

## Enhancing Construction Project Management through Cognitive Science and Neuroimaging: A Comprehensive Literature Review

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**Abstract :** This literature review offers valuable insights into integrating cognitive science and neuroimaging with project management practices, presenting a crucial resource for leadership within the construction industry. This paper highlights the significant benefits of applying interdisciplinary approaches to enhance project management effectiveness and project outcomes by exploring the intricate connections between cognitive processes, decision-making, and project management. Key findings emphasize the critical role of cognitive status in determining the performance and project outcomes of construction workers, underlining the necessity for leadership to prioritize cognitive well-being and mental health as central components of project management strategies. The review identifies a gap in current practices, particularly the need for more objective tools for assessing cognitive status within the construction sector, and proposes the adoption of neuroimaging technologies to bridge this gap. The study highlights how integrating cognitive psychology and neuroscience clarifies decision-making processes, aiding leaders in comprehending the mental constraints and biases that influence project decisions. By integrating neuroscientific insights with traditional management practices, leaders can enhance their strategies for training, team dynamics, and risk assessment, ultimately leading to more informed, efficient, and productive construction project management. This comprehensive literature review underscores the importance of adopting an interdisciplinary approach to leadership and management within high-risk industries. It provides a foundation for construction project managers to leverage cognitive science and neuroimaging advancements to improve efficiency, productivity, and decision-making in construction projects' complex and dynamic environments.

**Keywords :** decision making, literature review, neuroimaging, project management

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