Studi Ilmu Manajemen dan Organisasi (SIMO)
ISSN 2745-7826, Vol 6, No 4, 2026, 397-414 https://doi.org/10.35912/simo.v6i4.4764

Conceptual Review of Artificial Intelligence Over Reliance: Opportunities and Challenges for Employee Competencies

Apida Apida[1], Riska Dhenabayu[2], Abidah Ardelia[3], Aulia Kartika[4], Fathiya Fairuz Shafa Mahfuzhah[5], Nadiya Nafisa Az Zahra[6], Ika Diyah Candra Arifah[7]
Universitas Negeri Surabaya, Surabaya, Indonesia[1,2,3,4,5,6,7]
apida.23062@mhs.unesa.ac.id[1], riskadhenabayu@unesa.ac.id[2], abidah.23189@mhs.unesa.ac.id[3], auliakartika.23027@mhs.unesa.ac.id[4], fathiya.23050@mhs.unesa.ac.id[5], nadiya.23005@mhs.unesa.ac.id[6] , ikaarifah@unesa.ac.id[7]

Article History:
Received on 04 June 2025
1st Revision on 19 June 2025
2nd Revision on 30 June 2025
3rd Revision on 02 September 2025
Accepted on 11 September 2025

Abstract
Purpose: This study aims to conceptually examine the phenomenon of AI over-reliance and its impact on employee competence in the digital era, particularly in human resource management.
Research Methodology: A Systematic Literature Review (SLR) was conducted using 15 scientific articles selected for their relevance to AI over-reliance and human resource competencies.
Results: The findings revealed that over-reliance on AI stems from four main factors: the perception of AI as a neutral authority, low AI literacy, automation bias that fosters excessive trust in technology, and system designs that discourage reflective user engagement. These factors contribute to reduced cognitive abilities, such as critical thinking and independent judgment, while diminishing human involvement in decision making. Furthermore, over-reliance on AI raises concerns about job displacement anxiety and promotes deskilling across sectors.
Conclusions: Overreliance on AI challenges employee competence and decision-making capacity, necessitating strategic responses in system design, digital literacy enhancement, and human-AI collaboration frameworks.
Limitations: This conceptual study is based solely on a literature review, limiting its empirical generalizability and contextual depth.
Contributions: This study contributes to a deeper understanding of AI over-reliance and its implications for human resource management. This study offers insights for organizations to mitigate the negative effects of AI while leveraging it to enhance employee competence.

Keywords: *Artificial Intelligence, Employee Competence, Human Resources, Over-Reliance On Artificial Intelligence.*

How to Cite: Apida, A., Dhenabayu, R., Ardelia, A., Kartika, A., Mahfuzhah, F. F. S., Zahra, N. N. A., & Arifah, I. D. C. (2026). Conceptual Review of Artificial Intelligence Over Reliance: Opportunities and Challenges for Employee Competencies. *Studi Ilmu Manajemen dan Organisasi,* 6(4), 397-414.

1. Introduction

Technology has developed rapidly, with Artificial Intelligence (AI) emerging as a strategic driver of efficiency and innovation in the digital era, particularly in Human Resource Management (HRM). AI enables automation in recruitment, performance evaluation, talent management, and big-data-based decision-making (Andini, Mukayah, & Ismail, 2025). Beyond functioning as a tool to support human tasks, AI influences the restructuring of work and organizational practices (Brougham & Haar, 2018).

Nevertheless, AI adoption raises a growing concern: over-reliance on AI systems. When individuals or organizations place unquestioned trust in AI outputs without critical validation, it can result in systematic errors, out-of-context decisions, and declining employee competence (Davenport & Kirby, 2016). Such conditions may gradually weaken analytical skills, reduce professional initiative, and contribute to long-term skill decay, including diminished adaptability and creativity, in dynamic work environments (Dikmen & Burns, 2022).

This issue is becoming increasingly urgent as companies undergo large-scale digital transformations. Without strong HR adaptation strategies, organizations risk skill imbalances and declining employee morale. Davenport and Kirby (2016) warned that unbalanced AI use can create a paradox: while efficiency improves, human capabilities may erode. Conversely, AI also has the potential to strengthen learning quality, support reskilling and upskilling, and generate new technology-driven job opportunities (Elish, 2025). Thus, AI overreliance presents both risks and opportunities, depending on how it is managed.

Recent studies have further highlighted this duality. For instance, Jarrahi (2018) underlined the value of human AI collaboration in augmenting decision-making but did not explore the risks of excessive dependency. Similarly, Faraj, Pachidi, and Sayegh (2018) show that AI can reshape work structures through task redistribution; however, they stop short of analyzing its long-term impact on employee skills and adaptive capacity. More recent HRM research (Bujold et al., 2023; Qin, Jia, Luo, Liao, & Huang, 2023) tends to emphasize AI's role in enhancing efficiency, fairness, and recruitment quality while overlooking the unintended consequence of declining human initiative. These studies indicate that while AI's benefits of AI are well documented, the risks of overreliance on AI and its implications for employee competencies remain underexplored.

Existing research predominantly highlights the operational benefits of AI, whereas the implications of AI dependence on employee competencies remain unexplored. Studies on human AI collaboration often focus on technology design or user experience, with limited attention paid to shifts in cognitive structures, skill formation, and work organization (Faraj et al., 2018). Consequently, there is a clear research gap: few studies have proposed a comprehensive conceptual framework that systematically maps both the opportunities and challenges of AI over-reliance in HRM in the digital era.

To address this gap, this study develops a conceptual framework of AI over-reliance and its impact on employee competence. This study pursues three objectives: (1) to identify the conditions and causes of AI over-reliance in digital workplaces, (2) to analyze its positive and negative impacts on HR development, and (3) to propose AI management strategies that enhance human AI collaboration while preventing harmful overdependence. To achieve this goal, this study addresses two main questions:

1. What are the main conditions and causes of AI over-reliance in digital work environments, and how does this phenomenon affect employee competency development?
2. How can AI management strategies be designed to optimize collaboration between humans and AI in improving employee competencies to prevent over-reliance on technology?

This study makes three key contributions to the literature. Theoretically, it introduces a novel lens by linking AI over-reliance to the concepts of technological servitization and re-ontological insecuritization (Fauziah, Faeni, & Fikri, 2024), offering new insights into the relationship between technological dependence and employability. Practically, it provides HRD and management with actionable guidelines for designing training programs and governance mechanisms to balance AI use and human competency development. Socially, it promotes ethical and responsible AI utilization, ensuring that technology serves as a human enabler, rather than a substitute.

2. Literature Review

2.1 Human Artificial Intelligence Collaboration

Collaboration between humans and Artificial Intelligence (AI) is the main focus of workplace transformation in the digital era. As technology advances, AI acts not only as a tool but also as a strategic partner in decision-making. According to Gasser and Almeida (2017), the integration of AI at the team

level poses new challenges in terms of trust, communication, and work roles, but also opens up great opportunities to create synergies between humans and machines.

The concept of collaborative intelligence underpins this new working relationship, where AI contributes to analytic speed and precision, while humans supply intuition, value, and context. Gaube et al. (2021) emphasized that the implementation of AI in HRM requires managerial, cognitive, and social competencies-including adaptability in managing the human-AI working relationship. He mentioned that although AI is capable of processing big data, its limitations in mimicking ethical and contextual considerations make the role of humans essential. For this collaboration to be optimal, a work design that supports synergistic interactions, ongoing training, and policies that build trust and transparency between humans and machines is required.

2.2 Over-Reliance and Skill Erosion

Increasingly sophisticated AI is capable of simplifying work processes, but it also gives rise to the phenomenon of over-reliance, which erodes human skills. Hutasoit, Satriawan, Khaddafi, and Friadi (2025) showed that overreliance on AI dialog systems led to a decrease in critical thinking capacity, information retention, and independent evaluation. This is in line with the findings of Jarrahi (2018), who stated that individuals tend to follow AI suggestions even if they go against their own judgment, indicating low AI literacy and blind dependence on the system. In an educational context, this creates a risk of knowledge homogenization (knowledge collapse) as also alluded to by Klingbeil, Grützner, and Schreck (2024), where diverse perspectives are replaced by a single narrative from AI. To address this, Makridakis (2017) recommended strengthening social, emotional, and change management competencies to enable individuals to respond to AI wisely and reflectively. Therefore, AI literacy should include technical, cognitive, and ethical aspects to prevent the erosion of essential skills.

2.3 Cognitive Load and Decision Making

AI makes it easier to access information, but without the right system design, it can increase the cognitive load on users. When AI is perceived as "always correct," users tend to delegate decision-making responsibility to the machine, as demonstrated by Elish (2025) and confirmed in the research by Mei, Pang, Lyford, Wang, and Reinecke (2025), which shows a tendency for students to opt for quick solutions from AI rather than engaging in reflective and deep thinking. Passi and Vorvoreanu (2022) showed that the style of AI system explanations influences users' cognitive load.

Counterfactual explanations appear more complex but have been shown to help users think more critically. This is consistent with Rai (2020) Adaptive Cognitive Fit framework, which states that information from AI needs to be tailored to users' cognitive levels and needs and cannot be used directly. Overreliance not only slows down reflection but also has the potential to reduce evaluative and argumentative abilities, especially among students and young employees. Therefore, AI should be designed not only for technical efficiency but also to support users' cognitive development through explanations that encourage active participation and reflection.

2.4 Organizational Adaptability

Organizations can adapt to AI not only in terms of technological readiness but also through cultural, structural, and business strategy transformations. Ryan and Deci (2024) identify that AI adoption in organizations can be considered effective with human and social intervention to support cross-functional integration. Without this, AI implementation will only be a technological experiment with no strategic value. In the context of organizations in Southeast Asia, Takrim, Shalahuddin, and Yusup (2024) emphasized the importance of change competence and collective capability development to adapt work roles in the digital age.

Another study by Tambe, Cappelli, and Yakubovich (2019) also shows that AI demands cross-sector transformation, from manufacturing to services, and that adaptability is a key element of organizational resilience. Organizational resilience can be enhanced through continuous training, workflow restructuring, and artificial intelligence integration to drive innovation and market responsiveness. In this context, adaptability is not merely a means of survival but also a strategic asset in leading change.

2.5 Digital Competency

Digital competence is at the core of organizational and individual readiness in the face of technological disruptions. Thomas and Uminsky (2022) highlighted that in HRM, these competencies not only concern technical skills, but also include human-AI collaboration capabilities, mentoring, and managing technology-based employee experiences. Van Laar, Van Deursen, Van Dijk, and De Haan (2017) classified digital competencies into four dimensions: technical, cognitive, social, and change management. These dimensions are relevant across multiple sectors, including education and public service. In the MSME sector, the success of digitalization is highly dependent on the organization's ability to build a learning culture and a data-driven knowledge system. Therefore, digital competency development cannot stand alone but must be part of a broader organizational strategy that includes cross-generational training, inclusive leadership, and internal support systems.

2.6 Automation Bias in the Use of Artificial Intelligence Technology

Automation bias refers to the tendency of humans to uncritically accept the output of AI systems, even when the results are incorrect. Hutasoit et al. (2025) showed that users tend to trust AI recommendations without considering contextual information or personal evaluation, leading to less accurate decision-making. This is reinforced by the findings of Wilson and Daugherty (2018), who identified that organizations often rely too much on AI-based systems to address performance issues without facilitating users' active cognitive engagement. Zayeed (2025) found that this bias is intensified in educational contexts, where students passively accept AI suggestions, ignoring the process of validation and reflection. This phenomenon has led to decreased thinking autonomy and increased delegation of decisions to machines.

This problem is compounded by the misperception that AI is objective and is free from bias. Elish (2025) highlights that when AI is viewed as a "neutral authority," humans tend to suspend personal judgment and lose responsibility for decision outcomes. Therefore, AI literacy should include an understanding of the limitations of the system, as well as strengthening the capacity for critical thinking in interactions with technology. Overcoming automation bias requires interventions in system design (e.g., informative and interactive explanations), as well as training users to process information with healthy skepticism. Zhai, Wibowo, and Li (2024) emphasized the need for social and cognitive competencies that support the conscious and responsible use of AI.

2.7 Technology Acceptance Model

The Technology Acceptance Model (TAM) framework is a relevant and widely used theoretical tool for understanding how individuals and organizations accept and use Artificial Intelligence (AI). TAM explains that technology acceptance is determined by two main factors: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) by Van Laar et al. (2017). These two factors shape the user's attitude towards the technology, which then influences the user's intention and actual behavior in adopting the technology.

In the context of AI adoption, Wilson and Daugherty (2018) showed that the successful implementation of AI in HR management systems is determined not only by technical capabilities but also by employees' perceptions of the benefits and ease of use of AI in their tasks. When AI systems are perceived as too complex or irrelevant to job needs, resistance to technology adoption increases. This finding is also in line with a report from Hutasoit et al. (2025), who stated that the success of AI in HRM depends heavily on user-friendly system integration and the clarity of practical benefits perceived by users.

In addition, Zhai et al. (2024) revealed that trust in AI strongly influences users' decisions to follow or reject AI system recommendations. This is in line with recent modifications of TAM such as Trust-enhanced TAM, which adds trust as an important predictor in the context of autonomous technology or AI. The literature also highlights that perceptions of AI usability can be shaped by positive experiences during initial interactions, effective training, and user-friendly interface design. Zhai et al. (2024) emphasized the importance of proactive educational strategies and digital skills training to improve perceived usability and reduce barriers to technology acceptance in various sectors.

Thus, the application of TAM in the context of AI is important for understanding the dynamics of technology acceptance. Organizations looking to successfully integrate AI should pay attention to users' perceptions of usefulness, convenience, and trust in the system. Experiential training, clear communication, and user participation in system design are strategies that can increase the success of AI-based technology implementation in healthcare.

2.8 Job Displacement Anxiety & Deskilling Theory

One of the socio-psychological impacts of the widespread integration of AI in the workplace is the emergence of job displacement anxiety, which is the anxiety that workers experience regarding the possibility of losing their jobs due to automation and replacement by technology. Deskilling theory corroborates this concern, explaining that technological advances can reduce the need for certain skills and encourage simplification of previously complex jobs.

Thomas and Uminsky (2022) confirm that AI adoption has the potential to accelerate workers' transition to new roles that require different skills, especially transversal skills such as critical thinking, self-management, and collaboration. However, this transition is not always accompanied by individual or organizational system readiness, leading to tension and insecurity among employees. The World Economic Forum (2020) predicts that 50% of global workers will require retraining before 2025 in response to AI-driven competency shifts.

In the context of deskilling, Takrim et al. (2024) emphasize that AI has the potential to automate tasks that previously required human expertise, thus devaluing certain skills. Consequently, many workers are downgraded in their roles or are no longer required to use previously essential capabilities. Therefore, organizations must proactively address the psychological and structural impacts of this phenomenon through planned upskilling and reskilling strategies. This is not only important for maintaining productivity but also for maintaining the confidence and psychological well-being of the workforce in the face of an ever-evolving digital age.

3. Research Methods

The method used in this research is the literature study method, which focuses on an in-depth review of relevant written sources to understand certain phenomena. This method was chosen because it is suitable for exploring topics that are still developing and have not been widely discussed empirically, especially those related to human interaction and artificial intelligence in the context of the world of work. The data in this study were obtained through a Systematic Literature Review (SLR) method of 15 scientific articles selected based on their relevance to the main theme, namely, AI over-reliance and Human Resource (HR) competence.

The SLR approach was chosen because it allows for a structured and thorough compilation of findings to provide a more comprehensive understanding of the development of existing research, especially on topics that are still developing and have not been widely discussed empirically. To ensure that the journal selection process is carried out systematically and transparently, this study uses the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) approach/framework. Through this approach, the literature screening process becomes more measurable and credible as a basis for analysis in answering the research questions. Literature sources were obtained from Scopus, Google Scholar, and Publish or Perish. The keywords used in the journal search process included: "AI over-reliance," "dependence," and "employee." The results of this journal search and selection process are visualized in the PRISMA diagram.

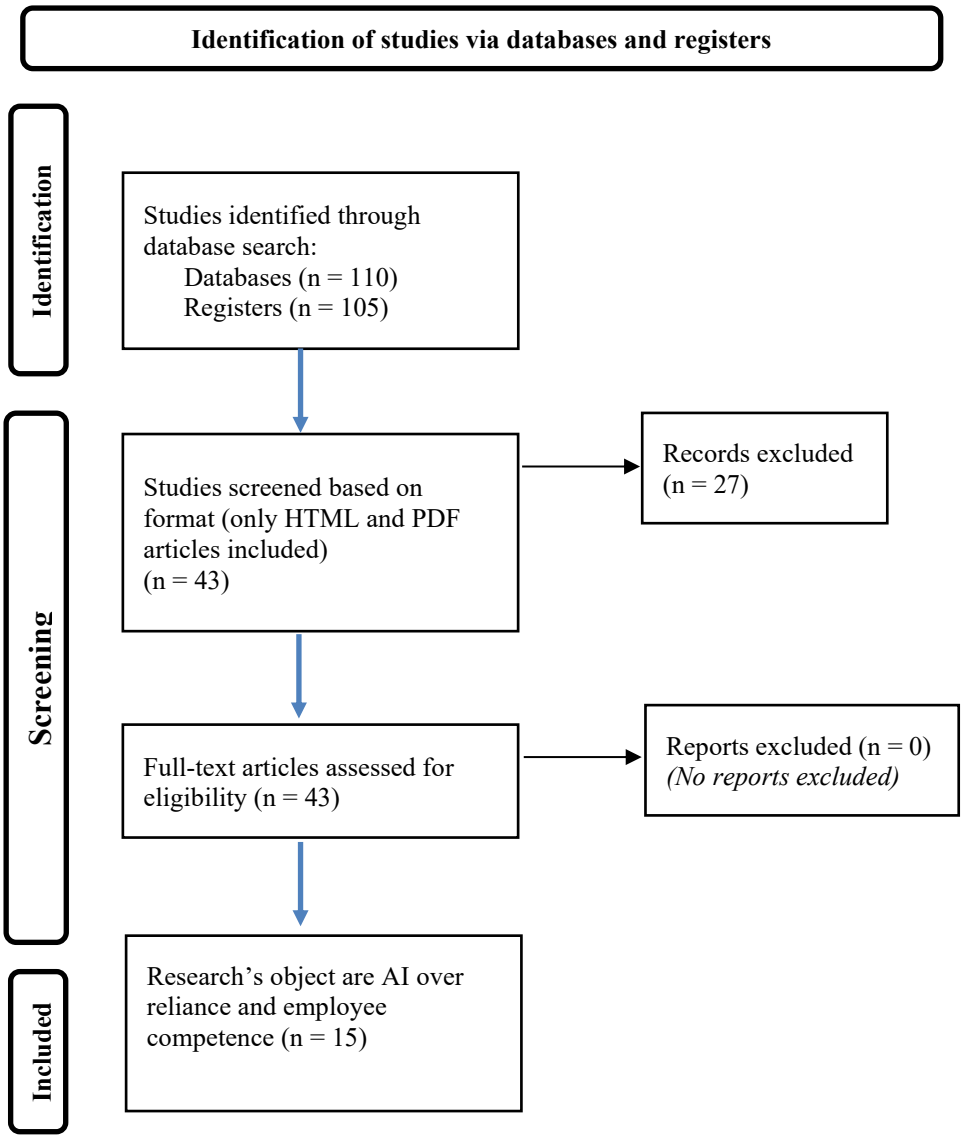

Figure 1. PRISMA diagram

4. Result and Discussions

4.1 Result

4.1.1 Data Analysis with Publish or Perish Using Google Scholar

The Publish or Perish application is a tool used to support researchers in searching for and evaluating published scientific papers. In this study, data were collected through the Google Scholar database using the Publish or Perish platform, with the search keywords: "AI Over Reliance," "dependence," and "employee." The search results displayed 105 relevant scientific articles, consisting of publications in journals, conference proceedings, and other scientific citations that discuss topics related to AI over-reliance, especially in relation to competency transformation and HR management in the digital work environment. These data were further filtered through the PRISMA flow until 15 articles were selected for further analysis.

4.1.2 Data Analysis with VOS viewer

Bibliometric visualization in this study was performed using the VOS viewer application to determine the relationship between key terms in the analyzed literature. This method uses a co-occurrence analysis approach based on keywords that appear in the titles and abstracts of selected articles. This analysis displays the visual distribution of key terms in the literature related to AI over-reliance, using a bibliometric approach with the VOS viewer application. The colors in the visualization reflect the groups or clusters formed based on the closeness of the relationship between terms, namely:

- Red (Cluster 1)
- Green (Cluster 2)
- Blue (Cluster 3)
- Yellow (Cluster 4)
- Purple (Cluster 5)
- Light blue (Cluster 6)
- Orange (Cluster 7)
- Brown (Cluster 8)

Each cluster consists of certain items based on the results of the analysis of 16 selected articles that underwent the selection process using the PRISMA method. This analysis was conducted using a co-occurrence approach and association strength method applied in VOS viewer.

Table 1. Article keyword clustering

Cluster	Items
Cluster 1 (9 Items)	AI Literature Review Experiment Study Cost Fundamental Challenge Metric Overreliance Reliance Trust
Cluster 2 (7 Items)	AI Adoption Industry Intelligent Decision Maker Pathway Skill Transformation Sustainable Competitive Workforce
Cluster 3 (7 Items)	Age AI Dialogue System Effect Employee Competency Southeast Asia Students Cognitive Ability Systematic review
Cluster 4 (6 Items)	Change Critical Review HRM Framework Opportunity Research Agenda Workplace
Cluster 5 (6 Items)	Impact Organisation Reskilling Skills Upskilling Worker
Cluster 6 (5 Items)	Challenge Conceptual Assessment Human Workers Interaction Potential HRM Strategy Team Level

Cluster 7 (3 Items)	Challenges Future Direction Human Resource Management
Cluster 8 (3 Items)	Artificial Intelligence Employee Multinational Corporation

The Table 1 shows from the visualization results in the VOS Viewer, three significant key terms were identified: artificial intelligence, systematic review, and reliance. These three terms are in a network consisting of 46 terms (items) and are divided into eight different clusters. The term artificial intelligence dominates the network and is closely connected to other terms such as impact, employee, and opportunity, which indicates the literature's focus on technological advancements and their effects on the work environment. Meanwhile, systematic reviews appear in Cluster 3, which includes the terms workplace and industry, indicating that a methodological approach was used in the review. The terms reliance and overreliance formed a separate cluster that focused on the phenomenon of dependence on AI.

The colors in the display also show the distribution of publication years, with a gradation from blue (2022) to yellow (2025), showing a shift in topic focus from the initial impact of AI to contemporary issues, such as skills transformation and AI application. Although the relationship between terms is quite limited, this structure still provides important insights into the direction and focus of the literature, which is still centered on the main theme, especially regarding the relationship between methodological approaches and the phenomenon of AI dependency.

This structure indicates that the existing literature is still centered on the core theme and is not too topically dispersed, which opens up opportunities for further exploration of the relationship between AI and human resource competency development in the context of digital work. After understanding the cluster division and key terms, further analysis was conducted using four types of visualizations in VOS viewer: network visualization, overlay visualization, density visualization, and Cluster Visualization.

4.1.3 Network visualization

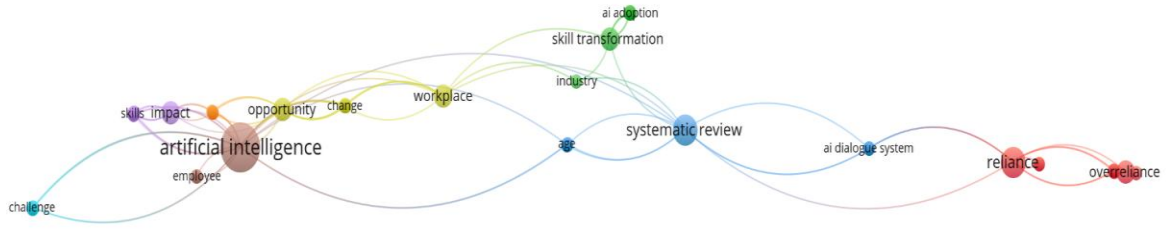

Figure 1. Network visualization

Figure 1 depicts a network visualization illustrating the interrelationships between key terms in the AI over-reliance topic. Each node represents a keyword found in the literature, while the lines connecting them show the relationship or co-occurrence of the terms. The colors used mark the different topic clusters, where different colors indicate the grouping of terms into specific clusters based on their co-occurrence in the literature. The red cluster contained terms such as reliance and overreliance, indicating a focus on AI dependency issues. The blue cluster highlights systematic reviews as a methodological node connecting other terms.

Meanwhile, the brown cluster groups artificial intelligence terms with concepts such as employees. In addition, the green (skill transformation, AI adoption), yellow (opportunity, workplace, change), purple (skills, impact), and light blue (challenge) clusters enrich the topic map with various perspectives on AI adoption and its impact on the world of work. Although the connection between terms is not very

dense, this visualization still provides a comprehensive initial mapping of the main focuses in the literature, especially regarding the issue of AI over-reliance and its relevance to the transformation of human resource competencies in the era of artificial intelligence.

4.1.4 Overlay visualization

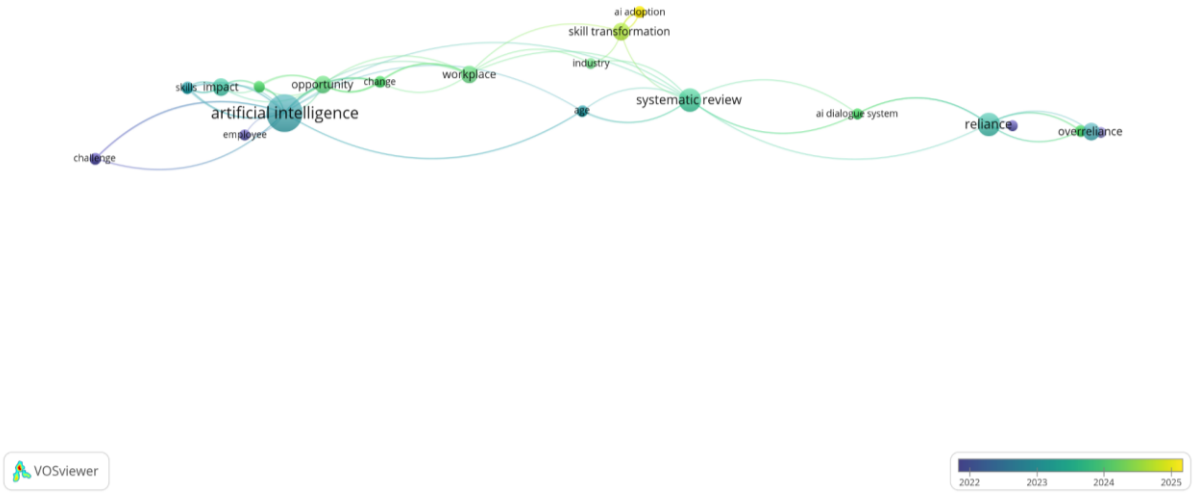

Figure 2. Overlay visualization

Figure 2 illustrates the progression of research related to AI over-reliance. The colors in this visualization reflect the publication time of the articles, with a spectrum ranging from blue to yellow. Blue represents terms that appeared in earlier publications from 2022 to 2023, while yellow signifies the emergence of new terms that reflect the current direction of research development until 2025 and indicate a higher level of novelty. Based on this visualization, it can be seen that the term artificial intelligence is the dominant early topic discussed, marked in turquoise. This term is closely related to the keyword's employee, skills, impact, and opportunity, illustrating the initial focus of research on the impact of artificial intelligence on the workforce and potential changes in the workplace.

Over time, research attention began to turn to the issues of reliance and overreliance, which are shown in a brighter color, green-yellowish. This color signifies that the terms are starting to appear in more recent publications, reflecting a degree of novelty and increased attention to these topics in the field of AI research. It also shows the growing urgency to evaluate the risks of dependency on AI systems, along with growing concerns about the negative impacts of the overuse of AI in work processes and decision-making.

Meanwhile, the term systematic review sits in the middle of the color spectrum (green), indicating that this approach is used consistently to summarize and analyze findings in this field. Terms such as skill transformation, industry, and AI adoption in yellow mark recent topics that are gaining traction, indicating that the focus of research is now on how skill transformation and AI adoption occur in the context of industry and digital work environments. This visualization shows that the focus of research has shifted from the early exploration of AI technologies to a deeper understanding of their impact on human roles. This shift reflects the increasing attention to AI dependency, particularly in the context of human resource competencies in digital work environments. The emphasis on newer topics and novelty suggests that this issue is increasingly relevant and urgent in the current research landscape.

4.1.5 Density visualization

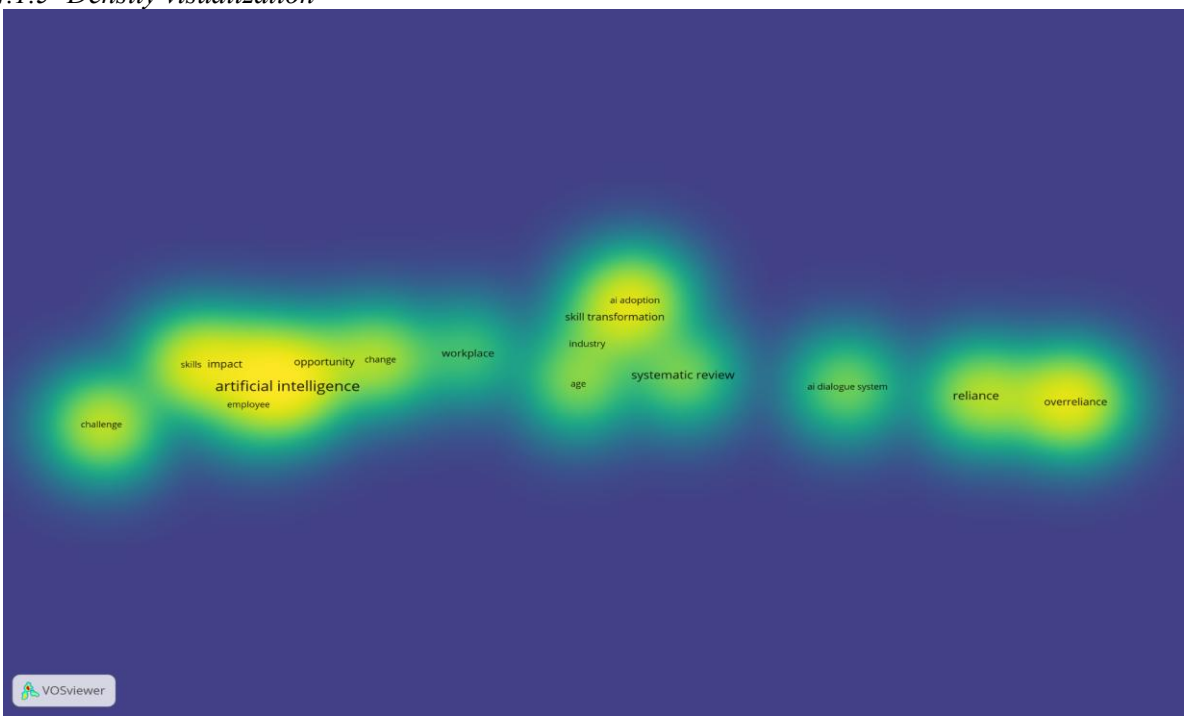

Figure 3. Density visualization

Figure 3 presents a visualization of the density of terms in artificial intelligence (AI) literature through bibliometric analysis using the VOS viewer tool. This visualization maps the distribution of terms based on their frequency in the set of articles analyzed, with color gradations indicating the density level. Yellow indicates the highest frequency, while green and dark green indicate less frequent terms. The visualization results show that the term artificial intelligence has the highest density, reflected by the brightest yellow color.

This indicates that this term is the main focus of the analyzed literature, in line with AI's position as a core technology in digital transformation. Terms such as skills, impact, employee, and opportunity also appear in areas of high intensity, suggesting a close link between AI technology and workforce competency transformation. In contrast, the terms reliance and overreliance appear in a newer section with a yellow-greenish color, signifying the emerging attention to the issue of reliance on AI systems in recent publications. This reflects the increasing urgency of evaluating the risks posed by the overuse of AI in work and decision-making contexts.

Meanwhile, the terms systematic review and transformation are in the light green area, showing that systematic review methods and skills transformation themes have become an important part of scientific discourse, although not as intense as the main topics. As such, this visualization not only maps the development of up-and-coming topics but also helps to see how the orientation of research is shifting from early explorations of technology towards more critical assessments of its impact on the role of humans in the digital age.

4.1.6 Cluster visualization

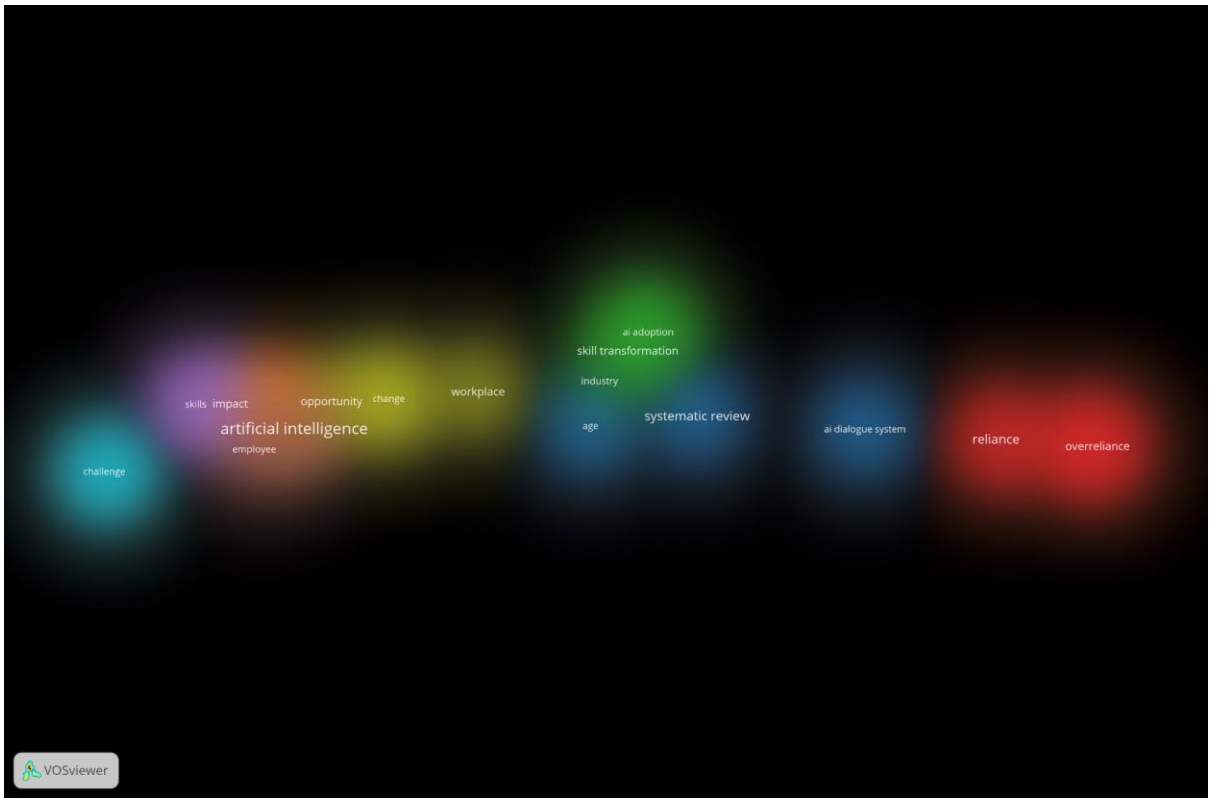

Figure 4. Cluster visualization

Figure 4 shows the cluster density visualization of the bibliometric analysis results using the VOS viewer tool. This illustration groups important terms into clusters based on their association with and frequency of occurrence in the literature. Lighter colors indicate a higher density or frequency of terms, whereas darker colors indicate a lower density. In this figure, the term artificial intelligence is in the center with the lightest color, indicating that this topic is the main focus of the analyzed literature. The surrounding purple and yellow clusters contain terms such as skills, impact, opportunity, and workplace, which illustrate the relationship between AI and work transformation and its effect on employees.

The green cluster contains terms such as skill transformation and AI adoption, highlighting changes in competencies in the face of AI integration. Meanwhile, the red cluster shows the terms reliance and overreliance, indicating that the research focuses on the impact of overreliance on AI. This visualization helps clarify the conceptual structure of the analyzed research and shows the direction of the shift in focus from AI technology to its implications for people and the world of work. As such, this visualization not only illustrates how often certain terms appear but also how they form clusters of themes that are relevant in the study of artificial intelligence.

4.1.7 Data Analysis Using Excel

Analysis was conducted on 110 articles obtained from Publish or Perish (PoP) within the last five years (2020-2025), which included citation data and publisher information. Next, an initial filtering stage was carried out by selecting journals that were available in PDF and HTML formats to facilitate the download and analysis. After filtering, the number of journals that met these criteria was reduced to 43. The next stage was filtering based on the relevance of the journal content to the research topic, resulting in 15 journals being used for further analysis. Based on the results of the data recapitulation, ten publishers with the highest number of publications were identified, as presented in the following table.

Table 2. Top publisher 2020-2025

Publisher name	Count of publisher
ACM	26
Springer	12
Elsevier	9
Frontiers	4
Taylor &Francis	4
LWW	3
MDPI	3
OUP	3
Others	9

The data in Table 2 show that dl.acm.org is the publisher with the highest number of publications (26 articles), followed by Springer (12 articles) and Elsevier (9 articles). This shows that these publishers have made significant contributions to the topic under review. The dominance of several highly reputable publishers, such as Springer and Elsevier, shows that the reference sources used in this study come from valid and quality publications, which gives strength and credibility to the research topic studied, which is an issue that has received great attention in the academic realm.

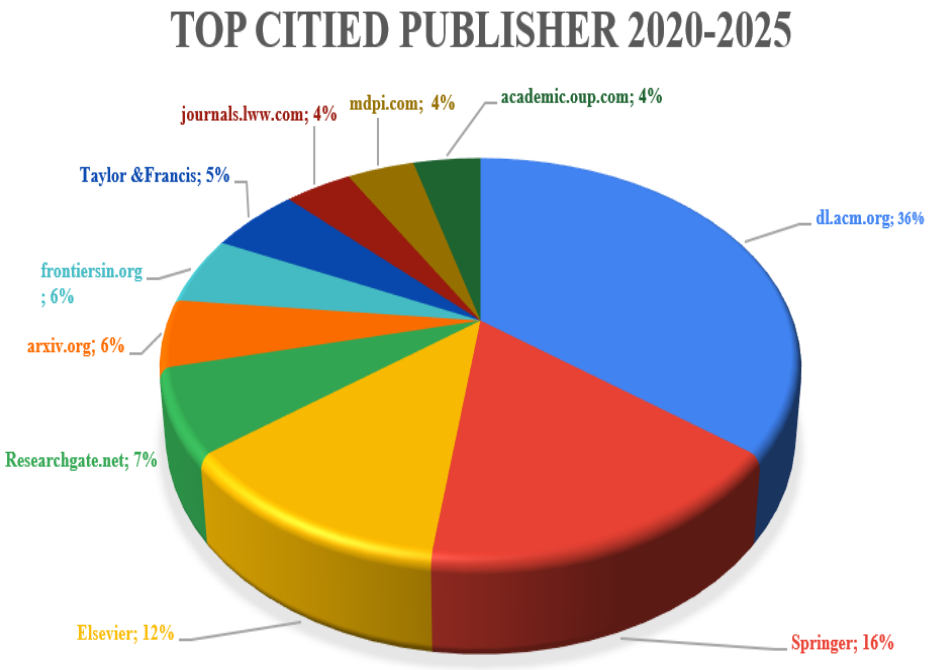

Figure 5. Pie chart top publisher

4.2 Discussions

4.2.1 Conditions and Causes of Excessive Dependence on Artificial Intelligence

4.2.1.1 Factors Causing AI Over-Reliance

While digital transformation promises efficiency, it also introduces subtle cognitive and organizational risks to the workforce. Overreliance emerges not merely because AI appears more accurate, but because humans often surrender their evaluative agency once "machine objectivity" is perceived as superior (Takrim et al., 2024). Dikmen and Burns (2022) showed that domain expertise significantly reduces blind compliance with AI, suggesting that trust in AI is not inherently dangerous, but its effects are conditional on user competence.

This raises critical tensions, as Arslan, Cooper, Khan, Golgeci, and Ali (2022) argue for "collaborative intelligence," where trust in AI complements human decision-making. However, empirical patterns such as automation bias (Elish, 2025) or the "Do as AI say" effect observed in healthcare (Cecil, Kleine, Lermer, & Gaube, 2025; Gaube et al., 2021) demonstrate that collaboration often collapses into a deference. Instead of supporting human autonomy, AI nudges professionals into passive dependence, even in high-stakes contexts. Furthermore, low digital literacy magnifies this vulnerability. Tambe et al. (2019) showed that employees with insufficient digital competence tend to engage impulsively with AI outputs, while Hutasoit et al. (2025) found that digital competence enhances performance and autonomy. These findings suggest a paradox: the same technological literacy that empowers can also entrench dependency if organizations fail to align training with reflective practice.

The problem is not only individual but also systemic in nature. Minimal cognitive interaction in AI design (Cau & Spano, 2025) pushes employees toward shallow engagement, while organizational neglect in training strategies (Babashahi et al., 2024) accelerates the deskilling process. Anxiety about job displacement further compounds this, creating a compliance culture in which employees choose to conform to AI systems rather than challenge (Morandini et al., 2023). These factors illustrate that AI over-reliance is not a natural consequence of technology but a socially constructed outcome of design choices, competence gaps, and organizational cultures of fear.

4.2.1.2 The Impact of Over-Reliance on Artificial Intelligence on Employee Competence

The consequences of overreliance extend beyond short-term errors; they risk reshaping employee competence in enduring ways. Zhai et al. (2024) documented how AI use, especially dialogue systems, erodes higher-order cognitive skills, such as critical thinking and problem-solving. This aligns with Thomas and Uminsky (2022) critique that reliance on AI metrics does not merely substitute skills but alters decision priorities, replacing nuanced human judgment with reductionist indicators. Anxiety about redundancy also undermines intrinsic motivation to learn (Morandini et al., 2023), particularly among younger employees who may lack resilience when confronted with the pressures of automation. Takrim et al. (2024) underline that millennial HR professionals require tailored leadership training, pointing to the generational dimension of AI-induced competence shifts.

Moreover, Peterson (2025) warns of a looming "knowledge collapse" when AI dominates organizational reasoning, leading to homogenized outputs and a decline in epistemic diversity in the workplace. If unchecked, this dynamic risks not only skill erosion but also collective cognitive narrowing. However, Andini et al. (2025) demonstrate that knowledge management practices can buffer these risks, reinforcing that human-centered organizational routines remain vital even in AI-integrated environments. Thus, the impact of over-reliance should not be understood as a simple skill loss but as a multi-layered erosion of individual cognition, motivational resilience, and organizational knowledge ecosystems.

4.2.2 Strategies for Managing Artificial Intelligence Use for Balanced Collaboration

Preventing excessive dependence requires a proactive framework that positions AI as a cognitive partner rather than a substitute. While prior studies emphasize operational benefits (Arslan et al., 2022; Deepa, Sekar, Malik, Kumar, & Attri, 2024), this study argues that the real challenge lies in designing systems, cultures, and competencies that sustain human autonomy in the age of automation.

1. System Design for Critical Engagement. Samuel, Kashyap, Samuel, and Pelaez (2022) and Cau and Spano (2025) propose adaptive cognitive fit models, yet current practice often reduces explainability to static outputs. Building interactive, counterfactual, and user-tailored explanations is essential not only to enhance trust but also to retrain critical faculties that might otherwise atrophy. This is especially urgent given Fauziah et al. (2024), who found that learning agility and training interact with commitment to drive performance AI must become a tool that cultivates, not suppresses, these dynamics.
2. Embedding Ethics and Accountability. Jarrahi (2018) notes that AI cannot grasp moral nuances; hence, ethical scaffolding must remain a human domain. Integrating emotional and spiritual intelligence Zayeed (2025) into AI governance reinforces accountability, ensuring that algorithmic efficiency does not override the contextual empathy.

3. Inclusive and Adaptive Organizational Cultures. Culture mediates whether AI serves as an enabler or an inhibitor. Deepa et al. (2024) and Baki, Rasdi, Krauss, and Omar (2023) stress that social capital and collective learning infrastructures are decisive. Over-reliance is less about technology per se and more about whether employees are encouraged to challenge or comply with AI outputs.
4. Holistic AI Literacy Programs. Baki et al. (2023) argue that AI literacy must extend beyond technicalities into social and ethical domains. This study adds that literacy should explicitly include "critical literacy" training employees to interrogate, not just operate, AI systems.
5. Continuous Reskilling Pathways. Morandini et al. (2023) highlight transversal skills as a bulwark against deskilling. However, isolated retraining is insufficient; organizations must embed learning cycles that normalize experimentation and error, consistent with Andini et al. (2025) findings on knowledge management.
6. Context-Sensitive Technology Acceptance. Traditional TAM Davis (1989) overlooks the role of expertise. Dikmen and Burns (2022) showed that domain knowledge moderates trust dynamics, implying that organizations must adopt tiered TAM strategies and tailor adoption frameworks to heterogeneous employee competence levels.

Table 3. Comparative synthesis table: from older to updated literatures

Factor	Impacts (Literatures)	Strategies/Insights	Updated Insights & Strategies	Key References
Technology Adoption	TAM explains user acceptance of new technology, focusing on *perceived usefulness* and *ease of use*.	The classic TAM Davis (1989) is widely applied but limited in the AI context.	Expanded frameworks (e.g., UTAUT updates) integrate *trust*, *ethics*, and *AI-specific acceptance*.	Davis (1989)
AI Governance & Law	Early discussions on AI regulation and risks in law Gasser and Almeida (2017).	This highlights the gaps in governance frameworks.	Recent models emphasize *ethical AI principles* (beneficence, justice, and transparency).	Gasser and Almeida (2017)
Economic & Societal Impact of AI	AI is seen as disruptive, creating uncertainty in jobs and the economy Makridakis (2017).	The need for foresight in AI policies is suggested.	The focus has now shifted to *opportunities and risk balancing* in the digital economy transformation.	Makridakis (2017)
Digital Competence	Emphasis on *21st-century skills* for the digital era Van Laar et al. (2017).	Basic digital literacy and problem-solving were defined.	Expanded *DigComp 2.2* highlights *sustainability, safety, and AI literacy*.	Van Laar et al. (2017).
AI in HRM	There are concerns about automation displacing HR roles Brougham and Haar (2018)	Early focus: AI as a threat to HR.	Shift to AI-enabled HR practices (*talent analytics, fairness, and employee experience*).	Brougham and Haar (2018)

Organizational Theory & AI	AI is framed as disruptive in organizing processes Faraj et al. (2018).	This requires new collaborative structures.	Automation–augmentation paradox: Balancing AI efficiency with human creativity.	Faraj et al. (2018)
Augmented Intelligence in Business	"Human + Machine" models are highlighted Wilson and Daugherty (2018).	It promotes collaborative intelligence.	More focus is placed on *decision-making structures* in AI-integrated organizations.	Wilson and Daugherty (2018);
AI-Human Collaboration	AI augments human work in knowledge-based tasks (Jarrahi (2018).	Collaboration over replacement.	Refined into *new hybrid workflows* combining automation and augmentation.	Jarrahi (2018)

5. Conclusions

5.1 Conclusion

Overreliance on Artificial Intelligence (AI) in the digital workplace is a multidimensional phenomenon shaped by psychological, technological and organizational factors. The tendency to perceive AI as a neutral and superior decision-making agent, coupled with low digital literacy and system designs that fail to encourage reflective engagement, intensifies automation bias and promotes the passive acceptance of AI recommendations. These conditions gradually erode critical thinking, weaken employee autonomy, and accelerate the deskilling process, thereby fueling anxieties about the long-term implications of AI for the future of work.

Despite these risks, AI is not inherently harmful. When managed appropriately, it offers tremendous opportunities to increase organizational efficiency, streamline decision-making, and augment human performance. The concept of collaborative intelligence provides a constructive framework in which AI's analytical and operational strengths are integrated with uniquely human attributes, such as ethical judgment, empathy, and contextual reasoning. Achieving this balance requires deliberate strategies, such as system designs that foster cognitive engagement, embedding ethical values into AI use, cultivating an adaptive organizational culture, and developing holistic AI literacy. Thus, AI can serve as an enabler of human growth and innovation rather than as a force of dependency and decline.

5.2 Research Limitations

This study has several notable limitations that should be considered when interpreting the findings and recommendations. First, the discussion presented is largely conceptual in nature and does not draw on empirical data collected from specific industries, organizations, or real-world work settings, which limits the ability to validate the theoretical propositions in practice. Second, while the study explores the potential impacts of AI over-reliance on organizational processes and employee performance, it does not sufficiently examine how these impacts may differ across various job levels, roles, or types of work. The nuances of AI adoption in different occupational contexts, including the differential effects on managerial versus operational roles, remain underexplored. Third, the strategies proposed in this study have not been subjected to longitudinal testing or empirical implementation, making it impossible to determine their long-term effectiveness or sustainability. Consequently, the applicability and practical value of these recommendations may be constrained until further research provides robust empirical evidence. To address these limitations, future studies should adopt empirical methodologies, including case studies, field experiments, and longitudinal designs, to rigorously test the conceptual framework, assess variability across work contexts, and evaluate the effectiveness of the proposed strategies over time.

5.3 Suggestions and Directions for Future Research

To mitigate the risks of over-reliance on Artificial Intelligence (AI) and foster a balanced, collaborative relationship between humans and AI, several strategic initiatives must be implemented. First, organizations should prioritize improving AI literacy at all levels of their workforce. This involves designing training programs that go beyond technical skills to include ethical, social, and cognitive aspects, thereby enabling users to understand the limitations, inherent biases, and underlying logic of AI systems.

Second, the development of reflective and adaptive system designs is essential. AI technologies should be developed to promote cognitive engagement by offering interactive explanations tailored to the user's level of understanding, including counterfactual reasoning that encourages critical thinking. Third, ethical values and accountability must be deeply embedded in the design and implementation of AI systems. Ensuring that key decisions remain under human control is vital for maintaining ethical oversight and system transparency.

Fourth, cultivating an adaptive organizational culture is critical. Such a culture should embrace technological innovation, support employee participation, and encourage cross-functional learning and interdisciplinary collaborations. Fifth, organizations must implement sustainable reskilling and upskilling strategies. Emphasis should be placed on developing transversal skills such as leadership, empathy, collaboration, and complex problem-solving to counter the threat of deskilling. Finally, the adoption of a Trust-Enhanced Technology Acceptance Model (TAM) can serve as a useful framework for evaluating employee perceptions of AI. By incorporating elements of trust, this model supports more thoughtful and responsible AI integration. Through these strategies, AI can be positioned not as a replacement for human roles but as a tool that empowers people and contributes to a collaborative, ethical, and sustainable digital work environment.

References

Andini, A., Mukayah, A., & Ismail, I. (2025). Manajemen Pengetahuan dan Kinerja Terhadap Pengembangan Karir Karyawan: Studi SMA YBPK I Surabaya. *Studi Ilmu Manajemen dan Organisasi (SIMO), 6*(1)., 111-122. doi:https://doi.org/10.35912/simo.v6i1.3775

Arslan, A., Cooper, C., Khan, Z., Golgeci, I., & Ali, I. (2022). Artificial intelligence and human workers interaction at team level: a conceptual assessment of the challenges and potential HRM strategies. *International Journal of Manpower, 43*(1), 75-88. doi:https://doi.org/10.1108/IJM-01-2021-0052

Babashahi, L., Barbosa, C. E., Lima, Y., Lyra, A., Salazar, H., Argolo, M., De Souza, J. M. (2024). AI in the Workplace: A Systematic Review of Skill Transformation in the Industry. *14*(6), 1-28. doi: https://doi.org/10.3390/admsci14060127

Baki, N. U., Rasdi, R. M., Krauss, S. E., & Omar, M. K. (2023). Employee Competencies in the Age of Artificial Intelligence: A Systematic Review from Southeast Asia. *International Journal of Academic Reserach in Economics and Management Sciences, 12*(1), 41-62. doi:http://dx.doi.org/10.6007/IJAREMS/v12-i1/15891

Brougham, D., & Haar, J. (2018). Smart technology, artificial intelligence, robotics, and algorithms (STARA): Employees' perceptions of our future workplace. *Journal of Management & Organization, 24*(2), 239-257. doi:https://doi.org/10.1017/jmo.2016.55

Bujold, A., Roberge-Maltais, I., Parent-Rocheleau, X., Boasen, J., Sénécal, S., & Léger, P.-M. (2023). Responsible Artificial Intelligence in Human Resources Management: A Review of the Empirical Literature. *AI and Ethics, 4*, 1185–1200. doi:https://doi.org/10.1007/s43681-023-00325-1

Cau, F. M., & Spano, L. D. (2025). Exploring the Impact of Explainable AI and Cognitive Capabilities on Users' Decisions, *36*(3), 1-43. doi:https://doi.org/10.48550/arXiv.2505.01192

Cecil, J., Kleine, A.-K., Lermer, E., & Gaube, S. (2025). Mental health practitioners' perceptions and adoption intentions of AI-enabled technologies: an international mixed-methods study. *BMC Health Services Research, 25*(1), 556. doi:https://doi.org/10.1186/s12913-025-12715-8

Davenport, T. H., & Kirby, J. (2016). Only humans need apply: Winners and losers in the age of smart machines (Vol. 1): Harper Business New York.
Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, *13*(3), 319-340. doi:https://doi.org/10.2307/249008
Deepa, R., Sekar, S., Malik, A., Kumar, J., & Attri, R. (2024). Impact of AI-focussed technologies on social and technical competencies for HR managers–A systematic review and research agenda. *Technological Forecasting and Social Change, 202*, 123301. doi:https://doi.org/10.1016/j.techfore.2024.123301
Dikmen, M., & Burns, C. (2022). The effects of domain knowledge on trust in explainable AI and task performance: A case of peer-to-peer lending. *International Journal of Human-Computer Studies, 162*, 1-11. doi:https://doi.org/10.1016/j.ijhcs.2022.102792
Elish, M. C. (2025). Moral Crumple Zones: Cautionary Tales in Human-Robot Interaction. 83-105. doi:https://dx.doi.org/10.2139/ssrn.2757236
Faraj, S., Pachidi, S., & Sayegh, K. (2018). Working and organizing in the age of the learning algorithm. *Information and Organization, 28*(1), 62-70. doi:https://doi.org/10.1016/j.infoandorg.2018.02.005
Fauziah, N. A., Faeni, D. P., & Fikri, A. W. N. (2024). Pengaruh Learning Agility, Eksplorasi Kompetensi, dan Training terhadap Kinerja Karyawan melalui Komitmen. *Studi Ilmu Manajemen dan Organisasi (SIMO), 5*(2), 225-238. doi:https://doi.org/10.35912/simo.v5i2.3457
Gasser, U., & Almeida, V. A. F. (2017). A Layered Model for AI Governance. *21*(6), 58-62. doi:https://doi.org/10.1109/MIC.2017.4180835
Gaube, S., Suresh, H., Raue, M., Merritt, A., Berkowitz, S. J., Lermer, E., Ghassemi, M. (2021). Do as AI say: Susceptibility in deployment of clinical decision-aids. *npj Digit. Med*. 4-31 doi:https://doi.org/10.1038/s41746-021-00385-9
Hutasoit, A. W., Satriawan, B., Khaddafi, M., & Friadi, J. (2025). Pengaruh Inovasi, Kompetensi Digital, Lingkungan, dan Motivasi terhadap Kinerja Pegawai PU. *Studi Ilmu Manajemen dan Organisasi (SIMO), 6*(1), 145-157. doi:https://doi.org/10.35912/simo.v6i1.3529
Jarrahi, M. H. (2018). Artificial intelligence and the future of work: Human-AI symbiosis in organizational decision making. *Business Horizons, 61*(4), 577-586. doi:https://doi.org/10.1016/j.bushor.2018.03.007
Makridakis, S. (2017). The forthcoming Artificial Intelligence (AI) revolution: Its impact on society and firms. *90*, 46-60. doi:https://doi.org/10.1016/j.futures.2017.03.006
Mei, K. X., Pang, R. Y., Lyford, A., Wang, L. L., & Reinecke, K. (2025). Passing the Buck to AI: How Individuals' Decision-Making Patterns Affect Reliance on AI. *1*(1), 1-31doi:https://doi.org/10.48550/arXiv.2505.01537
Morandini, S., Fraboni, F., De Angelis, M., Puzzo, G., Giusino, D., & Pietrantoni, L. (2023). The impact of artificial intelligence on workers' skills: Upskilling and reskilling in organisations. *Informing Science: The International Journal of an Emerging Transdiscipline, 26*, 39-68. doi:https://doi.org/10.28945/5078
Passi, S., & Vorvoreanu, M. (2022). Overreliance on AI: literature review. *AI Ethics and Effects in Engineering and Research*.
Peterson, A. J. (2025). AI and the Problem of Knowledge Collapse. *AI & Society*, *40*, 3249–3269. doi:https://doi.org/10.1007/s00146-024-02173-x
Qin, S., Jia, N., Luo, X., Liao, C., & Huang, Z. (2023). Perceived Fairness of Human Managers Compared with Artificial Intelligence in Employee Performance Evaluation. *Journal of Management Information Systems, 40*(4), 1039–1070. doi:https://doi.org/10.1080/07421222.2023.2267316
Rai, A. (2020). Explainable AI: From black box to glass box. *Journal of the academy of marketing science, 48*, 137-141. doi:https://doi.org/10.1007/s11747-019-00710-5
Ryan, R. M., & Deci, E. L. (2024). Self-determination theory Encyclopedia of quality of life and well-being research. *12*(3), 6229-6235. doi:https://doi.org/10.1007/978-3-319-69909-7_2630-2
Samuel, J., Kashyap, R., Samuel, Y., & Pelaez, A. (2022). Adaptive cognitive fit: Artificial intelligence augmented management of information facets and representations. *International journal of information management, 65*, 102505. doi:https://doi.org/10.1016/j.ijinfomgt.2022.102505

Takrim, M., Shalahuddin, S., & Yusup, M. (2024). Kesiapan Memimpin Generasi Milenial: Kajian Kompetensi Karyawan Divisi SDM. *Studi Ilmu Manajemen dan Organisasi (SIMO), 5*(2), 329-341. doi:https://doi.org/10.35912/simo.v5i2.3508

Tambe, P., Cappelli, P., & Yakubovich, V. (2019). Artificial intelligence in human resources management: Challenges and a path forward. *California management review, 61*(4), 15-42. doi:https://doi.org/10.1177/0008125619867910

Thomas, R. L., & Uminsky, D. (2022). Reliance on metrics is a fundamental challenge for AI. *3*(5), 1-8. doi:https://doi.org/10.1016/j.patter.2022.100476

Van Laar, E., Van Deursen, A. J., Van Dijk, J. A., & De Haan, J. (2017). The relation between 21st-century skills and digital skills: A systematic literature review. *Computers in Human Behavior, 72*, 577-588. https://doi.org/10.1016/j.chb.2017.03.010

Wilson, H. J., & Daugherty, P. R. (2018). Collaborative intelligence: Humans and AI are joining forces. *Harvard Business Review, 96*(4), 114-123.

Zayeed, R. A. (2025). Peran Kecerdasan Emosional dan Spiritual terhadap Kinerja melalui Komitmen Afektif. *Studi Ilmu Manajemen dan Organisasi (SIMO), 6*(1), 123-143. doi:https://doi.org/10.35912/simo.v6i1.3583

Zhai, C., Wibowo, S., & Li, L. D. (2024). The effects of over-reliance on AI dialogue systems on students' cognitive abilities: a systematic review. *11*(1), 28. doi:https://doi.org/10.1186/s40561-024-00316-7