

# Adopting Generative AI for Literature Reviews: An Epistemological Perspective

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## Abstract

*Artificial Intelligence (AI) and machine learning are becoming increasingly influential in research. Within this context, generative AI tools like ChatGPT serve two main purposes: the improvement of writing (communication goal) and the generation of new ideas (innovation goal). The latter goal has been less explored and is therefore the focus of this article. We specifically look at how these generative AI tools can aid in the development of literature reviews within the realm of information systems research. We adopt an epistemological lens, distinguishing various knowledge-building activities. Our analysis evaluates how well generative AI tools support these tasks and offers insights tailored to different types of literature reviews.*

**Keywords:** Generative AI, Literature reviews, Knowledge development, Innovation goal

## 1. Introduction

Generative Artificial Intelligence (GenAI) is a highly potent sub-category of artificial intelligence (AI) that has gained considerable prominence, largely due to exemplars such as ChatGPT. GenAI operates by leveraging deep learning models to generate human-like content, such as images and words, in response to complex and diverse linguistic inputs, instructions, or inquiries (Lim et al., 2023).

GenAI tools, such as ChatGPT and Google Bard, have the potential to enable high-quality scholarly work; for example, Visconti (2021) published a machine-generated literature overview of climate, planetary, and evolutionary sciences. They will develop their capabilities in a fast, yet unpredictable way. For academic research, two primary goals are distinguished and envisioned: the improvement of writing (communication goal) vs. the generation of new ideas (innovation goal) (Dwivedi et al., 2023). Focusing on the communication goal, they are considered writing tools that complement existing writing tools, such as Grammarly, Spellcheck, and Research Rabbit. From this perspective, GenAI tools aim to improve writing

quality and increase writers' productivity. Many early responses of scholars to the use of GenAI address the communication goal of generating scientific texts, and they suggest recommendations and best practices, often targeting ethical issues, obligations to validate references, and general recommendations on how to (not) use such tools; see, for example, the works of Buriak et al. (2023) and van Dis et al. (2023).

The innovation goal and related potentials of GenAI tools have rarely been addressed so far, maybe even questioned. As these tools are based on generative textual engines, trained to rely on words and phrases used previously in the literature, and do not rely on logic, semantic or epistemic models, they have been described as "stochastic parrots" that build sentences from data traces (Bender et al., 2021). Also, several issues, such as false information, have been used to argue that GenAI cannot substitute human work or match human originality (Pan et al., 2023). However, remarkable results from querying GenAI tools raise the questions of whether these tools actually possess scientific innovation capabilities and how they can finally be tapped. This perspective should be distinguished from any expectations that, at least in the near future, AI-generated texts are final scientific artifacts that can be used for scholarly communication. Too many weaknesses, including hallucination, interpretability, and institutionalization biases, still exist (Susarla et al., 2023). This indicates that current versions of GenAI-produced content still require human supervision and critical thinking. A more realistic expectation embraces the understanding that the use of GenAI tools is embedded in a combination of human and AI complementarity that will produce the best research output.

In contrast to achieving the communication goal, pursuing the innovation goal of GenAI tools needs to dive deeper into making recommendations on how to (not) use GenAI tools for specific types and activities of research, which show a wide diversity across scientific fields, genres, epistemological perspectives, theoretical basis, methodologies, etc. Thus, exploiting the capabilities of GenAI tools for research requires a more

nuanced analysis of their (in)appropriateness for supporting specific scholarly tasks.

A particularly appropriate candidate for the investigation of the innovative capabilities of GenAI is the development of literature reviews in academic research (Dwivedi et al., 2023; Pan et al., 2023; Webster and Watson, 2020). We follow this path and intend to make recommendations for (not) using GenAI tools when conducting standalone literature reviews, which are both an established scientific genre in many academic fields and a portfolio of research methodologies. More precisely, we aim to answer the research question: “*How can GenAI tools be used for various types of standalone literature reviews in the information systems (IS) research field?*” We address how the adoption of GenAI can methodologically support pursuing innovations with IS literature reviews. Answering this question is beneficial for IS scholars who aim to strengthen the innovation of their literature reviews (as standalone reviews or parts of other research works) by drawing on GenAI tools in a human-AI research collaboration.

In order to approach this question, we adopt an epistemological perspective on literature reviews and draw on a widely adopted set of knowledge-building activities (e.g., synthesizing, criticizing, theory building) and typologies of standalone literature reviews (LRs) in the IS field. We analyze the appropriateness of GenAI tools for conducting specific LR activities, develop recommendations, and derive implications for exploiting GenAI tools for specific types of LRs. However, it should be noted that the purpose of our research does not lie in an empirical or data-driven analysis of how different GenAI tools react to varying queries of different researchers, i.e., our study is neither confirmatory nor exploratory. We draw on the epistemological nature of knowledge-building activities and the principles of GenAI tools, and we use sample GenAI queries to demonstrate our recommendations and implications. With these, we aim to reveal the potential of GenAI tools in human-AI collaboration for compiling IS LRs and to identify avenues for improving the efficiency of the research process and the quality of the research output.

## 2. Background

GenAI possesses a unique capability to generate both responses and the content within them, often with some degree of novelty to the training data, by utilizing advanced deep learning models, such as generative adversarial networks (GANs) and generative pre-trained transformers (GPTs) (Dwivedi et al., 2023; Lim et al., 2023). These models attempt to predict the likelihood of typical human interaction sequences of words using

generative and discriminative algorithms based on supervised deep learning and transformer architectures of neural networks (Radford et al., 2018).

The potential of GenAI to revolutionize academic research extends beyond its capacity to enhance academic writing, such as with tools like Grammarly. GenAI can assist in data analysis and interpretation, scenario generation, and communication of findings (Alshater, 2022; Davison et al., 2023). However, this approach is not without its detractors, with some people questioning the academic integrity and ethical implications of using GenAI in academic publications (Else, 2023; Lund et al., 2023). In addition, researchers have also identified some technical obstacles. Although GenAI has shown remarkable capabilities in idea generation and data identification, it may face difficulties in literature synthesis and the development of appropriate testing frameworks (Dowling and Lucey, 2023). Furthermore, other challenges of utilizing GenAI in academic work include limited domain expertise, restricted ability to comprehend context, dependence on data quality and diversity, limited ability to generate original insights, and generalizability of findings (Alshater, 2022). Thus, it is crucial to carefully consider these limitations when incorporating GenAI in research and using it alongside human-centered analysis and interpretation.

The use of GenAI in literature review has garnered attention among scholars (e.g., Dasborough, 2023; Dwivedi et al., 2023; Pan et al., 2023). For example, GenAI can assist in element mapping and coding of relevant publications; the generative aspect of GenAI allows the researcher to reconceptualize the element maps based on their expertise and insights gathered during the process, followed by the formulation of discussion and conclusion. However, the literature is still silent on how GenAI can support epistemological activities when compiling a literature review. To address this gap, our study proposes an insightful perspective guiding the epistemological use of GenAI in literature reviews while emphasizing best practices for human-AI collaboration.

## 3. Supporting knowledge-building activities with generative AI tools

A literature review provides a comprehensive understanding of extant research on a particular topic, which requires scholars to read, analyze, and synthesize knowledge from numerous papers (Paré et al., 2015). From an epistemological perspective, LRs can contribute to knowledge development through various activities (Schryen et al., 2020): (1) **Synthesizing research** refers to summarizing published knowledge in an ordered way. (2) **Aggregating evidence** includes

qualitative approaches that synthesize what previous literature reviews have found, as well as quantitative studies that aim at performing statistical aggregation of empirical studies to evaluate to what extent the results support existing theoretical models. (3) **Criticizing** refers to issues in prior research that prevent a domain from progressing. (4) **Theory building** contributes to knowledge development in the form of new hypotheses and theoretical models that subsequent research needs to test; (5) **Identifying research gaps** spots gaps in the existing body of knowledge and substantiates a need for research in terms of closing these gaps; and (6) **developing a research agenda** refers to elaborating on how researchers should conduct future research, proposing a vision that focuses on a promising research goal, and making specific and actionable recommendations.

We now describe our research methodology and present our recommendations on the activities listed above.

### 3.1. Methodology

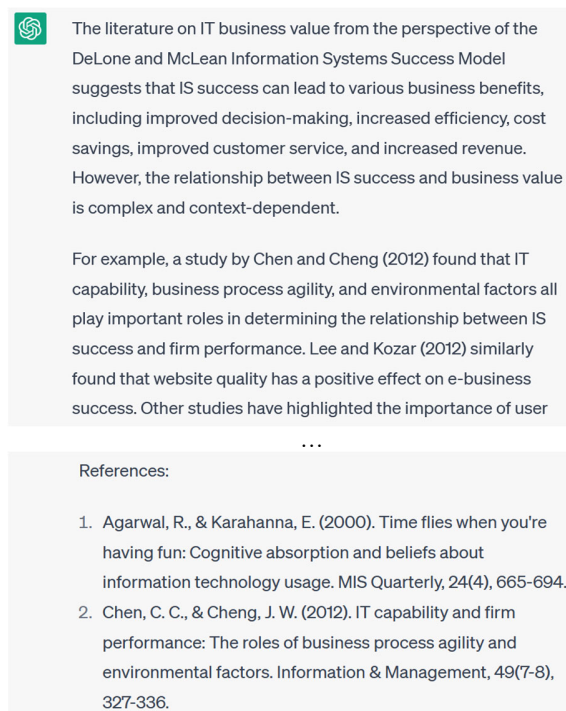
Approaching our research goal of revealing the potential of GenAI tools for compiling IS LRs and to develop recommendations, we proceed by using a) the sample domain of “IS business value”; b) several GenAI tools, including ChatGPT (model GPT-3.5), Perplexity (model GPT-3), Bing AI (model GPT-4), and Google Bard (model LaMDA); and c) sample queries to illustrate our recommendations. However, our recommendations are neither specific to this domain nor to the selected AI tools, underlying language models or tool queries. They are based on and driven by the epistemological nature of specific knowledge-building activities and the general paradigms of LLM-based GenAI tools.

We detail and provide examples of how GenAI tools can support researchers in each of the mentioned knowledge-building activities in the sense of human-AI collaboration. We entered numerous prompts into the GenAI tools, and present selected examples of the outputs produced to show their potential. However, not all prompts returned promising results: we show an example of the limited ability of current GenAI tools to support various types of reviews, as discussed in Section 4.

### 3.2. Synthesizing

Synthesizing research (SYN) involves identifying scholarly work and summarizing, comparing, and contrasting it in an, ideally, concept-centric way (Webster & Watson, 2002). The identification of literature is usually done by querying literature

databases, scanning tables of contents, etc.; for a methodology, see for example the tutorial of Schryen (2015). Complementing and going beyond these tasks, GenAI may be used to identify literature that adopts a specific perspective on a topic of investigation, be it from a particular theoretical or epistemological perspective. This approach allows the identification of literature from a specific perspective and the organization of its presentation. It also fosters the adoption of a multi-view perspective on a topic. Figure 1 shows a query with which IT business value is viewed from the perspective of the IS success model of DeLone and McLean (1992). The prompt used was “*What does the literature know on IT business value from the perspective of the information systems success model of DeLone and McLean? Explain and provide references.*”



The literature on IT business value from the perspective of the DeLone and McLean Information Systems Success Model suggests that IS success can lead to various business benefits, including improved decision-making, increased efficiency, cost savings, improved customer service, and increased revenue. However, the relationship between IS success and business value is complex and context-dependent.

For example, a study by Chen and Cheng (2012) found that IT capability, business process agility, and environmental factors all play important roles in determining the relationship between IS success and firm performance. Lee and Kozar (2012) similarly found that website quality has a positive effect on e-business success. Other studies have highlighted the importance of user

References:

1. Agarwal, R., & Karahanna, E. (2000). Time flies when you're having fun: Cognitive absorption and beliefs about information technology usage. *MIS Quarterly*, 24(4), 665-694.
2. Chen, C. C., & Cheng, J. W. (2012). IT capability and firm performance: The roles of business process agility and environmental factors. *Information & Management*, 49(7-8), 327-336.

**Figure 1. ChatGPT query: the perspective of the model of DeLone and McLean (1992).**

Researchers can now dive deeper into the literature to further elaborate how IS has contributed to various elements of the IS success model. Succeeding research steps should involve investigating the provided references and developing appropriate follow-up queries. In order to adopt a complementary perspective on IT business value, a query may look at this topic from the perspective of the process model suggested by Soh and Markus (1995); Figure 2 shows an example of such a query. The prompt used is “*What does the literature know on IT business value from the perspective of the*

*process theory of Soh and Marcus? Distinguish this perspective from the perspective of the information systems success model of DeLone and McLean. Provide References.”*



The literature on IT business value suggests that the process theory of Soh and Marcus and the information systems success model of DeLone and McLean offer complementary perspectives on how IT can generate business value.

The process theory of Soh and Marcus emphasizes the importance of understanding how IT is integrated into organizational processes and how it contributes to the overall value chain of the organization. The theory suggests that IT generates value through a series of interdependent processes that involve both IT and non-IT components, such as planning, alignment, implementation, and innovation. This approach recognizes the dynamic and complex nature of IT value creation, and emphasizes the importance of understanding how IT fits within the broader organizational context (Soh & Marcus, 2005).

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On the other hand, the information systems success model of DeLone and McLean focuses on the specific outcomes of IT implementation, such as system quality, information quality, use,

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Both perspectives have been widely used in empirical research on IT business value. For example, a study by Kim et al. (2018) applied both the process theory of Soh and Marcus and the information systems success model of DeLone and McLean to examine the relationship between IT capabilities and firm performance. The study found that both perspectives were useful in explaining the impact of IT on business value, but that the process theory of Soh and Marcus provided a more comprehensive view of IT value creation.

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**Figure 2. ChatGTP query: the perspective of the model and the theory of Soh and Marcus (1995).**

Beyond providing references, the answers include ideas of how the two perspectives may complement each other. These ideas need to be validated by researchers, who can continue elaborating them further.

As a synthesis might also include clarifying fundamental aspects, such as definitions and relationships between concepts, a query may be an entry point to a body of concept-defining literature encyclopedias. However, it should be noted that GenAI tools may rely on training data that are not up-to-date due to limited access to scientific databases. We also identified a few mistakes in the reference lists generated by ChatGPT, thus, necessitating the researchers' effort to validate them.

### 3.3. Aggregating evidence

The aggregation of evidence (AE) involves analyzing quantitative data by means of quantitative or qualitative approaches. At the qualitative level, evidence aggregation involves a narrative interpretation of quantitative data. Then, GenAI tools may be used in similar ways as when synthesizing research. In contrast, at the quantitative level, aggregating evidence usually includes the statistical aggregation of empirical studies, such as meta-analysis or vote counting, involves gathering existing studies, appraising the quality of evidence, determining aggregated effect sizes, and testing their significance (Schryen et al., 2020). The nature of these tasks requires any supporting GenAI tools to include statistical methodologies. Purely text-generative AI tools are not capable of fostering studies that aggregate evidence. However, we envision the development of GenAI tools that generate text based on the statistical analysis of a set of empirical studies.

### 3.4. Criticizing

Criticizing (CRI) reveals that knowledge related to a problem prevents a domain from progressing. It can be implemented by, for example, problematizing assumptions or identifying methodological, logical, or conceptual problems. Contrary to work that cumulatively extends existing knowledge, criticism suggests a revolutionary path that is not likely to be reconciled with existing knowledge (Schryen, 2015). The disruptive character of criticizing prior research makes it challenging to exploit GenAI tools to support this type of knowledge creation, as they rely on historical training data and, thus, can be expected to provide results that foster cumulative research rather than revolutionary research. Of course, one may expect to get results that point to (already known) research issues formulated in prior research, but we may not expect to identify uncovered and new research issues. As relying on historical training data makes knowledge contributions of LRs beyond the synthesis of knowledge at least not directly accessible and limits the value of GenAI to indirectly creating knowledge by inspiring researchers in various forms (see our suggestions for other activities in this section), supporting researchers in thoroughly criticizing previous research with GenAI tools seems particularly challenging.

However, this challenge does not mean that GenAI tools are inappropriate for researchers who aim to criticize prior research and suggest new research paths. Querying such tools may allow already identified research issues to be further elaborated by identifying (supporting or contradicting) evidence and literature that addresses these issues. For example, the LR of

Lacity et al. (2010) reviews “the effects that different variables have on IT outsourcing decisions, and the authors challenge the common assumption that outsourcing decisions depend on client size or the size of the IT department” (Schryen et al., 2020, p. 138). Querying GenAI tools may target this issue (see Figure 3).

#### Do outsourcing decisions depend on client size or the size of the IT department?

PERPLEXITY

Outsourcing decisions can depend on both client size and the size of the IT department. Research has shown that client size is a frequently discussed factor in outsourcing decisions <sup>1</sup>, and that scale economies can influence outsourcing decisions for functions with high fixed costs <sup>2</sup>. Additionally, the model of outsourcing decisions includes independent variables associated with client firm characteristics <sup>3</sup>. IT is a commonly outsourced department, with every business having certain IT needs depending on the nature, size, and type of the business <sup>4</sup>. An empirical study on small and medium-sized businesses found that motivation items can also affect outsourcing decisions <sup>5</sup>. Therefore, outsourcing decisions can depend on a variety of factors, including client size, IT department size, and other client firm characteristics.

The screenshot shows a search result on the Perplexity AI platform. At the top, it displays the search engine logo 'springer' and navigation links like 'Home > Journal of Information Techno... > Article'. Below this, there are social media sharing icons for 'omi' and a 'Download PDF' button. The main text of the result reads: 'Research Article | Open Access | Published: 11 November 2014. Determinant factors of cloud-sourcing decisions: reflecting on the IT outsourcing literature in the era of cloud computing'. A 'RELATED' section is visible below, with a snippet: 'what are the r... outsourcing IT | Stephan Schneider & Ali Sunyaev | Journal of Information Technology 31, 1-31 (2016) | Cite this article'.

**Figure 3. Perplexity AI query: identification of known research issues.**

Researchers may use the answer to the abovementioned query (and to consecutive queries) to investigate the effects of various characteristics of the firm and market, such as scale economies, and the nature and size of business, to approach the question of to what extent outsourcing decisions depend on client size or the size of the IT department.

### 3.5. Theory building

Theory building (TB), which refers to developing and/or refining new hypotheses and theoretical models, represents one of the most challenging and creative activities when compiling a review.

Supporting theory development by means of GenAI tools depends, among other factors, on the type of theory to be developed; for example, Gregor (2006) distinguishes five theory types in IS research: analysis, explanation, prediction, explanation and prediction, and design and action. Although it is beyond the scope of this article to provide a comprehensive analysis of how each of these theory types may benefit from using

GenAI tools, we provide an example of a basic type of theory, a theory of analysis, which is used to “describe or classify specific dimensions or characteristics of individuals, groups, situations, or events” (Gregor, 2006, p. 623). We draw on the LR of Schryen (2013), who suggests distinguishing firm performance, innovation, and the protection of resources as types of competitive IS business value. In an attempt to use this distinction as a starting point for developing a taxonomy of competitive external IS business value, researchers may aim to dive deeper into these broad categories by querying GenAI tools for operationalizations and extensions. Figure 4 provides an example. Naturally, the answers given by the GenAI tools need to be interpreted with caution, but researchers may now use the answer to look up provided references and investigate mentioned items of firm performance, innovation, and the protection of resources. Consecutive queries may be generated for further information on specific items, with the GenAI tools providing a starting point.

### 3.6. Identifying research gaps

Identifying relevant research gaps (RG) requires analyzing the existing body of knowledge on a topic, domain, or discipline in terms of relevant research questions and uncharted territories. It hardly seems a promising approach to directly query AI tools by asking for such questions and territories, as such tools do not rely on semantic or epistemic models and do not have any topic, domain, or discipline. Rather, it seems quite likely that queries asking for research gaps and questions will be answered by (re)producing text that is composed of research gaps already identified in the literature (Susarla et al., 2023). One effort-saving practice, however, is to utilize GenAI to highlight and summarize the gaps and limitations mentioned by the authors themselves, thereby aggregating these gaps across multiple papers. This approach can potentially uncover patterns and themes that can provide insights to inform future research directions.

A more promising way may be to adopt an indirect approach that aims to identify research gaps by mapping what is known in the literature on a model or theory in the field of investigation. GenAI tools may be queried with a series of questions asking for existing knowledge on particular components of the models and theories and their relationships. The set of results may provide avenues for diving deeper and performing a thorough analysis of potential knowledge gaps by means of a more comprehensive literature search and evaluation process. As an example, we use the model on IS business values suggested by Schryen (2013), who suggests that the competitive value (firm performance, innovation, protection of resources) that a firm may

achieve is largely affected by its internal value (IS innovation, socio-organizational capabilities, IS capabilities) and various environmental factors.

**GU** Which types of competitive value can IT produce for companies? Consider firm performance, innovation, and protection of resources. Provide references.

There are several studies that have explored the different types of competitive value that IT can produce for companies. Here are some references to relevant research:

1. Firm Performance:

IT can enhance firm performance by improving operational efficiency, reducing costs, and enabling data-driven decision-making. For example, a study by Melville et al. (2004) found that IT can help companies achieve higher levels of operational efficiency and effectiveness. Another study by Brynjolfsson and Hitt (2003) found that investments in IT can lead to higher productivity, profitability, and market value for companies.

References:

- Melville, N., Kraemer, K., & Gurbaxani, V. (2004). Information technology and organizational performance: 1. Protection of Resources:

IT can help companies protect their resources by providing advanced cybersecurity measures and facilitating supply chain management. For example, a study by Bélanger and Crossler (2011) found that IT can help companies prevent data breaches and other cyber threats. Another study by Zhu et al. (2018) found that IT can improve supply chain visibility and coordination, which can reduce waste and improve efficiency.

References:

- Bélanger, F., & Crossler, R. E. (2011). Privacy in the digital

**Figure 4. ChatGPT query: categories of competitive IS business value.**

Querying GenAI tools may aim to develop entry points for identifying potential uncharted research territories and deriving related research questions through queries that target relationships between internal value, environmental factors, and competitive value (see Figures 5 and 6).

**What is known on how firms can transform internal value, such as socio-organizational capabilities, into competitive value, such as innovations?**

✓ Searching for: **how firms can transform internal value into competitive value**

✓ Generating answers for you...

Firms can transform internal value into competitive value by aligning their socio-organizational capabilities with their innovation strategies. This can be achieved by creating an innovation culture that encourages employees to share ideas and collaborate on projects, as well as by investing in research and development <sup>1</sup>.

[Focus on Effectiveness to Drive Competitive Value - Gartner.com](https://www.gartner.com/smarterwithgartner/focus-on-effectiveness-to-drive-competitive-value)  
<https://www.gartner.com/smarterwithgartner/focus-on-effectiveness-to-drive-competitive-value>

needs of their customers. This requires a deep understanding of customer needs and preferences, as well as the ability to quickly respond to changes in the

**Figure 5. BING AI query no. 1: (missing) knowledge on IS business value creation.**

**What is known on how firms should create a work environment that fosters creativity and innovation?**

✓ Searching for: **how to create work environment that fosters creativity and innovation**

✓ Generating answers for you...

To create a work environment that fosters creativity and innovation, firms can take several steps. First, they can encourage individuality and let their employees know that their thoughts are valued <sup>1</sup>. Second, they can provide a stimulating atmosphere by using colors, lighting, sounds, and arrangement that influence how creative people are <sup>2</sup>. Third, they can facilitate

[How to create an environment that stimulates creativity...](https://hatrabbits.com/en/creative-environment/)  
<https://hatrabbits.com/en/creative-environment/>

How to create an environment that stimulates creativity The right...

Finally, firms can continue to hire diverse talent to bring new perspectives and ideas into the organization <sup>1</sup>.

**Figure 6. BING AI query no. 2: (missing) knowledge of IS business value creation.**

The queries shown in Figures 5 and 6 are consecutive queries, with query no. 2 connecting to the answer of query no. 1 by addressing the challenge of creating a work environment that fosters creativity and innovation. Researchers may now dive deeper into the literature to analyze what is (un)known about this relationship and whether new research gaps may be derived.

### 3.7. Developing a research agenda

The development of a research agenda (RA) requires researchers first to identify research gaps or to

criticize prior research, and then, in a second step, to sketch out a landscape for subsequent research and to make specific and actionable recommendations, which could include specific research propositions, suggestions on research designs, and empirical methods (Rowe, 2014; Schryen et al., 2020).

GenAI tools have been acknowledged to support framing future research (Susarla et al., 2023). However, similar to the activities of criticizing prior research and identifying research gaps (see Sections 3.3. and 3.5., respectively), developing a meaningful research agenda can hardly be accomplished by simply querying GenAI tools and deriving research propositions, research designs, etc. But answers to a series of queries that dive deeper into research issues, e.g., by looking for i) insights developed in other academic disciplines, ii) theories, models, and methodologies used in similar contexts, and/or iii) research paths that have already been followed but where the approaches adopted should be changed, may inform researchers on potential research paths and inspire them to further investigate those.

We take the LR of Berger et al. (2014) on IS research on “Online Social Networks” (OSN) as an example. The review concludes with a claim, among others, that “[...] *future research should especially focus on how to measure organizations’ success in OSN and the related monetary value*” and derives a set of research questions, including, “*How can the success of OSN activities be measured beyond reach? Which indicators allow for meaningful statements about the success of OSN activities? How can organizations value the ROI of their OSN activities?*” (p. 158) Figures 7-9 provide examples of (consecutive) queries that may help researchers to transform the sketched research gap into an actionable research agenda.

The three queries shown above are connected to the literature and to each other: query no.1 uses the research gap identified by Berger et al. (2014) to query what is known on how to measure organizations’ success in OSN and the related monetary value. Queries no. 2 and no. 3 then use two of the resulting potential benefits of using OSN, sales and marketing activities as well as improved customer service, to ask how both types of activities can be evaluated in terms of their ROI, which Berger et al. (2014) identified as a key metric in measuring organizations’ success in OSN in terms of monetary value. Researchers may use the answers to all three queries (and further consecutive queries) in their efforts to develop a research agenda on the measurement of organizations’ success in OSN.

The screenshot shows a chat window with a light blue header. The query is: "What are potential benefits for enterprises to make use of online social networks?". The response starts with a yellow star icon and says: "Online social networks can offer a number of potential benefits for enterprises, including:". This is followed by a bulleted list of six items: "Increased brand awareness", "Improved customer service", "Lead generation", "Sales and marketing", "Market research", and "Employee engagement". Each item has a short explanatory sentence. The list ends with "...".

Figure 7. Bard query no. 1: identifying types of organizations’ success in using OSN.

### 3.8. Discussion

The examples in this section show that various knowledge-creation activities through (standalone) literature reviews can be supported with GenAI tools. Using these tools does not release researchers from the need to think critically and show creativity. With regard to the former requirement, it holds that, for all activities, it should be taken for granted that the use of GenAI tools requires caution on the part of researchers, as results may include flaws and misleading information, maybe non-existent references. As with any other tool that supports academic research, results must not be considered “products” that are ready to use in scientific work. The latter requirement includes the challenge to researchers to develop a series of consecutive queries to GenAI tools and to adopt an iterative approach in order to derive promising results. It should be noted that the knowledge-building activities considered, which may benefit from using GenAI tools, include both backward-oriented (synthesizing, aggregating evidence) and forward-oriented knowledge activities (criticizing, theory-building, identifying research gaps, developing a research agenda) (Schryen, 2020). While it seems hardly surprising that GenAI tools can support backward-oriented knowledge-building activities, it may have

been considered less obvious that they can also foster forward-oriented knowledge-building activities.

**G** How can the ROI of sales and marketing activities in online social networks be measured?



There are a number of ways to measure the ROI of sales and marketing activities in online social networks. Some of the most common methods include:

- **Tracking website traffic:** This can be done by using Google Analytics or another web analytics tool. By tracking the number of visitors to your website from social media, you can see how much traffic your social media campaigns are driving.
- **Tracking leads:** This can be done by using a lead generation form on your website or by tracking email signups. By tracking the number of leads you generate from social media, you can see how many people are interested in your products or services.
- **Tracking sales:** This can be done by tracking the number of sales you make from social media leads. By tracking your sales, you can see how much money you are making from your social media campaigns.
- **Tracking brand awareness:** This can be done by using social media listening tools to track mentions of your brand on social media. By tracking brand awareness, you can see how

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**Figure 8. Bard query no. 2: measuring the monetary value of sales and marketing activities.**

**G** How can the ROI of customer service in online social networks be measured?

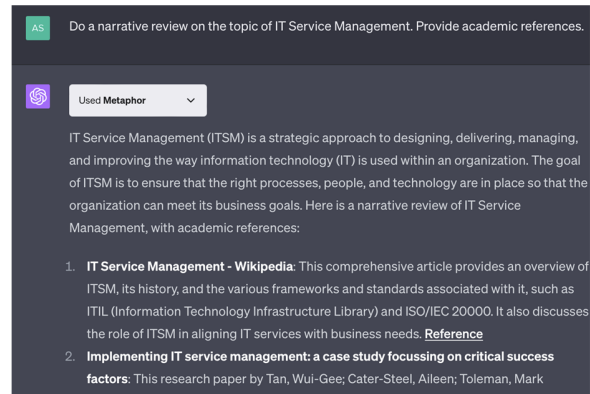
[The answer is not included due to space limitations.]

**Figure 9. Bard query no. 3: measuring the monetary value of sales and marketing activities.**

#### 4. Implications for review types

Having analyzed the potentials of GenAI tools for (standalone) LRs at the level of knowledge-building activities, we proceed with deriving implications for various types of LRs in the IS field (Paré et al., 2015), which can be perceived, from an epistemological perspective, as bundles of knowledge-building activities (Schryen et al., 2020). We would like to stress that our implications at the level of review types involve

deriving insights into the extent to which the bundle of key activities of particular reviews can be supported in a human-AI collaboration. It is not our intention to derive suggestions in the form of “create a review of type X on topic Y”, as our experiments, similar to those of Susarla et al. (2023), showed discouraging results. Figure 10 shows an example of how even version 4 of ChatGPT failed when asked to support compiling a “narrative review”.



**Figure 10. ChatGPT (version 4) query: a narrative review on the topic of IT service management.**

Narrative, descriptive, and scoping reviews aim to describe phenomena and belong to the review group that primarily summarizes prior knowledge and adopts a broad scope of questions. Narrative reviews are selective, as they do not involve a systematic and comprehensive literature search. They narratively summarize the literature and often contribute to identifying research gaps and developing a research agenda. In contrast, descriptive reviews pursue a representative search strategy. They analyze the extent to which a body of empirical studies in a specific research area supports or reveals interpretable patterns or trends. Beyond summarizing what is known about a topic, they usually also develop recommendations to influence the development of a topic, domain, or method. Scoping reviews adopt a comprehensive search strategy and examine research activities' extent, range, and nature. They usually also identify research gaps in the extant literature and develop a research agenda. All these types of reviews can benefit from GenAI tools in organizing literature synthesis, such as clarifying definitions and relationships between concepts and adopting a multi-view perspective. Additionally, GenAI can aid in identifying research gaps and formulating a research agenda through a series of queries, making it suitable for aiding narrative reviews with narrower focuses.



Critical reviews pursue the overarching goal of understanding phenomena and aim to summarize past knowledge and critically analyze the extant literature on a broad topic to reveal weaknesses, contradictions, controversies, or inconsistencies. They often provide a new direction to studies. Due to their focus on criticizing prior research and their disruptive nature, the benefit of GenAI tools for such reviews largely depends on the “creativity” of researchers to use these tools to criticize prior conclusions (see Section 3.3.). However, generating an appropriate series of queries can support researchers in this regard, as our example shows.

Theoretical reviews and realist reviews focus on explaining phenomena. Theory building can occur in different forms, including theory derivation, theory synthesis, and theory analysis. Realist reviews are theory-driven interpretative reviews; they synthesize evidence and dissemination of findings. GenAI has the potential to assist researchers in theoretical and realist reviews by enhancing the process of theory refinement and development. Through its language generation and analysis capabilities, GenAI can explore and synthesize diverse sources of evidence, facilitating the identification of key patterns, relationships, and explanatory factors. By leveraging GenAI, researchers can efficiently analyze large volumes of literature and extract insights that contribute to the formulation and refinement of theories, particularly in realist reviews where the goal is to uncover what interventions are effective, for whom, under what conditions, and why.

The final group of reviews, which share the overall goal of data aggregation and integration, consists of meta-analysis, qualitative systematic reviews, and umbrella reviews. They focus on a narrow set of questions. Meta-analysis focuses on the statistical aggregation of evidence. The current generation of GenAI tools is not able to support such tasks. Qualitative systematic reviews attempt to search, identify, select, appraise, and abstract data from quantitative empirical studies. While employing the typical systematic review process, they use narrative and more subjective (rather than statistical) methods (Paré et al., 2015). Due to its narrow set of research questions, this type of review may particularly benefit from activities that support synthesizing research and identifying research gaps. Umbrella reviews, also referred to as *umbrella review*, *overview of systematic reviews*, *systematic review of systematic reviews*, and *meta-reviews*, involve various activities of synthesizing prior research, aggregating evidence, and identifying research gaps under a more narrow set of research questions. The benefits of using GenAI tools for umbrella reviews are similar to those for qualitative systematic reviews.

GenAI tools present a fascinating mosaic of potentials within the broad spectrum of literature review types. The realization of these potentials, however, hinges on the nuanced collaboration between GenAI and researchers. It is imperative for researchers to recognize their unique strengths, such as intuition, nuances discerning, and deep critical thinking, as well as GenAI’s relative advantages, such as rapidly scanning vast databases, identifying patterns, and coding themes from excerpts with consistency (Dasborough, 2023; Pan et al., 2023). Recognizing respective strengths paves the way for delegating appropriate literature review tasks to GenAI tools, such as coding themes. This delegation then mandates a continuous GenAI-researcher interaction. For instance, tasks assigned to GenAI should be under vigilant scrutiny by researchers to ensure quality, such as checking the codes with original excerpts. Conversely, roles that remain human-centric, like theory building in theoretical reviews, can still benefit from GenAI, where researchers can dialogue with GenAI and allow it to refine and challenge human insights. The appropriate delegation of tasks to GenAI and iterative GenAI-researcher interaction should improve the efficiency and quality of literature reviews.

## 5. Conclusions

In this article, we adopt an epistemological perspective on how GenAI tools may support IS researchers (in a human-AI collaboration setting) in developing knowledge through standalone literature reviews. Thereby, we focus on pursuing the innovation goal of GenAI tools in scientific research, rather than their communication goal. We argue and illustrate that the potentials of GenAI tools largely depend on and vary between the particular knowledge creation activities. This diversity leads to a more detailed understanding of how GenAI tools can assist in developing different types of literature reviews, addressing the research question posed in our introduction. Our experiments with various GenAI tools lead to positive results, which invite further research on how such tools may (or may not) support scholars in pursuing the innovation goal of their research.

As presented in recent studies, a significant evolution has occurred within a relatively brief period regarding the development and usage of these tools. This progression includes claims of reducing the capabilities of ChatGPT – often colloquially referred to as ‘nerfing’ – and the continual introduction of innovative features, such as plugins and web browsing capabilities. Therefore, it is crucial for researchers to be well-informed about the advancements in this evolving field.

Overall, our study contributes to the academic community by enhancing an understanding of the potential of GenAI tools and their role in supporting researchers in their pursuit of innovative knowledge creation through literature reviews.

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