



Influence of Agile Project Management on the Delivery of Quality Project Outcomes: A Case Study of Tecno Mobile Rwanda

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Abstract: This study examined the influence of Agile Project Management (APM) on quality project outcomes at Tecno Mobile Rwanda, focusing on adaptive planning, continuous improvement, iterative methods, and close collaboration. Using a mixed-methods sequential explanatory design, the study targeted stakeholders involved in product launches between 2020 and 2024. From a population of 314, 152 valid questionnaires and 30 qualitative interviews were analyzed. Quantitative data underwent descriptive statistics, correlation, and multiple regression, while qualitative data used thematic analysis. Instrument reliability was robust (Cronbach's $\alpha > 0.85$; KMO = 0.826). Multiple regression revealed that combined APM practices significantly predict quality project outcomes, jointly explaining 86.2% of the variance ($R^2 = 0.862$, $p < 0.001$). Adaptive planning emerged as the most dominant predictor ($\beta = 0.526$, $p < 0.001$), followed by close collaboration ($\beta = 0.226$), iterative methods ($\beta = 0.188$), and continuous improvement ($\beta = 0.151$). The study concludes that integrating APM is critical for enhancing product reliability, customer satisfaction, and timely market delivery. It recommends that Tecno Mobile Rwanda institutionalize adaptive planning frameworks, embed continuous improvement systems, reinforce iterative development cycles, and foster cross-functional collaboration to sustain a competitive advantage in Rwanda's rapidly expanding mobile technology sector.

Keywords: Agile project management, adaptive planning, continuous improvement, iterative methods, close collaboration, delivery of quality product, Tecno Mobile Rwanda

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1. Introduction

Agile Project Management (APM) has become a dominant global approach to modern project delivery, particularly in industries defined by rapid technological change and shifting customer expectations. Systematic reviews indicate that Agile and hybrid methodologies are increasingly adopted across the ICT, construction, and manufacturing sectors because of their capacity to improve flexibility, collaboration, and delivery speed, with organizations reporting improved time-to-market, stronger

stakeholder engagement, and reduced project risk between 2019 and 2025 (Moimana & Mokgoje, 2025; Owuori & Ngala, 2024). Global evidence further shows that Agile practices support continuous adaptation in volatile environments, positioning them as essential for achieving quality project outcomes in competitive industries (Adegboyega et al., 2024).

In the United States, Agile is deeply embedded in technology-driven organizations, particularly in software development and telecommunications, where firms using Agile frameworks report higher product quality, faster innovation cycles, and improved customer satisfaction

owing to strong iterative development and continuous feedback systems (Rigby et al., 2023; Denning, 2022). Agile adoption at scale has also been linked to greater organizational agility and responsiveness to market disruption in large IT and financial services firms (Conforto & Amaral, 2021; Serrador & Pinto, 2022), although scaling Agile across large teams and maintaining implementation consistency remain persistent challenges. In China, Agile has gained momentum in manufacturing, e-commerce, and mobile technology, driven by rapid digital transformation and intense market competition; firms adopting Agile report improved innovation performance and faster product release cycles compared with traditional approaches (Li, Wang, & Zhao, 2024), together with stronger customer responsiveness and supply-chain coordination, though cultural and hierarchical barriers can limit full implementation.

Across Sub-Saharan Africa, Agile adoption is growing unevenly across ICT, construction, and public-service delivery, enhancing flexibility, stakeholder engagement, and efficiency in technology-related projects (Otundo & Richard, 2024), even as limited infrastructure, resource constraints, and a shortage of skilled Agile practitioners restrain its full benefits (African Development Bank, 2024; Mutua & Kihoro, 2022). In South Africa, Agile methodologies applied in IT, insurance, and construction have been associated with improved collaboration, teamwork, and adaptive planning (Mookadam & Hanslo, 2025), while in Kenya, Agile adoption in ICT firms, NGOs, and infrastructure projects is positively linked to project performance through enhanced collaboration and iterative development (IRJEMS, 2025; Mutua & Kihoro, 2022), despite continuing gaps in technical capacity and implementation consistency.

In Rwanda, Agile Project Management is increasingly relevant given the country's rapid digital transformation and expanding ICT sector. Evidence shows that practices such as adaptive planning, continuous improvement, iterative methods, and stakeholder collaboration significantly enhance project success in Rwanda's development and technology projects (Nyirarugira, Umuhire, & Nsengimana, 2023; Gatabazi & Kwen, 2025), while high mobile penetration and a growing digital economy sustain strong demand for efficient delivery systems (Rangira & Gathiru, 2023; African Development Bank, 2025). Gaps nonetheless remain in understanding how fully integrated Agile practices influence quality product delivery in mobile technology firms such as Tecno Mobile Rwanda.

Tecno Mobile Rwanda shows strong potential for Agile adoption within Rwanda's fast-growing, youth-driven smartphone market. Iterative development and continuous customer feedback can help the company design products

better aligned with local needs, including affordability in the US\$100–150 price range and features such as dual-SIM functionality, providing a competitive edge over global brands. Related evidence from Rwandan health-sector projects shows that agile-inspired, iterative, and participatory approaches can explain a substantial share of performance variation (Tambo et al., 2012), while international collaboration and technology transfer between Rwandan and Chinese enterprises have supported flexible, locally relevant project execution (Eom, 2018). Integrating Agile methodologies into its product delivery strategy could therefore strengthen Tecno Mobile Rwanda's responsiveness, product quality, and competitive positioning in Rwanda's evolving mobile technology landscape.

1.2 Statement of the Problem

Despite growing adoption of Agile Project Management in Rwanda's ICT and mobile technology sector, many organizations continue to struggle with consistent delivery of quality project outcomes. Over half of public and private ICT-related projects in Rwanda report implementation disruptions and performance inefficiencies (African Development Bank, 2025; Niyigana & Mbonigaba, 2024), and agile-based initiatives show mixed results, with some improving responsiveness while others struggle to effectively implement adaptive planning, continuous improvement, iterative delivery, and stakeholder collaboration (Gatabazi & Kwen, 2025). This persistent gap suggests that organizations such as Tecno Mobile Rwanda may not be fully realizing optimal quality product delivery in terms of customer satisfaction, product reliability, and timely market release.

Several Rwandan studies conducted between 2021 and 2025 have examined Agile Project Management and related constructs, but important contextual and conceptual gaps remain. Studies by Kirabo and Irechukwu (2024), Rangira and Gathiru (2023), and Nyirarugira, Umuhire, and Nsengimana (2023) confirm that agile practices such as stakeholder engagement, adaptive planning, and continuous improvement enhance project performance, yet they focus mainly on public-sector, construction, or education projects rather than fast-moving mobile technology firms. Similarly, Ayinkamiye and Akimana (2025) and Uwamahoro et al. (2024) highlight the importance of project management skills and collaboration but do not analyze how iterative methods and continuous improvement interact to influence product quality outcomes in competitive ICT markets. Few studies integrate all four agile dimensions — adaptive planning, continuous improvement, iterative methods, and close collaboration — within a single framework to explain quality product delivery in Rwanda's mobile technology

industry. This study addresses that gap by examining the influence of Agile Project Management on the delivery of quality product outcomes at Tecno Mobile Rwanda.

2. Literature Review

2.1 Conceptual Review of Agile Project Management Practices

Adaptive planning is a flexible, reactive approach to project management that emphasizes responsiveness to uncertainty, stakeholder needs, and evolving conditions, in contrast to linear and rigid predictive planning. Grounded in Agile principles and complexity theory, it recognizes that technology- and innovation-driven projects operate within volatile, uncertain, complex, and ambiguous (VUCA) environments, and relies on iterative cycles, feedback, and incremental transitions such as short sprints to deliver value while remaining responsive to market change (Kerzner, 2022). Recent research links adaptive planning to a substantially higher project success rate compared with predictive methods, particularly in volatile markets (Project Management Institute, 2024), though it can be constrained by cultural resistance to change and requires strong stakeholder communication and tools such as Kanban boards and real-time analytics to be effective (Hass, 2025).

Continuous improvement (CI) refers to the methodical, sustained enhancement of processes, products, or services through incremental upgrades, drawing on Lean, Six Sigma, and Total Quality Management traditions built around the Plan-Do-Check-Act cycle (Deming, 2022; Kerzner, 2022). In Agile contexts, iterative sprints and retrospectives extend CI by embedding constant refinement of deliverables, helping technology firms fix defects, create value, and respond to shifting customer demand. Organizations applying structured CI practices such as Kaizen events or Lean process mapping report measurable gains in operational efficiency and reductions in project defects, although sustaining CI requires a culture receptive to feedback, adequate resources, and long-term leadership commitment (Bessant & Francis, 2023; Harrington & Gupta, 2025).

Iterative methods involve repeated cycles of planning, implementation, and evaluation to progressively refine products and deliverables, forming the core of Agile techniques such as Scrum and Kanban that break projects into small, manageable increments. These techniques enhance visibility of progress, allow early detection of problems, and support flexibility in rapidly changing markets by enabling continuous learning across cycles (Hass, 2025; Larman & Basili, 2023).

Close collaboration is characterized by active cross-functional teamwork and frequent interaction among stakeholders and customers around a shared vision, and is a core principle of Agile frameworks such as Scrum and Kanban, which prioritize communication, joint decision-making, and stakeholder involvement. Grounded in social capital theory and organizational psychology, it emphasizes trust, shared norms, and relationship quality as drivers of team performance, consistent with the Agile Manifesto's emphasis on people and interactions over processes and tools (Beck et al., 2001). Collaborative practices such as daily standups, sprint reviews, and structured facilitation have been associated with meaningfully higher project success and stakeholder satisfaction (Schwaber & Sutherland, 2025; Larman & Vodde, 2025), although managing disagreement in multicultural or distributed teams and sustaining psychological safety remain persistent challenges.

Successful delivery of a quality product is commonly defined by achievement of market penetration, customer adoption, revenue targets, and brand objectives, requiring alignment of design, marketing, supply chain, and customer feedback processes. Agile project management supports this alignment through iterative, customer-focused development that allows rapid prototyping, testing, and refinement based on real-time feedback, and is associated with markedly higher launch success rates than traditional approaches (Project Management Institute, 2025). Conceptually, this success is underpinned by the Resource-Based View, which links successful launches to organizational capabilities such as cross-functional collaboration and market intelligence (Barney, 2023), and by Stage-Gate models that combine structure with Agile flexibility to manage milestones such as product testing and market readiness.

2.2 Theoretical Review

Contingency Theory (Fiedler, 1967) holds that effective management depends on aligning organizational structures, leadership styles, and strategies with environmental demands, since no single approach suits all situations. Applied to Tecno Mobile Rwanda, adaptive planning reflects the organization's capacity to revise delivery schedules, supply-chain strategies, and customer engagement mechanisms in response to a rapidly evolving smartphone market, with empirical work confirming that adaptive planning significantly enhances project outcomes through strategic flexibility and timely adjustment (Nyarugira et al., 2023; Aorangzaib & Rafiq, 2024). The theory nonetheless underplays the technology-enabled, AI-driven responsiveness increasingly shaping product development globally (McKinsey, 2025), suggesting a

need for contextual extension when applied to Rwanda's digital economy.

Total Quality Management (TQM) Theory (Deming, 1950s) emphasizes customer satisfaction, process optimization, and incremental improvement as drivers of organizational excellence, offering a strong basis for understanding how continuous improvement in design refinement, testing, and customer service supports quality product delivery (Antony, McDermott, & Powell, 2023; Nyirarugira et al., 2023). Because TQM was developed for relatively stable manufacturing systems, however, its emphasis on long-term standardization may not fully capture the volatility of Rwanda's smartphone market, where continuous improvement may require faster, more agile responsiveness than traditional TQM structures provide (Muposhi & Mpinganjira, 2022).

Incremental Development Theory, rooted in the PDCA cycle, explains how iterative methods — repeated cycles of planning, testing, feedback, and refinement — improve adaptability, customer satisfaction, and product-market fit, supporting the expectation that shorter development cycles and continuous revision improve responsiveness while minimizing costly launch failures (Mirandolle, van de Weerd, & Brinkkemper, 2021). Its focus on gradual improvement, however, can understate broader economic, cultural, and infrastructural realities such as affordability and local feature demand that shape Rwanda's mobile market (Schilling & Seuring, 2021).

Stakeholder Theory (Freeman, 1984) holds that organizational success depends on balancing the interests of customers, suppliers, employees, regulators, and communities, and provides the conceptual basis for examining how close collaboration with customers, suppliers, and telecom partners contributes to product alignment with local market needs. Evidence indicates that stakeholder collaboration improves project success and market responsiveness (Kujala et al., 2022; Umutioniwabo & Gathiru, 2023), although power asymmetries among regulators, operators, suppliers, and customers, along with infrastructural and digital-literacy constraints, may complicate collaboration in emerging markets such as Rwanda (Uwamahoro et al., 2024).

2.3 Empirical Review

Mikalef and Gupta (2021) examined AI-supported adaptive planning and product launch performance across 203 U.S. technology firms using structural equation modeling, finding that companies with high AI-enabled adaptive planning adoption achieved substantially greater market-share growth than low-adoption firms ($b = 0.45$, $p < 0.01$). Chatterjee, Chaudhuri, Vrontis, and Basile (2021)

similarly found that adaptive planning mediated the relationship between AI-CRM adoption and launch success among 350 Chinese SMEs, improving sales growth ($b = 0.38$, $p < 0.05$) mainly by enhancing responsiveness to supply-chain disruption. Closer to the present context, Nyirarugira (2023) found that agile and adaptive project management significantly improved community-level project success in a Rwandan malaria social behavior change communication project ($p < 0.01$) through iterative adjustment based on stakeholder feedback, although the study's public-health focus leaves a gap regarding its application to commercial product launches such as those undertaken by Tecno Mobile.

Antony, McDermott, and Powell (2023) found that Lean Six Sigma-based CI practices, applied through a mixed-methods multiple case study of 120 UK manufacturing firms, reduced product development cycle time and improved customer satisfaction ($b = 0.42$, $p < 0.01$), while comparable process-optimization studies in healthcare and other sectors report similar efficiency gains from structured CI methodologies (Muposhi & Mpinganjira, 2022), though their production-sector focus limits direct transfer to technology-driven smartphone releases in Rwanda.

Studies applying iterative and incremental development approaches in mature and software-based markets (Mirandolle, van de Weerd, & Brinkkemper, 2021; Schilling & Seuring, 2021) consistently link short development cycles and continuous testing to improved responsiveness and product quality, though a contextual gap remains regarding their application to Rwanda's smartphone market, where localized adaptation is critical.

Research from Serbia, Zambia, and Kenya on collaborative networks and innovation ecosystems shows that close collaboration with foreign partners, local institutions, and technology hubs is associated with meaningfully higher rates of successful product or venture launches through knowledge spillovers and resource access (Chansa, Mulenga, & Phiri, 2021; Gachie, 2020). In Rwanda, Nyirarugira, Umuhire, and Nsengimana (2023) found that close stakeholder collaboration significantly improved project success ($p < 0.01$) in a community health campaign, underscoring the relevance of collaboration in resource-constrained settings while highlighting the need for research extending these findings to commercial smartphone launches such as those of Tecno Mobile Rwanda.

2.4 Conceptual Framework

The conceptual framework for this study positions adaptive planning, continuous improvement, iterative methods, and close collaboration as independent variables influencing

the delivery of quality product as the dependent variable, drawing on Contingency Theory, TQM Theory, Incremental Development Theory, and Stakeholder Theory to explain the roles of organizational flexibility, quality improvement, incremental learning, and stakeholder involvement in project performance (Adom, Hussein, & Agyem, 2018). The framework assumes that these four agile dimensions operate both independently and interactively to shape outcomes such as timeliness of

launch, product quality, market acceptance, and profitability, with contextual factors including digital literacy, leadership support, and market volatility moderating their overall effectiveness within Rwanda's mobile technology sector. Figure 1 illustrates the hypothesized relationships between independent and dependent variables.

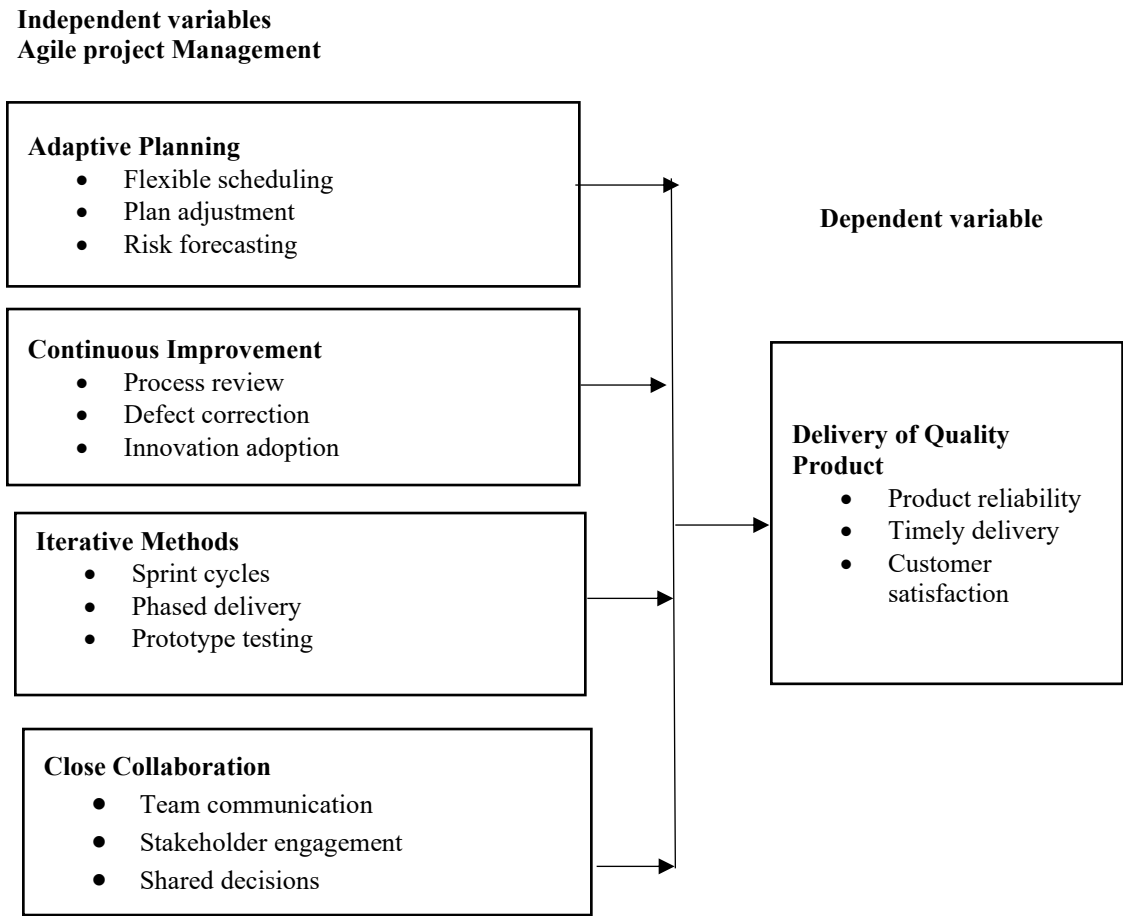


Figure 1: Conceptual Framework
Source: Researcher, 2026

and the integration of consumer feedback (Creswell & Clark, 2021).

3. Methodology

3.1 Design

This study adopted a mixed-methods sequential explanatory design, combining a case-study approach centered on Tecno Mobile Rwanda's Kigali headquarters. It integrated quantitative data on quality product delivery outcomes (time-to-market, sales performance, customer satisfaction) with qualitative data exploring team dynamics

3.2 Samples and Sampling

The target population comprised 314 stakeholders directly engaged in or affected by product delivery at Tecno Mobile Rwanda between 2020 and 2024. This included 100 project team members, 50 marketing and sales staff, 50 local distributors and retailers, 64 corporate decision-makers, and 50 consumers involved in product feedback or beta

testing. Using a sample-size formula at a 95% confidence level, a proportionate sample of 176 respondents was determined across the five strata. Additionally, a

purposively selected sub-sample of 30 participants (10 project team members, 10 marketing staff, and 10 decision-makers) was chosen for semi-structured interviews.

Table 1: Population and Sample Distribution

Category	Population	Sample Size
Project Team Members	100	56
Marketing and Sales Staff	50	28
Local Distributors and Retailers	50	28
Corporate Decision-Makers	64	36
Rwandan Consumers	50	28
Total	314	176

Source: Human Resource, Tecno Mobile Rwanda, 2025.

3.3 Data Collection Tools

Data were collected primarily through structured, self-administered questionnaires utilizing a five-point Likert scale. This was supplemented by semi-structured interviews and a review of internal project reports, sprint logs, and sales records for the period 2020–2024.

3.3.1 Reliability and Validity

Instrument validity was established through content and construct validity checks, including expert review by project managers at Tecno Mobile Rwanda and Agile-

management scholars. The instrument was further refined through a pilot test of 14 questionnaires (10% of the sample) administered to employees of Akagera Business Group, a comparable smartphone distributor in Rwanda (Bolarinwa, 2020; Taherdoost, 2021). Sampling adequacy for factor analysis was confirmed through the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity (Table 2). The KMO value of 0.826 exceeds the recommended 0.70 threshold (classified as meritorious), and the significant Bartlett's test ($\chi^2 = 532.205$, $df = 10$, $p < .001$) confirms sufficient correlation among variables to justify factor and subsequent regression analysis (Hair et al., 2022; Field, 2021).

Table 2: KMO and Bartlett's Test

Test	Statistic	Value
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	—	.826
Bartlett's Test of Sphericity	Approx. Chi-Square df Sig.	532.205 10 .000

Source: Pilot data results, 2026.

Reliability was assessed using Cronbach's alpha, with a threshold of 0.70 considered acceptable (Pallant, 2020). As shown in Table 3, all study variables recorded alpha

coefficients well above this threshold, confirming strong internal consistency.

Table 3: Reliability Statistics

Variable	Cronbach's Alpha (α)	Comment
Adaptive Planning	0.859	Reliable
Continuous Improvement	0.919	Reliable
Iterative Methods	0.915	Reliable
Close Collaboration	0.909	Reliable
Delivery of Quality Product	0.864	Reliable

Source: Pilot Results, 2026.

3.4 Data Collection Procedure

Of the 176 questionnaires distributed, 152 were successfully returned, yielding a response rate of 86.4%. This response rate is considered highly adequate for reliable statistical inference (Fowler, 2021; Taherdoost, 2022). Interviews were conducted at times convenient for

the participants, either in person or virtually, and were audio-recorded with permission.

3.5 Data Analysis

Quantitative data were analyzed in SPSS Version 27 using descriptive statistics, Pearson correlation, and multiple

regression analysis (Field, 2021). The regression model was specified as:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$$

where Y represents the delivery of a quality product, and X_1 to X_4 represent adaptive planning, continuous improvement, iterative methods, and close collaboration, respectively. Significance was tested at the 5% level (Montgomery, Peck, & Vining, 2022). Qualitative data from interviews were analyzed thematically (Braun & Clarke, 2021) to triangulate and contextualize the quantitative findings.

3.6 Ethical Considerations

The study adhered to established ethical research standards to protect the rights and well-being of all participants. Prior to data collection, ethical clearance was obtained from the relevant institutional review board. Informed consent was secured from all respondents, ensuring they were fully aware of the study's purpose, their right to withdraw at any time without penalty, and that participation was entirely

voluntary. To guarantee confidentiality and anonymity, no personally identifiable information was collected on the questionnaires, and all qualitative interview data were anonymized during transcription and reporting. Furthermore, all data were stored securely on password-protected devices, accessible only to the primary researcher, and will be destroyed after the mandated retention period in compliance with data protection regulations.

4. Results and Discussion

4.1 Response Rate and Demographic Characteristics

Of the 176 questionnaires distributed, 152 were returned, representing a response rate of 86.4% — well above the 80% threshold considered adequate for reliable statistical inference in social science research (Fowler, 2021; Taherdoost, 2022). Table 4 summarizes the demographic profile of the 152 respondents.

Table 4: Demographic Profile of Respondents (n = 152)

Category	Group	Percent (%)
Gender	Male 49.3 / Female 50.7	100.0
Age	<20: 9.9; 21–29: 22.4; 30–39: 44.7; 40–49: 21.1; >50: 2.0	100.0
Education	Certificate 3.9; Diploma 36.8; Degree 40.8; Masters 18.4	100.0
Department	PM 7.2; IT 15.1; Sales/Mktg 15.8; Cust. Service 22.4; Finance 20.4; Ops 19.1	100.0
Experience	<2yrs 12.5; 2–4yrs 23.7; 5–8yrs 32.9; 8–10yrs 20.4; >10yrs 10.5	100.0

Source: Primary data, 2026.

Respondents were nearly evenly split by gender, predominantly aged 30–39 years, well educated (59.2% holding a degree or higher), drawn from six functional departments led by Customer Service, and moderately to highly experienced, with over 63% reporting five or more years of project-related experience. This profile supports the credibility and reliability of the responses obtained (Hair et al., 2022; Saunders, Lewis, & Thornhill, 2023).

4.2 Descriptive Results on Agile Practices and Quality Product Delivery

Descriptive analysis showed strong endorsement of all four Agile practices at Tecno Mobile Rwanda. Adaptive planning recorded the highest composite mean (4.44), with respondents strongly agreeing that risks are managed through alternative strategies (Mean = 4.56) and priorities

are re-arranged in a timely manner (Mean = 4.49). Continuous improvement (composite mean = 4.40) was reflected in strong agreement that lessons learned are systematically implemented (Mean = 4.60) and processes are regularly optimized (Mean = 4.47). Iterative methods (composite mean = 4.38) were evident in strong agreement that iterative techniques support early problem detection (Mean = 4.51) and regular review meetings are conducted (Mean = 4.50). Close collaboration (composite mean = 4.40) was reflected in strong agreement that stakeholders are involved in decision-making (Mean = 4.60) and collaborative tools are used effectively (Mean = 4.47). These results indicate that Agile practices are well embedded across Tecno Mobile Rwanda's product delivery processes.

4.3 Correlation Analysis

Table 5 presents the Pearson correlation matrix examining the relationships between the study variables.

Table 5: Pearson Correlation Matrix

Variable	Adaptive Planning	Continuous Improvement	Iterative Methods	Close Collaboration	Delivery of Quality Product
Adaptive Planning	1				
Continuous Improvement	.601**	1			
Iterative Methods	.558**	.518**	1		
Close Collaboration	.681**	.569**	.456**	1	
Delivery of Quality Product	.876**	.694**	.663**	.757**	1

****Correlation is significant at the 0.01 level (2-tailed). Source: Primary data, 2026.**

As shown in Table 5, all four Agile practices correlate strongly and significantly ($p < .01$) with delivery of quality product. Adaptive planning shows the strongest association ($r = .876$), followed by close collaboration ($r = .757$), continuous improvement ($r = .694$), and iterative methods ($r = .663$). Moderate-to-strong intercorrelations among the independent variables (ranging from $r = .456$ to $r = .681$) suggest that Agile practices are interconnected and mutually reinforcing rather than operating in isolation, consistent with recent literature emphasizing that agile success depends on the combined effect of iterative

development, continuous learning, and strong collaboration (Kerzner, 2022; Project Management Institute, 2023; Schwaber & Sutherland, 2021).

4.4 Regression Analysis

Table 6 presents the combined model summary for the four Agile practices in relation to the delivery of quality product.

Table 6: Combined Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of Estimate	Durbin-Watson
1	.928	.862	.858	.099	2.323

Predictors: (Constant), Close Collaboration, Adaptive Planning, Continuous Improvement, Iterative Methods. Dependent Variable: Delivery of Quality Product. Source: Primary data, 2026.

The model shows a very strong relationship between the four Agile practices and delivery of quality product ($R = .928$), jointly explaining 86.2% of the variance in outcomes ($R^2 = .862$; Adjusted $R^2 = .858$). The Durbin-Watson

statistic of 2.323 indicates no serious autocorrelation, and the low standard error (.099) confirms high predictive accuracy

Table 7: ANOVA Results

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	9.004	4	2.251	229.695	.000
Residual	1.441	147	.010		
Total	10.445	151			

Dependent Variable: Delivery of Quality Product. Source: Primary data, 2026.

The ANOVA results confirm that the overall regression model is statistically significant ($F = 229.695$, $p < .001$), indicating that the joint effect of adaptive planning,

continuous improvement, iterative methods, and close collaboration reliably predicts quality product delivery at Tecno Mobile Rwanda.

Table 8: Regression Coefficients

Variable	B	Std. Error	Beta	t	Sig.
(Constant)	-.724	.181		-3.988	.000
Adaptive Planning	.640	.057	.526	11.255	.000
Continuous Improvement	.166	.045	.151	3.675	.000
Iterative Methods	.190	.039	.188	4.904	.000
Close Collaboration	.175	.034	.226	5.192	.000

Dependent Variable: Delivery of Quality Product. Source: Primary data, 2026.

As shown in Table 8, all four predictors have positive and statistically significant effects. Adaptive planning is the strongest predictor ($B = .640$, $\beta = .526$, $t = 11.255$, $p < .001$), followed by close collaboration ($\beta = .226$), iterative methods ($\beta = .188$), and continuous improvement ($\beta = .151$). All four null hypotheses (H_{01} – H_{04}) are therefore rejected, confirming that each Agile practice significantly influences the delivery of quality product at Tecno Mobile Rwanda. The regression equation is expressed as:

$$\text{Delivery of Quality Product} = -0.724 + 0.640(\text{Adaptive Planning}) + 0.166(\text{Continuous Improvement}) + 0.190(\text{Iterative Methods}) + 0.175(\text{Close Collaboration})$$

This equation confirms that improvements in any of the four Agile practices are associated with measurable gains in quality product delivery, with adaptive planning exerting by far the largest influence, consistent with recent studies emphasizing that integrated agile practices jointly enhance project success and product quality in dynamic organizational environments (Project Management Institute, 2023; Kerzner, 2022).

5. Conclusion and Recommendations

5.1 Conclusion

The study concludes that Agile Project Management practices — adaptive planning, continuous improvement, iterative methods, and close collaboration — collectively and individually exert a significant positive influence on the delivery of quality product outcomes at Tecno Mobile Rwanda, jointly explaining 86.2% of the variance in product delivery performance. Adaptive planning emerged as the most influential driver, underscoring the value of flexible, responsive planning in a volatile, fast-moving smartphone market, while close collaboration, iterative methods, and continuous improvement each contributed meaningfully by strengthening coordination, enabling early problem detection, and embedding a culture of ongoing refinement.

These findings affirm that in resource-constrained, rapidly evolving markets such as Rwanda's, the systematic integration of Agile practices — rather than reliance on any single practice — is central to achieving product reliability, customer satisfaction, and timely market delivery. The study recommends that Tecno Mobile Rwanda institutionalize adaptive planning frameworks, embed structured continuous improvement systems, reinforce iterative development cycles, and strengthen cross-functional and stakeholder collaboration, and that similar organizations in Rwanda's ICT and mobile technology sector consider formal policies that support these practices as standard components of product development. Future research should extend this model to other technology firms in Rwanda and across different sectors, incorporate

additional variables such as leadership style, organizational culture, and digital transformation, and adopt longitudinal designs to assess how agile practices influence long-term product quality and organizational performance.

5.2 Recommendations

Recommendations for Practice

It is recommended that TECNO Mobile should further strengthen the implementation of adaptive planning by ensuring continuous adjustment of project plans based on market changes and customer feedback. The organization should institutionalize continuous improvement practices through regular performance reviews, structured feedback systems, and documentation of lessons learned to enhance efficiency and product quality. In addition, iterative methods should be reinforced through short development cycles, frequent testing, and stakeholder feedback integration, while close collaboration should be enhanced through improved communication channels, regular team meetings, and effective use of digital collaboration tools to improve coordination and project outcomes.

Recommendations for Policy

It is recommended that organizational policies at TECNO Mobile should formally integrate agile project management principles as a standard approach for product development and delivery. Clear guidelines should be developed to support adaptive planning, continuous improvement, iterative development, and stakeholder collaboration across all departments. Furthermore, management should establish policies that encourage knowledge sharing, cross-functional teamwork, and accountability in project execution to ensure consistent delivery of high-quality products and sustained organizational competitiveness.

Recommendations for Further Research

Future studies should expand the scope of this research by examining agile project management practices in other technology firms within Rwanda and across different sectors to enhance generalizability of findings. Researchers should also consider incorporating additional variables such as leadership style, organizational culture, and technological infrastructure to better understand their combined effect on project outcomes. Moreover, longitudinal studies are recommended to assess how agile practices influence long-term product quality, innovation, and organizational performance over time.

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