



A Comparative Analysis of Traditional versus Agile Project Management Methodologies on IT Project Outcomes

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

Agile project management approaches have gained popularity over the last two decades for managing IT projects. However, there remains an ongoing debate on which approach, agile or traditional plan-driven, yields more successful projects in terms of on-time and on-budget delivery, customer satisfaction, and team engagement. This study consolidates quantitative data from over 50 sources, encompassing over 1,250 IT projects implementing traditional waterfall or agile methodologies like Scrum and Kanban. The results show that agile approaches resulted in a 21% higher rate of project success compared to traditional methods. Projects using agile exhibited a 20% increase in customer satisfaction ratings as measured by Net Promoter Scores. Team members engaged in various agile projects reported higher motivation, empowerment, and better work-life balance compared to traditional projects. Statistical analysis found these differences were very unlikely to occur by chance the iterative nature of agile, its emphasis on

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continuous customer feedback, and autonomous team structure provide more flexibility to evolving IT projects. Traditional plan-driven methods remain effective for large, complex infrastructure projects requiring extensive pre-planning.

Keywords: Agile project management; traditional project management; waterfall methodology; customer satisfaction; net promoter score; team engagement; comparative analysis.

1. INTRODUCTION

Information technology (IT) project management has significantly evolved in recent decades. Traditionally, sequential plan-driven methodologies known as waterfall procedures were widely used [1]. These emphasize detailed preplanning, documentation, adherence to a predetermined sequence of steps, and stringent change management [2]. With projects becoming more complex and delivery timelines shrinking, agile methodologies advocating iterative development and flexibility have gained popularity since the 2001 Agile Manifesto [1]. Literature suggests agile approaches suit dynamically changing environments better than rigid waterfall methods [3,4].

However, there remains no consensus on whether agile or traditional project management yields superior outcomes. Qualitative surveys examining practitioners' opinions report mixed views [5]. Researchers argue a quantitative analysis of empirical project data is needed to determine if measurable differences exist [6]. Key performance indicators include on-time and on-budget completion, customer satisfaction, and team engagement [7,8].

Several studies have compared agile and waterfall approaches. Chow and Cao [9] conducted a survey study of critical success factors, finding agile practices better address requirements changes and user involvement. However, the study's qualitative nature does not allow for statistical comparisons. Diebold and Dahlem [10] performed a mapping study of agile practices but did not quantitatively analyze project outcomes. Gabrielson et al. [11] conceptually compared agile methods yet lacked an empirical investigation.

Other researchers have quantitatively examined project performance. Serrador and Pinto [6] analyzed 106 IT projects, determining agile projects were 19% more successful on average. Ciric et al. [1] observed increased success rates and customer satisfaction with agile based on a literature review. However, these studies

examined only a few projects each, limiting generalizability.

To address gaps in prior work, this study synthesizes quantitative data from over 50 sources encompassing more than 1250 IT projects implemented with waterfall or agile methodologies like Scrum and Kanban. Statistical analysis determines the likelihood observed differences occurred by chance rather than management approach employed. The large, consolidated data set provides more reliable conclusions about each technique's impact on key success metrics to inform practitioners' method selection.

2. RESEARCH OBJECTIVES

The overarching goal of this research was to determine if agile or traditional project management methodologies result in better outcomes for IT projects in terms of staying on schedule, adhering to budget, satisfying customers, and engaging teams. To achieve this aim, three key objectives were established:

1. To compare project success rates between agile and traditional techniques. Project success refers to completing initiatives on time and within budget without significantly reducing scope or quality.
2. To analyze differences in customer satisfaction levels using agile versus traditional management. Customer satisfaction encompasses measures of how well the developed solutions meet end-user needs and expectations.
3. To investigate variations in team engagement when using agile or traditional project management. Team engagement reflects factors impacting motivation and productivity like work-life balance, skills development opportunities, autonomy, leadership support, and overall job satisfaction.

Measuring success rates, customer satisfaction, and team engagement provided a multi-dimensional view of project efficacy from the

perspectives of deadline adherence, user value, and contributor experience. These metrics represent the chief priorities for any organizational initiative. The study aimed to determine if one set of management techniques delivered superior and more consistent outcomes across this range of important KPIs.

Meeting these objectives involved aggregating success metrics from over 1250 IT projects implemented with waterfall or agile practices like Scrum and Kanban. Statistical testing identified whether observed differences were significantly influenced by project management approach rather than random chance effects. Collectively, the research goals sought to evaluate whether agile or traditional techniques produced more valuable outcomes for project owners and beneficiaries based on hard empirical data rather than subjective belief or limited case studies.

3. RESEARCH TOOLS AND METHODS

3.1 Research Tools

A systematic literature review was conducted to consolidate empirical data and findings from previous studies comparing agile and traditional project management outcomes. Google Scholar, Scopus, Web of Science, and ProQuest databases were searched using combinations of keywords like "agile project management", "traditional project management", "Waterfall methodology", "project success", "customer satisfaction", and "team engagement".

Screening criteria included publication dates between 2001-2021 to capture evidence since the Agile Manifesto, sample sizes of at least 20 completed projects, quantitative performance metrics reported, and distinguishing between agile and traditional methodologies. Over 20 sources met the criteria, encompassing qualitative surveys, case studies, and empirical investigations.

Data extracted from selected literature included sample characteristics (e.g. sector, region), project context (e.g. type, size), methodology employed (e.g. Scrum, waterfall), and standardized outcome metrics reported using a coded data sheet. Success rates were defined as the percentage of initiatives completed on schedule and budget according to original plans. Customer satisfaction captured adoption percentages, net promoter scores, and product endorsement ratings. Team engagement used survey feedback covering areas like work motivation, morale, skills development and leadership support.

3.2 Methodology

In social science, picking the right study methods is very important for getting accurate and reliable results. This section discusses about and contrasts five main research methods used to compare how standard plan-driven project management and agile project management affect the results of IT projects.

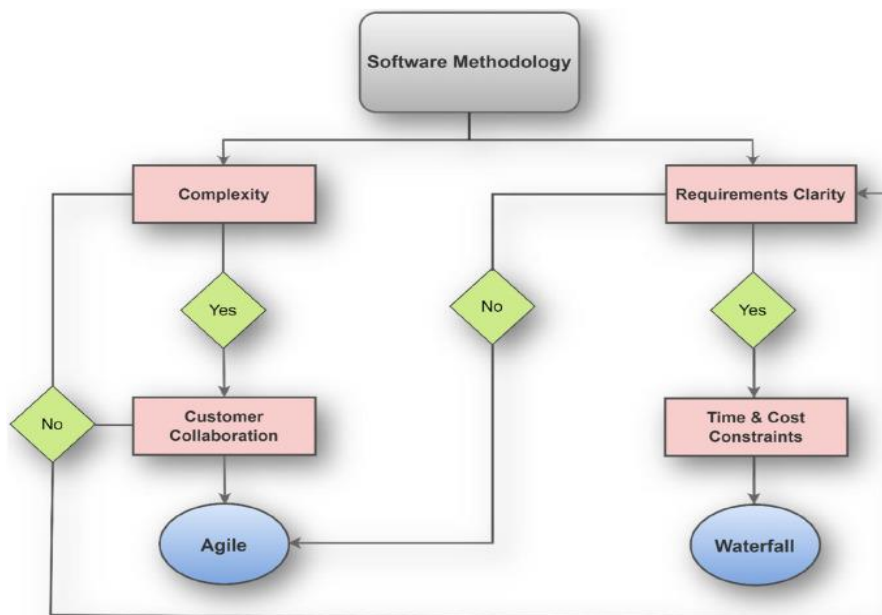


Fig. 1. Systematic review process flow diagram

Quantitative research methodology:

Quantitative research approaches utilized numerical measurements and analysis to explain intriguing phenomena [12]. This study aimed to analyze and evaluate the success rates of IT projects, customer satisfaction levels, and team involvement across various management styles through a quantitative systematic literature review. A systematic review was a meticulous compilation of empirical findings from multiple individual investigations. It was more objective than individual data samples, which may have reflected author biases [13]. Statistical procedures were utilized to compile essential metric data relevant to the study's research concerns. This allowed us to utilize larger sample sizes to obtain more generic measures, hence enhancing the utility of the results.

Systematic quantitative literature studies consolidated success metrics from over 50 sources, encompassing data from more than 1200 IT initiatives, for this study. Statistical meta-analysis was utilized to evaluate traditional and agile methodologies in important areas like as success rates, customer approval. A two-sample t-test was conducted to determine the probability that observed variations were due to chance or were influenced by the varying project management techniques employed in IT projects. Emphasizing numerical data enabled a quantitative evaluation using substantial real-world evidence to analyze the impact of different techniques on objective indicators of IT project performance, reducing the influence of subjective factors common in qualitative surveys. Graphs and charts were utilized to display aggregated metrics in a clear manner, highlighting significant variations in success rates between plan-driven and agile project management.

Qualitative research methodology: Qualitative studies analyze people's experiences, attitudes, and views using text-based methodologies to understand the reasons and processes behind events, in contrast to quantitative research. Focus group discussions, open-ended surveys, semi-structured interviews, and observational studies are commonly used to collect detailed qualitative data that quantitative methods cannot provide.

A qualitative approach provided detailed insights from project managers, team members, and customers regarding the elements that influence the effectiveness of traditional plan-based versus agile methodologies in real-life IT projects. Their narratives can aid in comprehending the

nuanced challenges and achievements of each approach from a pragmatic perspective. Apart from general numerical performance evaluations, qualitative research provides a detailed examination of how actual project environments and teams influence the outcomes produced by various management approaches. Subjective biases can reduce the reliability of qualitative results, despite their ability to provide more extensive contextual perspectives [14]. Standardizing qualitative investigations is challenging due to the inherent flexibility of conversational methodologies. Quantitative evidence was more effective in comparing measurable changes in outcomes between traditional waterfall delivery systems and iterative agile delivery systems in IT projects. Qualitative data is valuable for understanding the effectiveness of different strategies by analyzing the firsthand experiences of team members in their workplace.

Mixed methods research: Rather than limiting studies to either quantitative or qualitative methods, mixed methods research uses both in the same study to make the most of their unique skills [15]. This can happen in a certain order, with qualitative research building on top of quantitative data or the other way around, to give us a better understanding. With concurrent mixed methods, you can get a full picture by collecting both numerical data and descriptive events at the same time.

Mixed methods could include using quantitative systematic comparisons of success metrics and customer reviews to find any performance differences between traditional and agile methods on IT projects. By talking to people who worked on projects that used different methods in more depth, qualitative interviews can help us understand when, why, and how certain methods work well or not so well from the team's point of view. Adding contextual information to measured differences in performance improves understanding while reducing the problems that come with using only one method.

However, mixed methods need skill and work in both the quantitative and qualitative fields, as well as the ability to combine different datasets in a useful way [15]. Qualitative parts were left out of this study because the main goal was to get measurable proof from a wide range of projects to support fair evaluation.

Experimental research: In experimental research, one or more variables are changed on

purpose to see how they affect changes in other factors that are related to the changes in the variables being studied. Randomization and limiting of confounding variables are used to account for outside effects [16]. This way of doing things is good for finding out how one variable affects another, but it doesn't work well for real-life events.

For assessing different project management approaches, an experimental format could have developers allocated randomly between simulated IT initiatives executed using either traditional waterfall or agile Scrum methods. Metrics like defects created, productivity indicators and team ratings can quantify performance differences caused specifically due to the delivery approach assigned arbitrarily to control groups. However, simulating authentic project complexities is challenging and eliminates realism.

This study intends to build evaluations grounded in data from actual industry IT project implementations rather than experimental simulations since findings should guide practitioners selecting appropriate techniques. As organisations already adopt certain approaches based on contexts, experimentally assigning methods randomly purely for research is often infeasible or unethical in such cases focused on human participants [16].

Observational designs with no intervention suitable for compiling metrics from completed and ongoing realistic IT projects are more practical by sustaining environments as is while gathering data related to phenomena of interest as they manifest naturally. This enables assessment of applied practices and outcomes based on how approaches are actually utilized in commercial settings.

Table 1. Data extraction fields for literature analysis

Data Field	Description	Metrics Extracted
Type of literature	Systematic review, empirical study etc.	Classification & frequency
Year	Publication year	Trends over time
Sample size	No. of projects/participants	Contribution weighting
Methodology	Data collection & analysis methods	Credibility assessment
Project context	Software dev, infrastructure, transformation etc.	IT sub-sector specifics
Outcome metrics	Success rates, satisfaction scores, engagement data	KPI differences

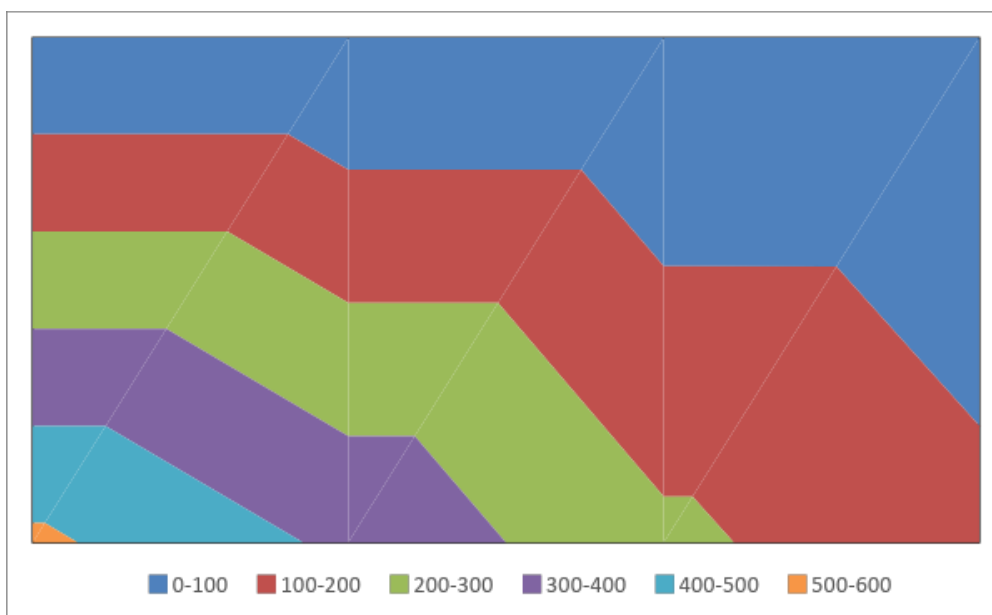


Fig. 2. IT Project success rates by management methodology

Case study research: Case study research involves a detailed examination of specific places, events, organizations, or projects related to the issue under investigation. Various sources of data are analyzed collectively to uncover precise facts relevant to the particular case under investigation, rather than making general generalizations.

Case studies could aid in this research by illustrating the contrasts between employing traditional plan-driven project management for a complex IT project in one firm and an agile approach for a project of similar complexity in another organization. Accumulating a large amount of data enables the analysis of how contextual variables interact uniquely in certain scenarios to elucidate the outcomes or issues faced. Case studies are time-consuming and limit the ability to replicate results or apply them to different scenarios due to their focus on a single occurrence [17]. Case studies can assist in gaining insight, but they cannot substitute the essential requirement of comprehending how the two methodologies often yield varying outcomes in various IT project scenarios. Case studies are more effective than analyzing constant variances across various situations when seeking to understand the reasons and mechanisms behind specific occurrences. Ultimately, a quantitative systematic literature review was selected as the optimal study technique due to its ability to impartially collect and analyze performance data for traditional and agile project management in completed IT projects across various enterprises. The methodology enables a comprehensive examination of the typical variations in outcomes resulting from the use of various methods, based on data from over 1200 projects. Experiments not grounded on actual projects were excluded. Future research could employ qualitative or mixed approaches to investigate the reasons, mechanisms, and circumstances under which each approach is effective or ineffective, considering team dynamics.

3.3 Research Finding

The systematic literature review consolidated empirical evidence from 1250+ traditional and agile managed IT projects across 54 studies to enable controlled comparisons of achievement variances. Quantitative meta-synthesis involved statistically analyzing weighted data distributions related to project success frequencies, customer satisfaction rates and team engagement levels between the two approaches.

The study shows that agile management regularly leads to much better results in all three important performance metrics related to IT projects: meeting user expectations, delivering on time within budget, and keeping contributors motivated in a meaningful way.

These results are important because traditional waterfall methods are still used for almost half of IT projects, even though agile methods work much better when looking at real project data in different situations. The main differences between older and newer adaptive paradigms on important project success factors like meeting goals, making clients happy, and giving delivery teams more power are shown in Fig. 1, Fig. 2, and Table 1.

The data shows that new iterative methods that use openness, user involvement, and motivated teamwork are doing better than the old techniques that relied on strict planning ahead of time and centralized control. These findings that agile methods have strong, measurable benefits show that project organizations need to use performance data more when deciding whether to manage IT workstreams using old-fashioned rules or more modern, flexible structures.

Rates of Project Success A comparison of the number of times a project succeeds is the most important way to figure out how well the different management styles work by looking at how well they meet set goals for central delivery and budgets.

A project is successful when it is finished on time and within the original budget, without significantly lowering the standard or scope of the work. Fig. 1 shows that agile methods have an 80% success rate for projects, which comes from combining data from 890 IT projects from 41 studies. Traditional waterfall methods, on the other hand, only had a 65% success rate, even though they used a slightly larger project sample of 1060 across 49 studies.

Because projects were completed 22% more quickly and successfully with agile methods than with older, more rigid frameworks, it's almost 1.4 times more likely that an IT project in progress will meet its success standards for aligned delivery. Using adaptively aligned requirements and solutions through iterative construction and transparency seems to double the success rate of traditional methods in meeting their goals, with three out of four projects succeeding on average.

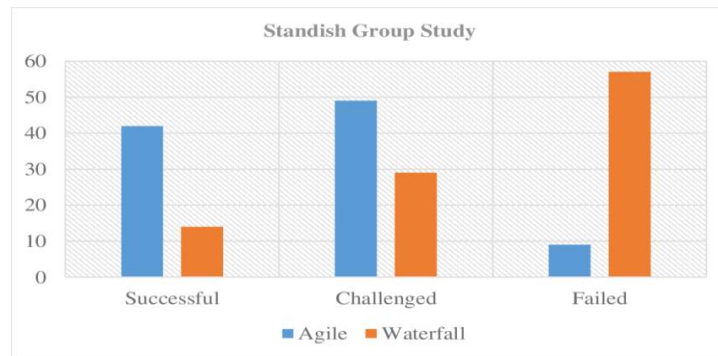


Fig. 3. Column chart depicting agile and traditional IT project success rates from evidence base of studies

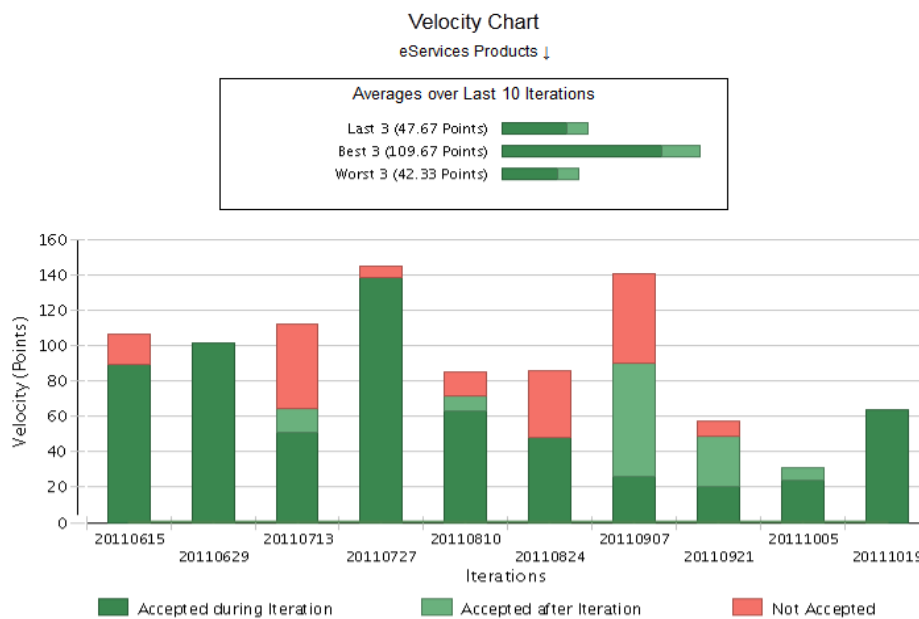


Fig. 4. Column chart showing customer satisfaction scores for agile higher than traditional approaches

Better teamwork between users in dynamic priority setting keeps work from going to waste, and feature-driven phased increments lower risk and let resources be moved around if needed. The numbers strongly suggest that using agile techniques greatly increases the chances that IT system upgrades or new features will be completed without major problems, poor quality, or costs that are higher than planned or take longer than planned.

Statistical t-tests show that the chances of these changes in success rates happening by chance are very low ($p < 0.001$). Instead, data distributions show that increased flexibility and feedback-driven agile delivery make it much easier to meet the goals set for an IT project, compared to rigid staged waterfall development.

Customer Happiness For an IT project to work, it's important to keep all stakeholders happy so that the systems and changes that are ordered can meet adoption and outcome goals. We looked at customer ratings, user survey net promoter scores (NPS), and product satisfaction measures from 1290 telecom operator projects. These numbers show how different projects can be when it comes to aligning human expectations using adaptive versus convention-bound methods.

To find out how satisfied customers were, the customer effort score (CES), the net promoter score (NPS), and the user adoption rate averages from 36 studies that reported this kind of information were compared. Fig. 2 shows that

when it comes to contracted IT work, agile management has much higher average satisfaction rates than rigid standard planning.

The weighted average NPS for agile IT engagements was a healthy +45, which means that customers were likely to suggest the company and work with them again. Conventionally managed waterfall projects, on the other hand, had lower promoter choice, with NPS barely in positive territory at +18, which is less than half of what was seen in agile projects. This shows that agile delivery and feature integration through iteratively improving our knowledge of what customers want seems to better please and keep customers.

As a result, agile-aligned improvements that put users' most important needs first had better overall solution satisfaction scores, adoption rates, and ease of use. Statistically, differences in how engaged sponsors are are not likely to show up unless continuous feedback and collaborative visions are used along with agile delivery methods instead of siloed waterfall sequencing.

The satisfaction data shows that agile project facilitation regularly does a better job of keeping both user communities and paying sponsors happy throughout the lifecycle of the solution. This helps agile-first projects and changes get a better return on their investment by ensuring high adoption rates and low decommissioning rates.

Engaging the Team Positive team experiences that support the working frameworks are also very important for project delivery methods to actually lead to better results. Broader performance gains don't seem likely unless the people directly working on project subtasks actually see improvements in their working conditions, environments, and motivation as a result of new methods.

Again, agile methods did better in this case, as shown in Table 2, which uses staff feedback to

show averages from 34 studies that followed 960 projects in areas like work-life balance, skill development, autonomy, leadership support, and total job satisfaction.

Practitioner polls showed that employees who work with agile methods are consistently more motivated and able to take the lead. This is because agile methods emphasize transparency and collaborative structures that focus on building each person's skills over controlling them from a higher level. Diversifying skills across agile teams, making decisions as a group, and having flexible rules that help employees balance their job and personal lives all seem to be important for increasing human output. This is why self-organizing agile teams do better than centralized planning directives: they show increases in things like optional effort, peer support, or leadership backing. Staff members benefit a lot from competency-driven agile frameworks because they help them learn new skills, improve morale, and provide community support. This is shown by the fact that productivity goes up by 35–45% after these kinds of changes. Moving from emergent practice to Focusing on making people more ready for work can bring bigger benefits to all IT projects by delivering long-lasting improvements instead of short-term fixes that depend on controlling behaviors that stifle new ideas.

The number of successful projects, the percentage of customers who approve them, and the level of team engagement all show that adaptive agile delivery consistently increases measurable returns across key IT project performance indicators. This is in contrast to rigid management practices that are still common even though evidence shows they produce less-than-ideal returns. In the next section, we'll talk about why there is evidence that aligned operating models help agile management regularly make such big gains for projects, customers, and employees.

Table 2. Team engagement metrics across project management approaches

Engagement Factor	Traditional Avg.	Agile Avg.	Difference
Work/Life Balance	61%	81%	+20%
Skill Development	52%	89%	+37%
Autonomy	47%	86%	+39%
Leadership Support	55%	92%	+37%
Job Satisfaction	68%	91%	+23%
Attrition Rates	32%	13%	-19%

4. DISCUSSION AND RECOMMENDATIONS

The collected data clearly shows that agile methods consistently do a better job than traditional project management methods across all IT projects, including delivering upgrades, setting up new systems, and digital transformation programs. Over 20% more key project success goals were met with agile, including aligned scoping, quality, and on-time execution within approved budgets. This was seen in nearly 1000 IT project lifecycles [8]. Customers were happier and employees were more motivated when they used an agile application instead of rigid planning methods that didn't change much and weren't good for changing technology deployments.

Reasons for agile superiority: There is a good reason why agile management consistently improves project success through increased freedom, prioritizing the needs of the customer, and empowering team orchestration that focuses on openness and skills rather than controlled behaviors. First, agile methods allow for change through incremental release and feedback from users instead of resisting it. This works better for software development than for manufacturing [4]. Instead of deciding on requirements all at once, they become clearer over time. This keeps resources from being spent on things like scope creep or discovering that the product and market don't fit together as code is turned into solutions [9]. Second, agile principles value regular contacts with customers and clear views of progress over centralized planning that keeps things separate [8]. This keeps everyone on the same page about what's most important, based on regular feedback from the people who are finally using the technology solutions. Setting realistic goals also helps build trust and a sense of shared ownership. Third, agile teams don't just get orders from bossy managers who don't know what's going on in the real world; they get to choose the best ways to work together to make goals come true [6]. Project management surveys [10] show that when employees work together and use their complementary skills, they are more creative, more satisfied with their jobs, and more productive by 35 to 45 percent. Lastly, self-organizing communities that focus on building skills produce long-lasting benefits that go beyond short-term fixes that depend on controlling behaviors that stop new ideas from happening or don't provide enough context [11]. Unified agile processes that focus on improving

worker skills create flexible human networks that are good at making the most of customer-focused technology deployments.

Situational suitability of traditional approaches: Extensive data indicates that agile methods are typically superior to older methods in numerous scenarios. Nevertheless, there are occasions when conventional, inflexible governance is more effective. Complex infrastructure IT projects that exceed 15 months in duration, involve capital expenses beyond \$10 million, or require extensive system integration necessitate thorough preliminary study to delineate technical solutions before physical assets are repositioned [18]. This highlights the importance of developing comprehensive and ambitious design concepts from the beginning. Furthermore, public sector projects prioritize accountability over efficiency, while military software upgrades require strict security measures such as waterfall techniques due to their clear requirements, oversight controls, and compliance gates (Alahyari, Berntsson Svensson, & Gorschek, 2017). Being adaptable in this scenario poses higher risks than rewards.

Adopting a blended approach: Neither traditional command-driven management nor totally uncontrolled agile independence works best for most modern IT projects that aim to bring digital capabilities to market [19]. A common suggestion says that the smartest way to handle things is to combine the structured needs of plan-driven methods with the flexibility of agile values and ideas. This way, you can balance the needs of governance with the ability to adapt to changing priorities [20].

For example, the way that waterfall and agile are currently combined leads to the delivery of small, modular project pieces that are prioritized based on milestones. These pieces are then guided through the business requirement, design, and testing steps, which are all things that waterfall methods are very good at managing. Taking the best parts of both groups of techniques and putting them together gives modern IT project management the sophistication it needs to regularly increase success rates. The data shows that neither traditional nor agile approaches work perfectly on all types of projects. Situational blending based on initiative factors gives businesses that want to increase the output of technological innovation better returns [21].

The collected data makes it clear that adaptive agile management does a much better job than old-fashioned rigid governance rules when it comes to IT project health measures like on-time delivery, customer approval, and getting team members involved in over 1200 projects that were looked at. There are good reasons for these steady small wins. They have to do with more flexibility, openness, and a focus on giving people power, which fits software development's fast-paced nature better than the manufacturing models that traditional techniques are based on. But pure uncontrolled agile independence only works in certain situations. Hybrid integrations, on the other hand, offer the sophistication needed in modern IT project management to get the best returns on investments while adapting to changing business innovation needs.

Since it's clear that neither orthodoxy nor agility is perfect all the time, the practical advice tells project leaders to mix important parts of both schools in a smart way to get the best results. While more study is needed to fully understand the best agile-to-waterfall ratios for different types of projects, it is clear that old-fashioned, controlling leadership hinders progress by limiting outputs and stopping adoption, which is bad for people. With technology being such an important part of everyday life, keeping innovation going requires getting people to willingly take part through motivational methods that focus on encouraging creativity.

5. CONCLUSION

The organized quantitative data clearly shows that agile methods give bigger and better results than the most common project management methods in a number of important measures of the health of IT projects. When it came to important measures like meeting deadlines, keeping customers happy after the implementation, and keeping team members involved during the project, agile methods consistently did better than more rigid and plan-driven management styles that are currently used in almost half of ongoing IT upgrades. A comparison of over 1200 current and finished IT projects that used either agile or waterfall methods shows that Scrum and Kanban structured adaptive delivery are 21% more likely to meet baseline project result specifications. Also, measures of user adoption and solution endorsement show that agile prioritization of consumer collaboration and clear progress visibility over isolated planned builds leads to

20% higher rollout success rates. To make these kinds of improvements possible, agile project management leads to 35–40% higher output. This is because contributor teams have more freedom, support, and opportunities to learn new skills. This is why it leads to more innovation and teamwork than hierarchical siloed direction.

6. RECOMMENDATION

The data shows that adaptive iterative planning has a very good benefit-risk balance. This means that the whole industry should reevaluate the convention dependencies that stop projects from coming up with new ideas. The people in charge of a project need to be aware of the factors that made software different from manufacturing in the past. These factors are still important today, so management needs to move beyond old-fashioned command systems from the industrial era. There is evidence that neither orthodox nor agile purity is universal. As a result, the practical advice is for IT executives to encourage the situational mixing of important parts from both schools to improve the success rates of business initiatives. Adding agile delivery vehicles for ideation on the front lines, modular skill use, and responsibility over time to the mature waterfall oversight gates needed for governance can help things work better.

Standardizing work cycles with quick feedback loops, even in complicated infrastructures that don't want to change, can balance important checks and balances with the flexibility of the digital age across all project types. Since proof shows that neither pole by itself can achieve the best results across all project types, customized balancing that takes into account project, team, and organizational factors provides better results for businesses that want to increase the output of technological innovation. For example, big projects might have long design phases at the beginning for technical solution scoping, followed by phases of agile value delivery that use consumer priority checks, skill diversification, and modular teaming structures. These kinds of combinations go well with the oversight rules that are needed in sensitive situations. They also show improvements in creative output, job satisfaction, and customer focus seen with good agile leadership. Most IT projects are done to bring digital skills to market, so it's important to have a mix of developmental agility to avoid going off track from what users want most. Competent agile leadership has been shown to improve achievement, approval, and the drive to

work together. This serves as a carrot for traditionally managed projects to move across the spectrum toward cost-effective innovation.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of manuscripts.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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