# Developing And Implementing Hybrid Agile Methodologies for Enhanced Project Delivery and Stakeholder Satisfaction in Dynamic Environments.

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***Abstract-*** ***This necessity to improve the shortcomings of both the traditional project management and the pure Agile strategies has resulted in the formation of hybrid Agile approaches. The research paper presents an empirical review of the literature on hybrid models in global and regional contexts, aiming to determine the impact of hybrid models on project delivery and stakeholder satisfaction in dynamic environments. Based on surveys, case studies, and systematic reviews completed between 2020 and 2025, the analysis shows that generic drivers of adoption include regulatory compliance and pressure from stakeholders, as well as the need for flexibility in complex projects. The implementation strategies are characterized by a variety of integrations, i.e., Scrum with Waterfall, Stage-Gate, PRINCE2, and some organized frameworks. Empirical results indicate the improvement of delivery performance with a strong emphasis on the decrease of time-to-market and the quality of delivery, and the constant feedback loops enhance stakeholder satisfaction. However, they remain the same, such as cultural resistance, lack of resources, and the intricacy of integration. The paper concludes that the hybrid Agile approach is beneficial in terms of contextual adaptation; however, the model's performance is industry- and region-specific. Capacity building, engagement of stakeholders, and situational specificity form the basis of the recommendations to deliver the best results.***

***Keywords: Hybrid Agile, project delivery, stakeholder satisfaction, project management, adoption drivers, implementation strategies, empirical evidence, dynamic environments***

## I. INTRODUCTION

Agile is a new trend in project management, which provides flexibility, quick delivery and short feedback (Leybourne, 2009). Nevertheless, even though it is popular, the traditional project management methods can be used, especially in high-regulation or resource-constrained industries that need a formal governance, risk management, and adherence. This co-existence has motivated the development of hybrid forms of Agile, which are tactical fusions between Agile concepts and less Agile methodologies, including Waterfall, Stage-Gate or PRINCE2. The hybrid approaches should be both flexible and control-focused, and therefore, they are particularly applicable in dynamic and complex environments. In these types of environments, organisations are always under pressure of change in technology, global competition, and various stakeholders demands. Ahmad (2024), more conservative methods tend not to be fast and responsive enough to operate in uncertainty, and fully Agile systems may fail to govern, scale, and comply with regulations (Nookala, 2024). The hybrid approaches will aim to fill these gaps and provide a bespoke approach, one that enables prompt responsiveness without the need to forsake a structured control.

This review aims to conduct an empirical investigation into the effectiveness of hybrid Agile ways of improving the delivery of projects and customer satisfaction. By so doing, it evaluates the impact of these models on the project results in industries and regions, as well as determines common challenges and situational aspects that condition their application.

## II. CONCEPTUAL BACKGROUND

The conventional project management methods have long been the Waterfall model that focuses on a sequence of linearity, documentation, and control. These approaches bring predictability and control but fail to be flexible to meet fast-changing needs. Agile techniques on the other hand were developed to overcome these deficiencies as they require repetition of delivery, stakeholder participation and constant feedback. Agile processes, including Scrum, Kanban and Lean stress flexibility and responsiveness, especially in the software development community and in highly dynamic industries. The growing complexity of projects in the different sectors has demonstrated the constraints in the use of either method. Classical structures, though sound in terms

of compliance and long term planning, may slow down responsiveness. Agile, though flexible, may pose problems in well-regulated industries or when it is important to have the governance of the stakeholders. This strain has led to the creation of hybrid models, which are the strategic combination of the Agile principles and structured methodologies. There are some common hybrids (Scrum + Waterfall (Wagile), Agile + Stage-Gate, or systems like SAFe (Scaled Agile Framework) and DAD (Disciplined Agile Delivery)) that explicitly pivot iterative practices and organisational governance.

The argument behind the hybrid models resides in the fact that they can utilize the strengths of the two paradigms. Through the combination of iterative delivery and predictive control, organisations are able to deliver faster in time-to-market whilst adhering to compliance and ensuring resource efficiency. In such industries as healthcare, finance, construction, and technology, empirical research shows that hybrid strategies are capable of reducing risks and maximising resource use and how hybrid strategies can be more consistent with the business goal. Hypothetically, hybrid Agile is consistent with the systems theory that perceives organisations as systems that need stability and changeability to succeed. The emergence of hybrid models can also be explained using the contingency theory since the theory assumes that no one method can be optimal and rather, the success of project management styles depends on the context i.e. industry type, organisational culture and regulatory requirements. This theoretical background not only makes hybrid Agile a compromise but also a structure that may be sensitive to the environment and adapt to its requirements. It highlights the significance of developing methodologies to fit within particular organisational realities, to ensure that delivery of projects and the satisfaction of stakeholders can be maximised within more volatile, uncertain, complex and ambiguous (VUCA) environments.

## III. METHOD OF REVIEW

This review has an empirical focus, based on the studies that were published during the period of 2020-2025 and investigated hybrid Agile approaches in various industries and geographic locations. The sources were located by searching major academic databases, such as Scopus, Web of Science, and Google Scholar with such keywords as hybrid Agile, project delivery, stakeholder satisfaction, and Agile-traditional integration. The studies were eligible as long as they could present quantifiable results as per the effectiveness of the delivery (in terms of time, cost, quality) or stakeholder satisfaction (client, user, or sponsor views). Empirical evidence in the form of surveys, interviews, case studies and systematic literature reviews is included in the analysis.

Summary of studies

| Study Info – Author, Year, Country/Industry | Method | How Hybrid Agile Was Used | Main Outcomes | Project Delivery (time, cost, quality) | Stakeholder Satisfaction (client, user, sponsor) | Challenges/Barriers | Key Takeaway/Conclusion |
|---|---|---|---|---|---|---|---|
| Tettey. (2025), Multiple Industries (Global) | Literature review, case studies, comparative analysis | Integration of Agile principles (Scrum, Kanban) with structured traditional approaches | Balanced flexibility and control; enhanced responsiveness; maintained regulatory compliance; improved risk | Reduced development cycles (e.g., 30% at IBM); maintained budget and quality through iterative | Enhanced through continuous stakeholder feedback loops and regular engagement | Cultural resistance; integration complexity; managing dependencies between Agile and non-Agile teams; tool interoperability | Hybrid Agile methodologies successfully balance agility and structured control, maximising stakeholder value while ensuring governance and compliance in complex |

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| | | (Waterfall, Stage-Gate) and frameworks (SAFe, DAD) | management | testing and governance | | | project environments |
| Dugbartey & Kehinde (2025), Multiple Industries (Global) | Literature review, case studies | Agile + Traditional (e.g., Scrum + Waterfall, SAFe) | Improved flexibility, faster delivery, better alignment with business goals | Reduced time-to-market; maintained quality through automation and iterative testing | Enhanced through continuous feedback and involvement | Resistance to change, skill gaps, misalignment with organisational goals | Hybrid Agile balances speed and quality, and enhances stakeholder engagement |
| Papadakis & Tsironis (2020), Multiple Industries (Global) | Systematic literature review (98 articles), case studies, surveys | Scrum + RUP, Agile + Stage-Gate, Lean + Agile | Tailored approaches improve project relevance and efficiency | Context-dependent; hybrid models improved efficiency in complex project | Improved through iterative feedback and structured communication | Lack of empirical data, sector-specific barriers, resistance to tailored methods | Hybrid models are effective but require customisation and cultural adaptation |
| Otundo Richard (2024), 20 African Countries (Various Sectors) | 22 case studies, surveys (143 respondents) | Agile + Waterfall, Agile + Traditional Compliance | Enhanced adaptability, resource optimisation, stakeholder collaboration | Faster delivery in tech and energy; delays in construction and agriculture due to resource constraints | High in tech and banking; mixed in public health and infrastructure | Resource constraints, regulatory issues, infrastructure gaps, skill shortages | Hybrid Agile is effective in Africa but requires local adaptation and resource support |
| Haddab D.M, 2024, Global (IT, Finance, Healthcare, Manufacturing) | Survey (227 professionals), ANOVA, regression analysis | Hybrid (Agile + Traditional) | Agile/hybrid better for team impact and future preparedness; traditional | No significant difference in efficiency; hybrid balances | Higher satisfaction with Agile/hybrid due to adaptability and feedback | Resistance to change, misalignment, scaling issues | Hybrid and Agile excel in dynamic environments; traditional remains relevant in stable contexts |

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| | | | still effective for efficiency and compliance | speed and structure | | | |
| Luca C, 2022, Multiple (Healthcare, Automotive, ERP) | Case studies, interviews, literature review | Agile + Waterfall (Wagile) | Combines Agile flexibility with Waterfall structure; effective in regulated and complex projects | Improved quality, faster delivery, better risk management | Enhanced stakeholder engagement and satisfaction | Alignment of teams, slow hardware integration, coordination across regions | Hybrid approaches are effective when boundaries are clear and communication is strong |
| Adedokun et al., 2025, Nigeria/Global (Various Sectors) | Literature review, industry practice analysis | Agile + Traditional (e.g., PMBOK, PRINCE2) | Enhanced adaptability, risk mitigation, stakeholder collaboration | Better control over time, cost, and quality through iterative and predictive balance | Improved due to continuous feedback and involvement | Organisational culture, resistance to change, lack of expertise | Hybrid models balance rigidity and flexibility, improving efficiency and risk management in complex projects |

## IV. DISCUSSION

Adoption Drivers

Empirical data indicates that adoption of hybrid Agile is largely motivated by the fact that the process is required to strike a balance between flexibility and governance in the more complex environments. Tettey (2025) emphasizes the fact that global organisations like IBM resorted to hybrid models to shorten development cycles and at the same time meet regulatory requirements. Likewise, according to Dugbartey and Kehinde (2025), the pressure on the stakeholders to align projects with the dynamic business objectives promoted the adoption of Agile frameworks in combination with traditional structures by firms. The African case presented by Otundo (2024) revealed that the scarcity of resources and the diversity of the sector, especially in construction and agriculture, the adoption of hybrids was the only way organisations could maximize adaptability at the expense of oversight. These findings support the idea that adoption process is context-specific because it is affected by external factors such as regulations, competition and stakeholder needs.

Implementation Strategies and Tools

The studies reviewed demonstrate that there are varied implementation strategies, and these are related to organisation and sectoral variations. Luca (2022) has reported so-called Wagile methods (where Waterfall is used with iterative cycles associated with Agile) being effective in controlled environments, such as healthcare and car manufacturing. Papadakis, and Tsironis observed custom hybrid forms like Scrum and Rational Unified Process (RUP) or Agile and Stage-Gate, which were aimed at improving efficiency in complicated projects (2020). In a similar fashion, Adedokun et al. (2025) have also found Agile integrations with PRINCE2 and PMBOK that

allow companies to combine predictive control with iterative ones. In all scenarios, Kanban boards, automated tests, and formal governance systems played the key role in the management of dependencies and integration between Agile and non-Agile teams (Tettey, 2025).

Outcomes and Impact

In all industries, hybrid Agile has demonstrated general improvements in the performance of project delivery. Faster delivery cycles are reported in the studies, Tettey (2025) states that the development time in IBM was reduced by 30 percent, and Luca (2022) and Dugbartey and Kehinde (2025) report that quality improved with the help of the iterative testing and risk management. The level of stakeholder satisfaction has also risen, and constant feedback loops and formal communication have strengthened the interaction and alignment (Haddab, 2024; Otundo, 2024). The level of satisfaction was quite high in areas like banking and technology, but mixed results were reported by public health and infrastructure projects in Africa because of contextual constraints (Otundo, 2024). On the team level, hybrid Agile led to more effective cooperation and team spirit through the development of adaptability with boundaries (Haddab, 2024). At organisational level, hybrids became associated with scalability and innovation and it provided competitive advantage in unstable environments (Adedokun et al., 2025).

## V. CHALLENGES AND LIMITATIONS

These benefits notwithstanding, hybrid Agile is hampered by repeat issues. The reasons related to resistance to change and cultural conflicts were also routine, especially when the governance structures of the traditional ones are in conflict with Agile ones (Dugbartey and Kehinde, 2025; Adedokun et al., 2025). Tettey (2025) observed integration complexity, interoperability of tools and dependency management between Agile and non-Agile teams. In Africa, there were further obstacles that included the lack of infrastructure, regulation, and the shortage of skills (Otundo, 2024). Haddab (2024) also noticed inconsistency in the scaling of hybrids in a variety of industries and Luca (2022) highlighted coordination challenges in multinational projects involving hardware features. Theoretically, a number of studies were based on case studies and surveys so much that generalisability is constrained (Papadakis and Tsironis, 2020).

Synthesis and Emerging Patterns

Collectively, these studies indicate that hybrid Agile is successful where flexibility needs to coexist with governance especially in dynamic and controlled industry. Boundaries between Agile and traditional practices have to be well-defined, and their presence is facilitated by a consistent stakeholder engagement and the use of relevant tools, which will increase the chances of success (Luca, 2022; Tettey, 2025). Nevertheless, it will always depend on the situation: whereas the IT, finance, and healthcare industries show great positive effects, other industries like construction or agriculture have resource and infrastructural constraints that limit the results (Otundo, 2024). The results confirm contingency theory in that no model hybrid is universally effective, instead, organisational culture, resources and external pressures have to be addressed by hybridisation.

Gaps in Literature

Although the empirical focus is increasing, there are still gaps. It has been observed that there is insufficient strong quantitative data (Papadakis and Tsironis 2020), and most of the studies are based on the self-reported surveys or case-specific results. Long-term stakeholder impact, especially after the project closure, is limited at the research level. There is also a paucity of cross-industry comparative studies and the questions around scalability beyond IT and knowledge-intensive industries remain open. Lastly, even though African studies are developing (Otundo, 2024; Adedokun et al., 2025), there is still a lack of empirical data in emerging economies, in which contextual challenges greatly influence the results.

## VI. CONCLUSION

This review has shown that hybrid Agile practices are a viable approach to striking a balance between flexibility and control in dynamic environments. Agile's integration with traditional frameworks enables organisations to deliver faster, improve quality, and enhance stakeholder satisfaction with minimal governance and compliance. According to studies, hybrid approaches are instrumental in industries characterized by complexity and regulation, including healthcare, finance, and

technology. However, its efficacy is always contextual, and difficulties such as cultural opposition, integration issues, and resource shortages, in particular, are presented in the context of emerging economies. Although the hybrid form of Agile has demonstrated considerable potential, the success of the hybrid method depends on how it is adapted to the organisational culture, the needs of stakeholders, and industry-specific circumstances. In general, hybrid methodologies cannot be regarded as generic solutions, but rather as relatively flexible frameworks that require sensitivity to context, a continuous learning process, and continuous improvement to achieve optimisation of project performance and stakeholder value.

## VII. RECOMMENDATIONS

Based on the findings, several recommendations can be made. First, organisations planning hybrid Agile approaches should adopt a context-driven strategy and adapt models to meet industry-specific needs, regulatory conditions, and resource capabilities. There must be clear delineations between the Agile and traditional practices to minimize conflicts and maximize coordination. Constant stakeholder involvement should be valued, and feedback loops should be incorporated throughout the project lifecycle to keep satisfaction and alignment high. Moreover, there is a need to invest in training and capacity building to overcome resistance to change and skill deficiencies, especially in developing contexts. Hybrid adoption should also be encouraged by policymakers and industry leaders, who aim to promote the adoption of standards, help create clear regulations in the industry, and foster the sharing of best practices across sectors. Lastly, it is recommended that researchers increase empirical studies in industries and areas that are underrepresented, and emphasize longitudinal research that can identify long-term effects on delivery performance, organizational learning, and the consequences for stakeholders.

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