IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 6, Issue 2, January 2026
Impact Factor: 7.67

An Agile–Kpi Based Execution Framework for Residential Construction Projects: A Literature Based Study

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Abstract: *The construction industry continues to face persistent challenges such as schedule delays, cost overruns, rework, quality deficiencies, and limited responsiveness to changing stakeholder requirements. These challenges are particularly evident in residential construction projects, where client involvement is high and requirements often evolve during project execution. Conventional project management approaches, which rely heavily on detailed upfront planning and rigid execution sequences, frequently fail to accommodate such dynamic conditions, leading to inefficiencies and compromised project performance.*

Agile Project Management (APM), originally conceptualized to manage uncertainty in complex project environments, emphasizes flexibility, iterative planning, continuous stakeholder engagement, and collaborative decision making. In recent years, agile principles have attracted increasing attention within the construction sector due to their potential to enhance transparency, coordination, and adaptability. However, the application of agile methodologies in construction remains fragmented and largely conceptual.

This paper presents an in-depth literature-based study examining agile practices, key performance indicators (KPIs), success drivers, and barriers within the context of residential construction projects. A systematic synthesis of twenty-four peer reviewed studies was conducted to identify critical agile factors, commonly used KPIs, and major constraints affecting agile adoption. The findings indicate that agile practices such as iterative planning, continuous feedback, cross-functional teamwork, and adaptive execution can positively influence project performance and stakeholder satisfaction. Nevertheless, organizational resistance, contractual rigidity, cultural constraints, and regulatory requirements continue to limit widespread adoption. The study identifies the absence of an integrated Agile–KPI execution framework as a critical research gap and establishes a robust theoretical foundation for developing such a framework for residential construction projects.

Keywords: Agile Project Management, Key Performance Indicators, Residential Construction, Execution Model, Construction Management, Performance Enhancement

DOI: 10.48175/IJARSCT-30826