

The Untapped Leadership Potential of Engineers in Project Management

Author: Eng. Yasmeeen A. Hafez

Date: 18/04/2025

➤ Abstract

Building on previous research that highlighted the gap between engineering management and project management, this study explores the underutilized leadership role of engineers within project teams. While engineers are deeply involved in technical execution, they are often excluded from strategic and decision-making positions—a disconnect that can negatively impact both project direction and technical quality. Through a review of literature and industry practices, the study identifies structural and cultural barriers limiting their leadership involvement. It argues for greater recognition of engineers as capable leaders, emphasizing that enabling their leadership can improve collaboration, foster innovation, and enhance the overall performance of engineering projects.

1. Introduction

Leadership is a key factor in the project's success, especially in multidisciplinary projects. While many studies have discussed leadership in engineering projects, they have mainly focused on the roles of project managers or leaders, with limited attention to the engineer's perspective.

Although engineers are the main implementers of the project, their perspective are rarely included in leadership discussions. This reflects a real gap in understanding how leadership is practiced in projects.

2. Research Gap

While many studies focus on applying successful management techniques to engineers, the gap lies in how these techniques are applied by the engineers themselves. Not enough focus is placed on how engineers, as leaders within their teams, deal with leadership challenges in engineering projects. This Leads to a gap in understanding of leadership methods from the technical teams' point of view, and reduce the value of engineers as effective leadership elements in improving the performance of engineering projects.

3. Purpose of the Study

Building on my previous study paper titled "Bridging the Gap Between Project Managers and Engineers: Causes, Impacts and Solutions" which addressed the gap between engineering management and project management, introducing the role of the engineering leader as one of the solutions to bridge this gap, this study aims to explore leadership in engineering projects from the engineers' own point of view. The study seeks to understand how engineers can activate this leadership role within multidisciplinary teams, leading to improved overall project performance and enhanced coordination within projects.

4. Literature Review

Leadership in engineering projects has been widely discussed, but most studies focus on the role of project managers, often overlooking the perspective of engineers themselves. While engineers are central to project execution, their leadership role within teams is rarely examined. Some research emphasized how leadership styles of project managers impact project outcomes. Other studies explored leadership in multidisciplinary teams but didn't include how technical team members contribute as leaders. Also, some studies discussed engineers' skills in collaborative settings, yet the focus remained on technical adaptation rather than leadership contribution. These studies mainly apply leadership models to engineers, without addressing how engineers view or activate leadership in practice. This study explores leadership in engineering projects from the engineer's point of view, highlighting the challenges they face and proposing ways to support their leadership role within multidisciplinary teams.

5. Challenges facing the Activation of the Engineer's Leadership Role

- **The management completely controls all decisions-making:** Often, decisions within engineering organizations are completely taken by upper management or the project manager without effective involvement of engineers. This limits engineers' ability to influence decisions that might affect the project's technical progress. As a result, the engineers' role becomes limited to executing decisions rather than participating in making it.
- **Blurring the reasons Behind Administrative Decisions:** When administrative decisions are made without explaining the reasons and considerations behind them, it becomes difficult for engineers to understand the motives behind these decisions. This leads to feelings of isolation and mental pressure, as engineers are required to work to follow decisions that they do not fully understand. It impacts their professional performance and increases their workload, especially when these decisions directly affect their daily tasks.
- **The ignorance of Engineers' Leadership Roles within the Team:** Often, the leadership role of engineers is not recognized within their teams. In some organizations, engineers are seen as instructions followers, rather than active leaders in their fields. This ignorance limits their capabilities and reduces their motivation to take responsibilities or actions that could improve the project's progress.
- **Ignoring and neglecting the development of leadership skills:** In most engineering projects, the focus is mainly on developing the engineers' technical skills, neglecting the leadership skills. Time and resources are not intended to developing these skills, which becomes an obstacle in front of engineers' ability to perform their leadership role effectively and prevents them from realizing the challenges that may arise during the project or trying to think of solutions to them.

6. Suggestions for Activating the Engineer's Leadership Role

- **Involve Engineers in Decision-Making from Early Stages:** Involving engineers in decision-making processes, particularly those decisions that directly affect the technical aspects of the project from the beginning, ensures they have a comprehensive understanding of all project aspects. Engineers can contribute valuable insights into determining the best solutions for technical and organizational problems, helping avoid future challenges and improving project execution in terms of timelines, efficiency, and quality.
- **Clarify Administrative Decisions:** Often, administrative decisions made by managers are unclear to engineers. Therefore, it is essential to clarify the reasons behind these decisions, especially those that impact work processes. This explanation helps build trust between management and engineering teams and reduces the pressure that engineers may feel due to a lack of clarity.
- **Include Leadership Training Alongside Technical Skills:** Companies and organizations should offer integrated training programs that combine technical and leadership skills. Equipping engineers with the tools to develop their leadership capabilities enables them to take on more responsibility and prepares them to participate effectively in strategic decision-making within teams.
- **Promoting a Culture of Knowledge Sharing and Responsibility Within Teams:** One of the most critical factors in improving project performance is fostering knowledge sharing between engineers and other team members. By promoting a culture of collaboration and shared responsibility, engineers will feel that they are an essential part of the project's success. This can be achieved through workshops, regular meetings, and implementing mechanisms that encourage the exchange of ideas and experiences among team members.

7. Conclusion

This study highlights the importance of Enhancing the ability of engineers to play an active leadership role in engineering projects. Empowering engineers to take on leadership responsibilities is essential for improving the overall performance of projects. Although leadership in engineering projects is often limited to project managers and administrators, engineers are the foundation for the success of these projects. The study highlights the importance of engineers' roles in decision-making, taking responsibility, and driving innovation within multidisciplinary teams. By empowering engineers and providing them with the necessary support, better results can be achieved, leading to outstanding project fulfillment. This study, therefore, contributes to bridging the gap between administrative and technical aspects and opens new avenues for improving leadership practices in engineering projects.

8. References

1. Müller, R., & Turner, J. R. (2010). Leadership competency profiles of successful project managers. *International Journal of Project Management*, 28(5), 437–448.
2. Kotter, J. P. (1990). *A Force for Change: How Leadership Differs from Management*. Free Press.
3. Turner, J. R., & Müller, R. (2005). The project manager's leadership style as a success factor on projects: A literature review. *Project Management Journal*, 36(2), 49–61.
4. Reich, B. H., Liu, L., & Sauer, C. (2008). The impact of leadership on IT project performance. *International Journal of Project Management*, 26(7), 694–707.