ADVANCES IN KNOWLEDGE ORGANIZATION
Proceedings of International ISKO Conference - ISSN: 0938-5495 - 2026 - São Paulo

Algorithmic Mediation and Knowledge Organization in the Process of Systematic Literature Review Using Generative Artificial Intelligence

Cristiane Mendes Netto

Vale do Rio Doce University, Brazil

Gercina Ângela de Lima

Federal University of Minas Gerais, Brazil

Lucinéia Souza Maia

Federal University of Ouro Preto, Brazil

Abstract

Generative Artificial Intelligence has increasingly influenced scientific research practices, particularly in the context of Systematic Literature Reviews. This paper aims to examine the ethical and epistemological challenges introduced by algorithmic mediation and to analyze its implications for Knowledge Organization, scientific authorship, source selection, and the role of the researcher. The study also proposes an analytical model structured around three dimensions, epistemological, methodological, and ethical-governance, articulated through an agential dimension. The research adopts a qualitative and exploratory approach based on a bibliographic review conducted in Google Scholar, Web of Science, and Scopus. The results indicate that Generative Artificial Intelligence may enhance efficiency in searching, synthesis, and writing. However, it also introduces risks related to algorithmic bias, inaccurate references, reduced methodological reproducibility, and weakened epistemological autonomy. The findings show that algorithmic mediation reconfigures core processes of Knowledge Organization and requires greater transparency and critical engagement. Generative Artificial Intelligence should therefore be understood as a complementary resource that depends on digital and information literacy, institutional guidance, and the preservation of human critical judgment in scientific practice.

Keyword: Generative Artificial Intelligence. Algorithmic Mediation. Systematic Literature Review. Knowledge Organization.

1.0 Introduction

Generative artificial intelligence (GAI) has emerged as a transformative element in scientific research practices, particularly in ways knowledge is accessed, organized, and produced. New tools and platforms based on language models have been developed to support academic writing, structure literature reviews, and even suggest hypotheses and methodologies.

This study addresses the process of Systematic Literature Review (SLR), understood here as a structured method for synthesizing and evaluating literature on a specific topic, with the aim of identifying main findings and knowledge gaps (Brito and Martins 2023; Cavalcante and Oliveira 2020; Okoli 2015).

The SLR approach plays a fundamental role in academic research, as it allows for a comprehensive understanding of the current state of knowledge and helps identify future research directions. According to the method described by Okoli (2015), the SLR process involves four main stages: planning, selection, extraction, and evaluation.

As highlighted by Silva Junior and Dutra (2021) and Mendes Netto et al. (2024), different technological solutions have emerged to support these stages of the SLR process, introducing new ways of searching, synthesizing, and understanding the state of the art of a given topic. The use of AI tools as assistants in SLR has been reported in recent literature, with studies presenting practical applications as well as analyses of their possibilities and limitations (Maculan et al. 2023; Jesus and Segundo 2024; Rodrigues et al. 2024; Li et al. 2025).

Although these studies emphasize the promising potential of such tools, especially in terms of efficiency and speed in information processing, they also point to the need for reflection on issues such as reliability, authorship, and ethical and epistemological dilemmas. Understanding algorithmic mediation and recognizing its growing influence on scientific production therefore require a critical and reflexive stance from researchers. While algorithms may enhance efficiency in research procedures, they may also introduce filters and biases that affect the construction of scientific knowledge. In this context, new dynamics emerge that reshape investigative processes and transform the traditional role of the researchers.

Despite the growing adoption of GAI in SLR, limited understanding remains regarding how algorithmic mediation reshapes Knowledge Organization (KO) processes and affects the epistemological, methodological, ethical, and agential dimensions of scientific research. This study addresses the following research question: How does algorithmic mediation through GAI reconfigure KO processes in SLR?

In response to this gap, the article critically reflects on the use of GAI in the practice of SLR, focusing on the ethical and epistemological challenges implied by the algorithmic mediation of scientific information. The implications of these tools for KO in academic research are examined, considering aspects such as authorship, algorithmic bias, and criteria for source selection. In order to systematize these reflections, the article proposes an analytical model composed of three structural dimensions, epistemological, methodological, and ethical governance, articulated through a transversal agential dimension. The study also discusses transformations in the role of the researcher in the context of increasing automation of searching, reading, and textual synthesis processes.

The paper advances KO theory by conceptualizing algorithmic mediation as a transformative force in the organization and production of scientific knowledge. In addition, it proposes an analytical framework to examine the epistemological, methodological,

ethical-governance, and agential implications of AI-mediated research practices, thereby contributing to ongoing debates on researcher agency, epistemic diversity, and ethical responsibility in increasingly automated knowledge environments.

This article is structured into six sections, including this introduction. Section 2 presents the methodology. Section 3 discusses issues related to algorithmic mediation and KO in the context of scientific research. Section 4 addresses the main ethical and epistemological challenges implied by the use of GAI tools. Section 5 examines transformations in the role of the researcher in the face of automated processes of search, analysis, and synthesis of information. Finally, Section 6 presents the final considerations of the study.

2.0 Methodology

The methodology adopted in this study was qualitative in nature, with an exploratory and analytical character. Given the emergent nature of the use of GAI in academic research, a theoretical-conceptual perspective was considered appropriate to critically examine the implications of algorithmic mediation for KO. The study sought to develop a conceptual understanding of how GAI may influence scientific research practices, particularly in the context of SLR.

The study was based on a narrative literature review focusing on publications from the last five years. Bibliographic searches were conducted in Google Scholar, Web of Science, and Scopus using combinations of terms such as "Generative Artificial Intelligence", "Systematic Literature Review", "Algorithmic Mediation", and "Ethics". Studies addressing the use of GAI in scientific research, processes of algorithmic mediation, and their ethical, epistemological, and methodological implications were selected for analysis.

The selected documents were subjected to full-text reading and interpretative analysis. The analysis consisted of a critical and interpretative reflection grounded primarily in Information Science literature, while also incorporating contributions from related fields. The analytical process was conducted iteratively, allowing categories and relationships to emerge progressively from the literature. Particular attention was devoted to identifying ethical, epistemological, and agential issues associated with AI-mediated research practices. Based on this iterative analytical process, an analytical framework was developed to systematize the main dimensions involved in the interaction among GAI, algorithmic mediation, and the researcher's critical agency.

3.0 Algorithmic Mediation and Knowledge Organization

According to Rangel and Martins (2024), algorithmic mediation refers to a process that occurs through the automated intervention of computational systems in the selection and display of information for content personalization. Recommendations and the adaptation of content and interfaces, based on algorithms and artificial intelligence, transform the way individuals access and interact with knowledge. The authors relate this concept to

traditional informational mediation, which involves human action aimed at guiding and facilitating access to information. In algorithmic mediation, however, the underlying intention may differ, as it may seek to increase user engagement on digital platforms and, in some cases, to favor commercial interests.

Sousa Junior et al. (2025) build on the concept of mediation in Information Science to examine how algorithms operate in the curation of information, emphasizing the growing relevance of technology in this process. The authors discuss the complexities of contemporary society shaped by automated interventions. Algorithmic mediation significantly impacts current digital information flows, contributing to a new information regime and altering how individuals access, consume, and interact with online content. In this context, data surveillance and extraction become central practices, as algorithms capture personal information from browsing activities and other digital applications. This monitoring feeds artificial intelligence systems that generate user preference profiles and enable the targeted recommendation of specific content.

Silveira (2020), from a broader perspective, highlights the opacity of the criteria used by algorithms to select sources and present responses, as well as the need for regulation to ensure that their purposes do not serve exclusively market interests. Given the complexity of this scenario, understanding these processes becomes relevant not only for general users of digital environments but, even more critically, for researchers. In the context of SLR, particularly during the stages of bibliographic searching, it is important to consider the possibility that different researchers using the same search terms may obtain distinct results due to algorithmic mediation. Beyond the challenge this poses to methodological reproducibility, there is also the risk that algorithms may perpetuate and amplify biases present in the collected data, leading to biased and potentially unjust research outcomes.

The discussion of algorithmic mediation in KO can be further expanded through the reflections of Shiozaki (2025), who examines the ethics of KO in the algorithmic age. The author argues that the integration of artificial intelligence into systems of organization and classification intensifies longstanding issues related to neutrality, cultural representation, and epistemic authority. Systems of Knowledge Organization (KOS) have always incorporated values and cultural choices. However, the incorporation of artificial intelligence extends these effects by enabling the automated creation of categories and classificatory structures, often without transparent human supervision. In this context, the governance of KOS requires institutional mechanisms capable of coordinating decisions between human agents and algorithms, balancing efficiency, fairness, cultural diversity, and social legitimacy. The author defends plural ethical approaches to ensure that AI-mediated systems remain socially responsible, transparent, and committed to epistemic diversity.

Within the context of SLR, it becomes necessary to reflect on the potential of algorithmic mediation to influence researchers' perceptions. Such influence may compromise the development of critical positions and the autonomy of researchers, both in specific SLR practices and in academic research more broadly. When automated systems prioritize content based on opaque and personalized logics, they may shape researchers'

perceptions and restrict access to epistemic diversity, thereby limiting the autonomous construction of scientific thought. Furthermore, this invisible filtering may reinforce hegemonic perspectives and marginalize alternative forms of knowledge, weakening the plurality that is essential to academic research. Ethical and epistemological issues converge in this debate, particularly when questioning who defines relevance, which voices are privileged or silenced, and to what extent researchers' autonomy is preserved.

4.0 Ethical and Epistemological Challenges

Santaella (2023) addresses the ethical dimension of GAI by discussing changes in scientific research production associated with tools such as ChatGPT. According to the author, international guidelines regarding scientific authorship are already established, since a technological tool cannot assume responsibility for the content, validity, or integrity of academic studies and therefore should not be credited as a co-author. The author also identifies additional ethical challenges. One of them concerns the facilitated use of GAI tools for producing scientific texts, which may contribute to an increase in the volume of low-quality publications in academic journals. In response to this risk, she emphasizes the importance of human supervision and the involvement of experienced researchers to detect and minimize problematic cases.

Considering broader ethical concerns related to artificial intelligence, the document published by UNESCO (2022) constitutes a global standard approved by consensus among United Nations Member States. Its objective is to regulate artificial intelligence from an ethical and inclusive perspective. The document highlights the need to prepare society to engage with artificial intelligence in an ethical, critical, and responsible manner through educational and scientific policies. Among the proposed measures are the development of national legislation, the strengthening of information competencies, the evaluation of social and environmental impacts of artificial intelligence, and the promotion of inclusion and equity. However, the pace at which these measures are implemented is considerably slower than the rapid evolution of technological solutions. For this reason, bringing these issues into academic debate and critical reflection becomes essential for researchers.

Research practices are undergoing transformation as artificial intelligence technologies become increasingly integrated into academic work. Both general-purpose tools, such as ChatGPT and Gemini, and research-oriented tools, such as Consensus, Elicit, and Research Rabbit, are reshaping scholarly practices. Sampaio et al. (2023) examine the impact of artificial intelligence on academic research and discuss how these technologies are incorporated into different stages of scientific work, including literature searching, data analysis, writing, and translation. The authors compare the emergence of AI tools to earlier technological transitions, such as the shift from typewriters to computers or the introduction of online research through Google and Wikipedia. The effects of GAI, however, go beyond a simple change in tools or techniques. From the perspective of Information Science, this transformation affects modes of knowledge production and redefines the roles attributed to researchers.

The importance of researchers' expertise in formulating prompts and critically evaluating AI-generated outputs is highlighted by Rodrigues et al. (2024), who tested the use of AI tools in the context of literature reviews. Although these tools demonstrate potential benefits, particularly in terms of efficiency, they also present challenges related to mitigating bias and avoiding inaccurate or misleading information. From an epistemological standpoint, the problem becomes more complex due to the recurrence of unintentional plagiarism and the lack of textual originality. Generative systems operate based on statistical patterns and may reproduce preexisting content without adequate critical contextualization or conceptual innovation.

Another critical issue concerns the generation of fictitious or imprecise references, which directly compromises the verifiability and traceability of sources, both central to the credibility of a literature review. There is also a risk of superficiality in the understanding of fundamental concepts. Researchers may rely excessively on outputs generated by these tools, which reduces critical engagement with the theoretical and methodological foundations of consulted works. Although automation may be operationally efficient, it can foster an instrumental relationship with knowledge. In such cases, conceptual construction may be replaced by pre-formatted summaries and decontextualized responses. This dynamic weakens the development of a solid conceptual foundation and diminishes the analytical and reflective capacities that are essential for high-quality scientific production.

The analyses developed in the previous sections indicate that algorithmic mediation in SLR structurally reconfigures central processes of KO. In order to systematize these impacts, we propose an analytical model composed of three structural dimensions, epistemological, methodological, and ethical governance, articulated through a transversal agential dimension. This agential dimension operates as an integrative axis of the model, positioning the researcher as a critical mediator between automated systems and the production of scientific knowledge, as illustrated in Figure 1.

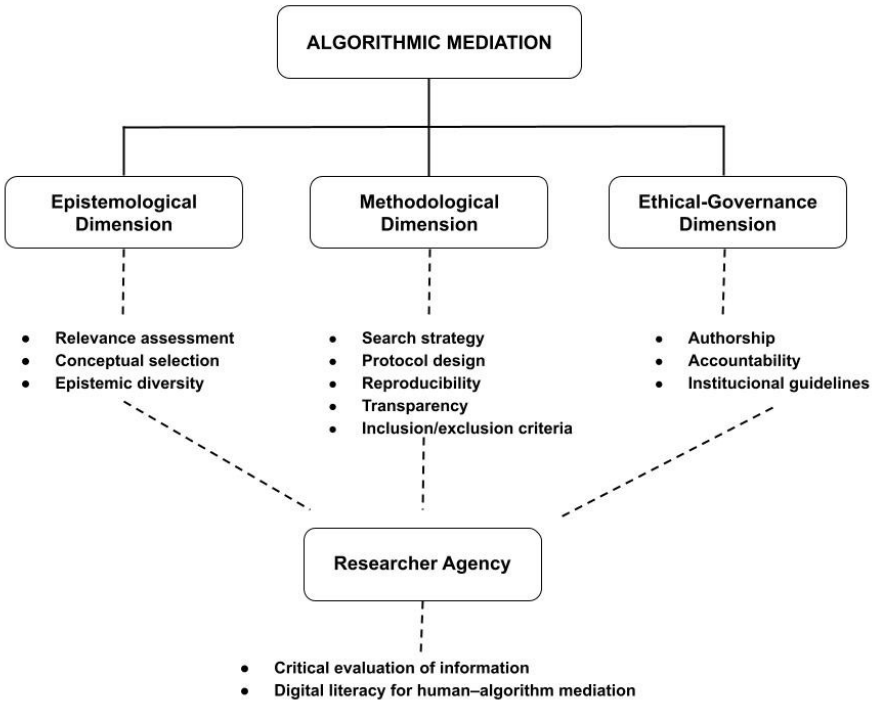

Figure 1. Analytical framework of algorithmic mediation in Knowledge Organization within Systematic Literature Reviews.

This framework provides conceptual support for the discussion of the researcher's role developed in the following section. From a KO perspective, the proposed framework highlights that algorithmic mediation affects core processes traditionally associated with the organization and representation of knowledge. The epistemological dimension addresses issues related to relevance attribution, conceptual selection, and epistemic diversity, all of which directly influence knowledge representation and warrant. The methodological dimension concerns transparency, reproducibility, and criteria for source selection, which are fundamental for ensuring consistency and reliability in knowledge organization processes. The ethical-governance dimension emphasizes accountability, authorship, and institutional guidelines, reinforcing the socially situated and value-laden nature of KO systems. Finally, the agential dimension positions the researcher as a critical mediator responsible for interpreting, validating, and negotiating algorithmically generated knowledge, thereby preserving epistemic plurality and human agency within increasingly automated informational environments.

5.0 The Transforming Role of the Researcher

From the perspective of the agential dimension presented previously, the role of the researcher is therefore not diminished by artificial intelligence, but reconfigured in algorithmically mediated environments.

With the incorporation of GAI tools into processes of searching, organizing, and producing scientific knowledge, the researcher's role is undergoing transformation. In the past, knowledge curation through the selection of sources, critical reading, and conceptual analysis was central to research practice. Today, researchers encounter digital environments that provide automated outputs capable of synthesizing large volumes of data within seconds.

Carvalho et al. (2025) discuss the information and digital competencies required for action in digital environments. In terms of information competencies, the authors emphasize the importance of being able to search, select, and structure relevant information. This includes navigating digital environments efficiently, using available resources strategically, and maintaining openness to technological innovation. Digital competencies involve the ability to interpret visual representations, transform information into original productions, locate and analyze relevant content, construct knowledge through non-linear navigation, understand the norms governing digital spaces, and apply this knowledge in online communication.

Within this context, fundamental skills emerge for the critical and ethical engagement of researchers. Information and digital literacy must be expanded to include understanding how algorithms operate, evaluating the reliability of automated sources, and interacting effectively with complex systems of information mediation. As highlighted in the UNESCO Recommendation (2022), researcher training should incorporate competencies that enable reflective, responsible, and inclusive engagement with GAI, avoiding uncritical or purely technical use of these tools. This expansion represents not only a technical update but also a transformation in the profile of the contemporary researcher.

In this scenario of reconfiguration, the centrality of human judgment remains indispensable. Artificial intelligence may automate operational tasks, suggest pathways, and synthesize data, but it does not replace the analytical capacity and theoretical discernment of the researcher. Human judgment ensures the relevance of interpretations, the methodological adequacy of decisions, and the ethical alignment of scientific practice. As Araújo et al. (2017) argue, KO is always shaped by epistemological choices, and it is the researcher's responsibility to ensure that these choices are conscious, transparent, and justifiable.

In an empirical and comparative study reported by Jesus and Segundo (2024), the use of ChatGPT was examined for the development of research protocols in SLR. Different types of prompts were tested in order to evaluate the tool's performance. The authors concluded that there are limitations in the use of ChatGPT for completing SLR research protocols. The tool performs better when used by researchers familiar with both the SLR method and the investigated topic. Such familiarity allows more precise identification of inconsistencies or weaknesses in the generated protocol. The authors also emphasize that for researchers with limited experience in SLR method or in the research topic, the use of ChatGPT should be restricted to exploratory or learning purposes, since identifying flaws in generated outputs may be challenging.

The role of the researcher is therefore not minimized by the presence of artificial intelligence, but transformed. Researchers assume the position of mediators between automated systems and the construction of scientific knowledge, taking responsibility for validating and critically interpreting AI-generated outputs. Scientific integrity in this new context depends on the articulation between technological innovation and critical reflection. The use of artificial intelligence must remain guided by ethical principles, methodological rigor, and commitment to epistemic diversity. The transformation of the researcher's role thus invites a reconsideration of practices, competencies, and attitudes within an increasingly dynamic informational landscape.

6.0 Final Considerations

This study offered a critical reflection on the use of GAI tools in academic research, particularly in the context of SLR. Artificial intelligence is reshaping research practices while simultaneously introducing new ethical and epistemological challenges. As systematized in the proposed model, these implications span epistemological, methodological, ethical-governance, and agential dimensions.

Algorithmic mediation may directly influence processes of access, curation, synthesis, and organization of knowledge, which requires careful and critical engagement by researchers. Although these tools may contribute to greater efficiency, it remains essential to preserve the centrality of human judgment and to reflect on how automation affects the formation of scientific thought.

As a limitation, this study adopted a theoretical-conceptual approach based on bibliographic review, without empirical application or in-depth evaluation of specific tools. Consequently, the observable effects of GAI in SLR practices still require validation through direct research experiences in real contexts. In addition, the rapid pace of technological development challenges the continuous updating of analytical studies.

Future research may include empirical studies comparing systematic reviews conducted with and without the use of GAI, assessments of output quality, and investigations involving researchers with different levels of experience. Such studies may help clarify how research practices are changing and help identify appropriate uses and limitations of these tools. It would also be relevant to investigate the impact of algorithmic mediation on epistemic diversity and on criteria of inclusion and exclusion within the databases that support these technologies.

Based on the findings, it becomes evident that universities, research centers, and funding agencies should establish clear guidelines for the ethical and methodologically responsible use of GAI in academic research. These guidelines should prioritize transparency in tool usage, promote digital and information literacy training, and strengthen practices that preserve authorship, integrity, and diversity of scientific knowledge. The use of artificial intelligence in SLR should be understood as a complementary resource, without replacing critical judgment and ethical responsibility, which remain fundamental to scientific activity.

Generative Artificial Intelligence usage statement: During the preparation of this manuscript, the authors used ChatGPT, powered by GPT-5.6 Sol (OpenAI), as a language-support tool for proofreading, translation, and improving the coherence and cohesion of the text. The tool was not used to generate or analyze research data, formulate results, or draw scientific conclusions. All AI-assisted outputs were critically reviewed, edited, and verified by the authors, who assume full responsibility for the accuracy, originality, integrity, and final content of the manuscript.

References

Araújo, Paula Carina de, Joseph T. Tennis, and José Augusto Chaves Guimarães. 2017. "O conceito de epistemologia na organização do conhecimento." In Memória, tecnologia e cultura na organização do conhecimento, edited by Fabio Assis Pinho and José Augusto Chaves Guimarães, 71–78. Estudos Avançados em Organização do Conhecimento 4. Recife, PE: Ed. UFPE.

Brito, Jean Carlos Borges, and Dalton Lopes Martins. 2023. "Revisão sistemática da literatura na Ciência da Informação: uma descrição detalhada dos passos metodológicos." InCID: Revista de Ciência da Informação e Documentação 14, no. 2: 24–47.

Carvalho, Ana Cristina Marques de, Armando Sérgio de Aguiar Filho, and Frederico Giffoni de Carvalho Dutra. 2025. "Competências em informação e digitais necessárias para atuação em ambientes digitais." Perspectivas em Ciência da Informação 30: e53087.

Cavalcante, Lívia Teixeira Canuto, and Adélia Augusta Souto de Oliveira. 2020. "Métodos de revisão bibliográfica nos estudos científicos." Psicologia em Revista 26: 83–102.

Jesus, Ananda Fernanda de, and José Eduardo Santarem Segundo. 2024. "Aplicando o ChatGPT na condução de revisões sistemáticas da literatura: protocolo de pesquisa." Ciência da Informação 53, no. Especial: 27–38.

Li, Ying, Surabhi Datta, Majid Rastegar-Mojarad, Kyeryoung Lee, Hunki Paek, Julie Glasgow, Chris Liston, Long He, Xiaoyan Wang, and Yingxin Xu. 2025. "Enhancing Systematic Literature Reviews with Generative Artificial Intelligence: Development, Applications, and Performance Evaluation." Journal of the American Medical Informatics Association 32: 616–625.

Maculan, Benildes Coura Moreira dos Santos, Elisângela Cristina Aganette, Francis Bento Marques, and Yuri Bento Marques. 2023. "Contribuições do ChatGPT na revisão sistemática de literatura: um estudo de caso." Cuadernos de Educación y Desarrollo 15: 11773–11797.

Mendes Netto, Cristiane, Andreza Ferreira Félix, and Gercina Ângela de Lima. 2024. "Ferramentas de IA como assistentes no processo de revisão de literatura." In Anais do XXIV

Encontro Nacional de Pesquisa e Pós-graduação em Ciência da Informação (ENANCIB). Vitória: UFES.

Okoli, Chitu. 2015. “A Guide to Conducting a Standalone Systematic Literature Review.” Communications of the Association for Information Systems 37: 879–910.

Rangel, Tayná Ladislau, and Gracy Kelli Martins. 2024. “Mediação da Informação e Mediação Algorítmica: Relações e Aproximações.” In Anais do XXIV Encontro Nacional de Pesquisa e Pós-graduação em Ciência da Informação (ENANCIB). Vitória: UFES.

Rodrigues, Gisele da Silva, Valéria Ramos de Amorim Brandão, and Rosana Matos da Silva Trivelato. 2024. “ChatGPT: uma ferramenta para a pesquisa científica?” Código 31: Revista de Informação, Comunicação e Interfaces 2: 73–93.

Sampaio, Rafael Cardoso, Maria Alejandra Nicolás, Tainá Aguiar Junquilho, Luiz Rogério Lopes Silva, Christiana Soares de Freitas, Márcio Telles, and João Senna Teixeira. 2023. “ChatGPT and Other AIs Will Change All Scientific Research: Initial Reflections on Uses and Consequences.” SciELO Preprints. doi:10.1590/SciELOPreprints.6686.

Santaella, Lucia. 2023. Há como deter a invasão do ChatGPT? Barueri: Estação das Letras e Cores.

Shiozaki, Ryo. 2025. “Ethics of Knowledge Organization in the Algorithmic Age: Utilitarian Coordination and Constraining Frameworks.” Knowledge Organization 52, no. 6: 44431.

Silva Júnior, Eugênio Monteiro da, and Moisés Lima Dutra. 2021. “A Roadmap toward the Automatic Composition of Systematic Literature Reviews.” Iberoamerican Journal of Science Measurement and Communication 1, no. 2: 1–22.

Silveira, Sérgio Amadeu. 2020. “Responsabilidade algorítmica, personalidade eletrônica e democracia.” Revista Eletrônica Internacional de Economia Política da Informação, da Comunicação e da Cultura 22, no. 2: 83–96.

Sousa Júnior, Manoel Bezerra de, Jefferson Veras Nunes, and Maria Giovanna Guedes Farias. 2025. “Mediação algorítmica e a intervenção em fluxos informacionais.” Biblionline 21, no. 1: 25–45.

UNESCO. 2022. Recomendação sobre a Ética da Inteligência Artificial. Paris: UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000381137_por.