI services. These studies emphasize the importance of the model developed by Martin (2019) and the vision articulated by Kaplan and Haenlein (2019). Research in these areas indicates that managers should not limit their AI adoption processes solely to achieving greater efficiency and effectiveness; instead, they should align their decision-making processes with the perceptions of various stakeholders both within and beyond company boundaries. Therefore, our findings suggest that managers would benefit from understanding the principles guiding the development of AI-related processes and how their adoption may be influenced by the ethical foundations underpinning their actions and potential biases.

Furthermore, this approach should enable managers to implement these processes in the workplace while minimizing the risks and concerns associated with AI development models. At the managerial level, the current review provides valuable insights on issues central to business in the coming years. In particular, several studies have emphasized the importance of examining the transparency of their tools and the related fairness, which can be further enhanced by a clear commitment to adhering to ethical principles in AI services.

Above all, managers should recognize that AI services cannot be considered “responsible” in themselves. Since these AI-driven decisions are often viewed as a black box, they must ensure that all other actors perceive the fairness of the related decisions. Respecting commonly accepted ethical principles is essential for building trust in the outcomes of these processes. Consequently, managers should implement policies and procedures that consider these elements when contemplating the adoption of these systems within their organization. As several authors have pointed out, managers must develop policies and governance instruments to ensure that these processes are transparent, fair, and responsible to prevent these services from becoming a source of friction with internal and external stakeholders.

For example, new AI services must be defined in a way that articulates the rationale behind their decision-making processes.

Alternatively, these services could be limited to a supporting role in human decision-making, utilizing the speed of new ICT to present decision-makers with a range of options assessed on various parameters; the manager can then rely on their intuition and empathy to select one of the AI-driven suggestions or combine some of them to generate a new solution of their own. Similarly, at the managerial level, affective dimensions should not be overlooked in customer relationships during service development—e.g., new chatbots and other robotic companions—since these elements may alienate existing customers, given that the new AI-based services are seen as less personal and a source of disconnection.

Furthermore, recent studies highlight these themes, particularly in the service sector, which may be significant for competitive advantage. Considering the current trends in the literature and the dimensions previously outlined, business managers must closely monitor the impacts and applications of generative AI tools, such as ChatGPT, on innovation and the future of work to avoid falling behind.

At the societal level, the ethical challenges of AI in business management also extend to government. Governments need to be attentive to how businesses utilize AI and should take an active role in developing new guidelines, measurement systems, and evaluation systems to prevent inappropriate and harmful uses of AI. For example, governments could enact stricter policies against practices such as machine-washing efforts by certain companies. The rapid advancement of AI technologies presents a complex ethical landscape for both businesses and governments, and as these systems become increasingly sophisticated, governments should recognize the benefits, including innovation, improved decision-making, and enhanced efficiency. Simultaneously, they should address the significant risks of these tools, such as the potential for bias, discrimination, and misuse. To tackle these challenges, governments must adopt a proactive approach in establishing ethical frameworks and regulations for AI development and deployment. This involves creating guidelines for responsible AI use, promoting transparency in AI algorithms, and setting up mechanisms for accountability and oversight. Additionally, governments ought to invest in research and development to enhance AI safety and security, ensuring that AI systems are designed to benefit society.

7.4 | Limitations

This study has two primary limitations. First, it employs a bibliometric approach. While this method assists in examining a field from a retrospective view, it does not facilitate the creation of an interpretative framework for a prospective understanding of the field. Furthermore, this approach relies on the assumption that co-authorship, sourcing, and keywords effectively identify and link various papers (Van Rann 2003; Van Leeuwen 2006; Ammirato et al. 2023). Although many articles have previously utilized this method (e.g., Arnott and Wilson 2007; Calabretta et al. 2011; Mariani et al. 2023), relying exclusively on bibliometric data may fail to capture the complete richness of a given paper. A second limitation of our work is the division of the field's evolution into three periods. To our knowledge, no clear or widely accepted criteria exist for dividing a corpus into

temporal slices. Other studies may choose fewer periods or employ a percentile approach to segment the corpus into time slices with the most even distribution of articles possible. We opted not to adopt this method, as it does not take into account the influence of external events on research activities (e.g., the launch of ChatGPT should be recognized as a significant moment in time, given its rapid adoption by companies, professionals, and end-users).

7.5 | Directions for Further Research

As this literature review focuses on mapping the thematic evolution of studies regarding the relationship between AI and business ethics, we can utilize the study's results from the most recent time slice to offer more structured suggestions for advancing further research. In particular, examining the Motor Themes of the latest time slice reveals several specific recommendations. In the first cluster, the authors advocate for future research to investigate how AI implementation, associated biases, and greater effectiveness may positively or negatively impact the rights of various stakeholders (Zhang et al. 2023; Wirtz et al. 2023), even in developing countries (Adobor and Yawson 2023). Simultaneously, further research is necessary to explore whether ethics can be embedded in AI through social norms or by leveraging codes of conduct in self-regulation processes (Fülöp et al. 2023). Another avenue for future investigation concerning this theme is the relationship between leadership and AI adoption and usage, mainly how these dynamics influence employee behavior (Lanz et al. 2024) and examining these processes through the lens of creativity (Merhi 2023). The authors writing in the second motor theme, on the other hand, emphasize that future research should concentrate on AI governance and its dynamics (Birkstedt et al. 2023) as well as how it may be influenced by local culture and organizations (Varma et al. 2023), personal characteristics of users (Bankins and Formosa 2023), and external entities, such as ethics councils (Buhmann and Fieseler 2023) and communities (Varsha 2023). For instance, it is essential to understand the role that AI can play in hiring new employees, considering integration with other technologies (Figueroa-Armijos et al. 2023) and its effect on Person-Organization fit (da Motta Veiga et al. 2023). Furthermore, there is a need for studies exploring the role AI will assume within organizations and its relationship with the role of human resources (Bankins and Formosa 2023) to enhance public trust in AI (Langer et al. 2023). Within these themes, authors suggest concentrating future research on performance evaluation (financial, social, and ethical) of AI innovations (Aker et al. 2021; Behera et al. 2023), with a particular focus on the impacts related to the Sustainable Development Goals (Nasir et al. 2023).

In the third cluster, the only basic theme we identified in the third time slice is that the studies (see Chaturvedi et al. 2023) suggest addressing the factors that support or drive the perception of AI as a social companion and how these factors may influence human-to-human interactions. Similarly, we uncovered a single niche theme in our corpus concerning stakeholders and AI; authors recommend examining the impacts of various stakeholder groups, taking into account not only the specificities of different industries or the discrepancies between geographical areas but also considering those relating to diverse

groups of stakeholders (Lee et al. 2023). These considerations will affect AI development (Illia et al. 2023) and adoption (Stahl et al. 2023). On a related note, some scholars (see Lee et al. 2023) also propose examining the opposite influences. Likewise, Bosse, Thompson, and Ekman (2023) advocate for employing a stakeholder management perspective to explore justice-related dimensions of AI implementation, ensuring that AI processes operate correctly and account for their impact on all stakeholders. The analysis for the last time slice has revealed two clusters as emerging or declining themes. The first cluster, focused on governance and philosophy, sees authors such as Lin (2023) suggesting that we consider how processes guided by philosophies and religions, such as Buddhism, may influence the risks of unethical behavior. Other scholars (e.g., BaracsKay 2023) recommend focusing on interpreting technology-based ethics through the lens of classical philosophical approaches.

Finally, in cluster 6, there is the emerging theme related to LLMs, such as chatGPT. This suggests that research should focus on understanding the impacts of LLMs and addressing the difficulties in comparing their beneficial and harmful effects on different classes of stakeholders.

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Ethics Statement

This study has not been published anywhere else, and it is not under consideration by another journal. All study participants approved the manuscript and agreed with the submission and followed all ethical principles.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Peer Review

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