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Literature review in the generative AI era: How to make a compelling contribution

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Editorial

Literature review in the generative AI era - how to make a compelling contribution



As we write this editorial for this special issue, we are amidst the significant technological changes that are continuing to shape society. Since the emergence of ChatGPT in November 2022, humanity has become aware of the potential of generative AI (i.e., AI that can generate content) and large language models (LLMs) (i.e., AI models trained on a massive corpus of unstructured data). There is growing debate and discussion about the promise and perils of generative AI for the future of work, and academia is not immune. Premier journals in the IS domain, such as *Information Systems Research*, have published editorials on what the emergence of generative AI means for IS research (see [Susarla et al., 2023](#)). Other journals have also published editorials on the role of generative AI – whether it is an assistant or a co-author/collaborator (e.g., [Offiah and Khanna, 2023](#); [Nah et al., 2023](#)). These editorials have discussed various AI capabilities and limitations. However, they also assert that human researchers must fact-check the interpretation of the LLMs because they are prone to hallucinations and may be trained on irrelevant data, resulting in inaccurate inferences. In this editorial, we will explore what the emergence of generative AI and LLMs means for literature reviews, in general, and literature reviews in the IS domain, in particular.

AI tools for literature reviews became a topic of inquiry in 2018 when the use of [iris.ai](#) was discussed in research ([Extance, 2018](#)). [Iris.ai](#) automatically generates a summary, extracting key themes from the existing literature. Two editors experimented with [iris.ai](#) to comprehend the “digital sustainability” research landscape, where [iris.ai](#) requires a description of the research problem or the URL of an existing paper. They used excerpts from [George et al. \(2021\)](#),¹ a pivotal study on digital sustainability, to explore the literature. They initially used the abstract to frame the research problem. The results suggested that the literature can be categorized into five categories: digital, entrepreneurship, entrepreneurial organizations, sustainability, and novel questions. The editors also received peer feedback on this result generated by an AI tool. While the peers appreciated the use of AI tools, they highlighted aspects such as lack of explainability (i.e., lack of clarity on how the tool arrived at this map) and interpretability (i.e., how to make a coherent, consistent sense of the results). Ultimately, the authors decided against using AI and relied instead on conventional literature search techniques to revise their manuscript in response to reviewers’ comments (see [Pan and Nishant, 2023](#)). In their debate and perspective piece, [Wagner et al. \(2022\)](#) discussed various AI tools for literature review and argued that AI-based literature reviews are not an end in themselves.

The emergence of ChatGPT and LLMs has resulted in the development of numerous new literature search tools and approaches. For example, Bing AI, based on GPT-4, can be used to summarize the literature on a specific topic. It can also provide some ideas for future prompts, or researchers can experiment with prompts to gather more information on the topic’s related literature. Other tools are available to assist researchers with literature reviews, including Scite and Elicit.² Scite, which is based on over 33 million full-text articles and 1.8 billion extracted and analyzed citation statements, claims to have over 370,000 users^{3,4}. It can assist researchers in conducting a literature review by “critically engaging with publications, comprehending how a publication and its results have been cited, and locating relevant literature on the topic at hand.”⁵ Elicit takes a slightly different approach, using semantic similarity to find

¹ [Iris.ai](#) exploration was conducted in 2021.

² A list of AI tools is available at: <https://tamu.libguides.com/c.php?g=1289555>, accessed June 5, 2023.

³ https://scite.ai/blog/2023-02-16_coverage, accessed July 17, 2023.

⁴ <https://scite.ai/> accessed July 17, 2023.

⁵ <https://help.scite.ai/en-us/article/using-scite-for-literature-reviews-and-critical-analysis-1bgeq8/>, accessed June 5, 2023.

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articles relevant to the researcher's question, even when the articles use different but related keywords.⁶

IS researchers, such as James Gaskin at Brigham Young University, have provided a demo of AI tools for literature search (see <https://www.youtube.com/watch?v=X8mmwcWWxvg>). Despite several issues, such as the possibilities of hallucinations with ChatGPT (Susarla et al., 2023; Nah et al., 2023), these tools appear useful in finding relevant literature. However, the automation of literature searches raises an important question: what role will the researcher play in conducting a literature review in the context of these AI tools?

Building on the recent editorial that suggests that we need to leverage AI tools rather than relying on or being dependent on them (Susarla et al., 2023), we argue that the emergence of these tools means we need to focus on fundamentals more than ever. We argue that researchers must continue using traditional academic databases such as Web of Science for literature searches and use AI tools to increase awareness or comprehend how a particular topic has been studied in previous research. We recommend that researchers double-check their findings with conventional databases when using AI tools such as GPT-4 to avoid misunderstandings caused by AI hallucinations. *We believe traditional academic databases and the traditional search process will continue to serve as the primary resource.* Some may argue that, with the advancement of AI tools and the possibility that traditional search will also use AI in the future, there is no need to continue focusing on traditional data sources as the primary resource. We contend that when researchers search for and experiment with appropriate keywords as search terms, they develop an understanding of the topic through a more active and involved learning approach, whereas simply using tools like Elicit and ChatGPT is a more passive approach. AI tools can be helpful, but the traditional approaches must take precedence in this human-in-the-loop exercise.

Boell and Cecez-Kecmanovic (2014) emphasized the significance of conducting a literature search and discussed various approaches for an effective one. Beginning a literature search with secondary literature (review articles or entries in specific subject encyclopedias) is recommended because it helps develop an initial understanding of a research area (Boell and Cecez-Kecmanovic, 2014). Searching for primary literature, on the other hand, can be difficult because it is not always clear how individual studies contribute to a body of knowledge in a more extensive research area (Boell and Cecez-Kecmanovic, 2014). By supplementing existing review articles and entries in specific subject encyclopedias, AI tools can play a critical role in the early stages of a literature search. Alternatively, researchers should assess what they missed by contrasting their understanding of the literature with the AI output. However, researchers should exercise caution and refrain from blindly following the AI output.

In the IS discipline, particularly in the top-tier journals, such as JSIS, there is a preference for literature reviews that go beyond describing the current state of the literature to suggest concrete guidelines for future research (see Templier and Paré, 2015) or for developing theory (see Webster and Watson, 2002). Breslin and Gatrell (2023) used a miner-pro prospector metaphor to describe the various approaches researchers can use to leverage literature review for theory building. These approaches include (from the miner to prospector ends of the continuum) "spotting conceptual gaps, organizing and categorizing literature, problematizing the literature, identifying and exposing contradictions, transferring theories across domains, developing analogies and metaphors across domains, blending and merging literature across domains, and setting out new narratives and conceptualizations" (Breslin and Gatrell, 2023, p. 145). These approaches can be useful in future literature reviews to make a compelling contribution.

Suppose the goal of the literature review is to identify and fill a gap in an existing knowledge domain (*miner perspective*). The researcher must then identify a topic that has the potential to contribute both in the short and long term (Pickering et al., 2015). Researchers must also be able to speak coherently about previous work and effectively tease out their contributions (Breslin and Gatrell, 2023). A literature review may also pinpoint new areas and influence future developments (*prospector perspective*). Researchers must use their imagination and creativity in such a situation to connect seemingly unrelated ideas, unite different concepts, and produce fresh insights while building on existing literature across domains (Breslin and Gatrell, 2023). Researchers must be very clear about the purpose or goal of their literature review (Kunisch et al., 2023).

JSIS recently hosted a webinar where the senior editor and the author of a widely downloaded literature review paper (Vial, 2019 - downloaded over 3000 times as per Google Scholar) discussed how to develop a literature review paper. This webinar (available at <https://www.youtube.com/watch?v=JSirAO7npoc&t=1s>) offers helpful advice on writing a literature review paper.

Whether a literature review adopts a miner or prospector perspective, we argue that the role of AI tools is still quite limited. Ultimately, it comes down to the researchers' creativity in developing a thorough understanding of the topic and making a contribution by filling a gap in the existing knowledge domain or identifying new areas. Frequently, the researcher will adopt both perspectives (albeit to varying degrees) in their literature review. AI tools are most useful at the beginning of a literature review, supplementing the search for secondary sources. Researchers can refine the quality of the literature review by providing appropriate prompts to AI tools once they have developed an understanding of the topic through secondary and primary searches. This, however, would necessitate appropriate prompts and prompt tuning, which is, in turn, dependent on the researchers' understanding of the topic. AI tools, such as Grammarly, can also assist researchers in improving their writing, thereby enhancing the literature review's readability (Susarla et al., 2023). Recent advancements such as Grammarly Go can help improve the quality of writing.

In conclusion, we recommend that authors evaluate their literature review from the perspective of a miner-pro prospector continuum to make knowledge contributions and use AI tools at the start of their literature search and to improve the writing. The key to making a compelling contribution is active engagement with literature searches, developing an in-depth understanding of the topic, and leveraging creativity and in-depth understanding to offer novel and valuable research directions in which generative AI tools can only serve as a supplement. While AI may seem intelligent, its rationality is much simpler than that of humans or researchers (Nishant et al., 2023). The content autonomously generated by AI whose purpose is not refining writing, but writing an article, is "*nothing more than an*

⁶ <https://elicit.org/faq>, accessed June 5, 2023.

assembled puzzle of cut-and-pasted published content” (Stone, 2023: p. 103). Such content cannot make a strong original theoretical contribution – a necessity for high-quality research in IS. Therefore, researchers should rely on their judgment and understanding to make a valuable contribution to literature review.

The four articles in this issue are of high quality and relevance. They represent an array of topics: ethical management of human-AI interaction, platforms in IS research, the strategic value of IT-Enabled self-organised collectives during crises, and information systems for sustainable remote workplaces.

In the first article, titled “Ethical Management of Human-AI Interaction: Theory Development Review”, authors Heyder et al. (2023) seek to understand and explain the ethical management of human-AI interaction. They reflect on both managing AI interacting with humans and managing humans interacting with AI. The authors conducted a theoretical review to extend knowledge on the ethical management of human-AI interaction by leveraging the lens of sociomateriality.

In the second article, titled “Reconceptualizing Platforms in Information Systems Research through the Lens of Service-Dominant Logic”, authors Sun and Gregor (2023) seek to reconcile the divergent perspectives on platforms by conducting an interpretive literature review through the lens of service-dominant (S-D) logic. They develop an S-D Platform Framework that emphasizes the fundamental facets of relationality, ambidexterity, and cooperativity to explicate the structure of platforms in IS research and presents an agenda for future studies.

In the third article, titled “The Strategic Value of IT-Enabled Self-Organized Collectives During Crises,” authors Morton et al. (2023) aim to provide systematic knowledge about the contributions of self-organized collectives during crises and how to leverage their value strategically. They identify four themes in which these collectives create strategic value – including information sharing, collective resource mobilization, network value, and generative value – to unravel the specific capabilities of self-organised collectives. The authors then present a model and agenda for future research.

Finally, in the fourth article, titled “Information systems for sustainable remote workplaces”, authors Asatiani and Norström (2023) discuss the challenges related to the sustainability of remote workplaces amidst the increasing trend of digitalization and pandemic-induced remote work. The authors reviewed various studies published between 1999 and 2020 across relevant domains and developed a framework that identified two types of factors – rigid base characteristics and contextual remote workplace variables – that shape the trajectory of remote workplace sustainability. Additionally, they recognize the role of IS in promoting sustainability in remote workplaces and suggest an agenda for future research.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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