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Supervising AI Before Learning the Ropes Yourself:
## Challenges of Training AI Supervisors Who Lack Pre-AI Experience

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As Artificial Intelligence (AI) systems increasingly manage complex tasks (Deloitte, 2023), more employees are assuming roles that focus on supervising and guiding these systems, rather than directly executing the tasks themselves (Braun et al., 2023). This shift marks a significant transformation in the workforce, where *a new generation of employees may never perform these tasks independently without AI assistance*. This evolution raises a critical question: How can we effectively prepare these employees to oversee AI-driven operations without any firsthand experience in the manual execution of these tasks? This paper addresses this challenge by presenting a conceptual framework that highlights the complexities of training AI supervisors who lack traditional, pre-AI task experience.

Historically, supervisors have been promoted based on their extensive experience and expertise in carrying out specific tasks (Chong, 2013). This conventional approach ensures that supervisors have a profound understanding of the tasks under their purview. Such foundational knowledge is essential for effective supervision, as it enhances problem-solving capabilities and innovative thinking. However, the rise of AI has automated many tasks, altering the required skill sets and giving rise to a generation of workers predominantly reliant on AI tools (Raisch & Krakowski, 2021). This dependency on AI might lead to a deficiency in fundamental, independent task experience, presenting substantial challenges for those entering AI supervisory roles (Braun et al., 2023). Without a deep understanding of the tasks' inner workings, these AI supervisors might struggle with troubleshooting, innovating, and offering comprehensive support. Below, we offer a conceptual framework through which to theoretically explore ways to address these shortcomings.

Conceptual Framework
The conceptual framework presented in this study (see Figure 1) views the issue from three main perspectives: 1. Learning gap created by AI, 2. Training challenges, and 3. Necessary organizational adaptations. The learning gap refers to the disparity in knowledge and skills between AI supervisors with pre-AI task experience and those without it. This gap can hinder AI supervisors' ability to manage tasks effectively and properly steer the AI when it does not perform as expected. Training AI supervisors who lack pre-AI task experience involves addressing several key challenges to bridge the learning gap effectively. Addressing the learning gap could pose some challenges for organizations, which may need to allocate substantial resources and adapt their training and development strategies to continuously ensure their supervisors are well-equipped to manage AI-assisted tasks.
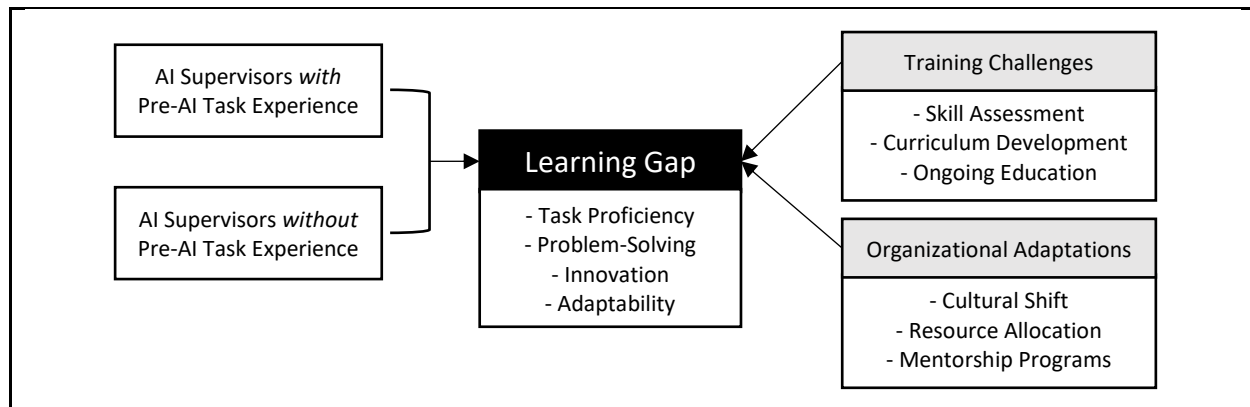
Figure 1. Conceptual Framework

Discussion

In this research, we propose a conceptual framework as an early effort to better understand the challenges faced by a new generation of employees who have never performed tasks without the assistance of AI systems. We argue that organizations must recognize the critical importance of addressing the learning gap and the associated training challenges to ensure effective supervision in AI-assisted environments. By investing in comprehensive training programs, mentorship initiatives, and fostering a balanced cultural approach toward the use of AI, organizations can prepare supervisors to manage tasks effectively and drive innovation.

Further research is needed to explore the effectiveness of different training methodologies in bridging the learning gap. Additionally, examining how AI tools can be designed to complement rather than replace the fundamental understanding of tasks will be valuable. Long-term studies assessing the outcomes of training programs on supervisory performance and organizational efficiency can provide deeper insights into best practices.

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