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Research Article

Analysis of Hybrid Agile Project Management in the Telecommunications Industry

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Abstract: This paper explores Hybrid Agile Project Management in the telecommunications industry, focusing on the motivation behind the adopting hybrid methods, collaboration, and conflicts between Agile teams and Project Managers. The primary objective is to evaluate the company's current state, identify strengths and weaknesses, and provide recommendations for improvement. The research employs a qualitative approach, conducting interviews with key participants such as PMOs, Project Managers, Agile Analysts, Product Owners, Scrum Masters, and Agile Coaches. This approach provided comprehensive insights into the case company's agile practices, highlighting the complexity of its organizational structure and the impact on project management. The thematic analysis of these interviews emphasized the hybrid approach's role in balancing regulatory, security, and business needs. The findings reveal that although Agile, particularly the Scrum methodology, is central to the company's operations, the hybrid approach plays a key role in addressing the challenges of continuous improvement and flexibility. The company integrates Agile with project management through distinct roles such as Analyst Phase Leader (APL) and Development Phase Leader (DPL), which help mitigate resource management issues and regulatory constraints that can cause conflicts. The company has developed customer frameworks and an adaptive approach to resolve these. TOGAF and PMI have also been aligned with Agile practices to support large-scale enterprises. The paper concludes that Agile satisfaction tends to decrease as company size increases, particularly in the telecom sector, making this research valuable due to its unique recommendations for improving hybrid project management in complex, large-scale environments.

Keywords: Project Management Office, The Open Group Architecture Framework, Agile, Scrum, Team Collaboration, Project Management Body of Knowledge

1. Introduction

1.1. Background of the study

The company studied operates across multiple regions, offering mobile, broadband, and digital services, including innovative products like a Digital Cloud platform. With over 24,352 employees and 41.7 million customers in Türkiye, the company has achieved notable growth, reaching $3.94 billion in 2024 (Turkcell, 2024; Macrotrends, 2024). Due to the complexity of the telecommunications sector, the organization has separated its Project Management (PM) unit from its Agile teams, adopting a hybrid project management approach. This study focuses on the PM unit, which oversees projects with IT impacts and coordinates cross-team collaboration. The research aims to identify current practices in hybrid project management, analyze strengths and challenges, and offer recommendations to improve collaboration and reduce conflicts between Agile teams and PMs. Through qualitative interviews with key stakeholders, such as Project Management Office (PMO), project managers, and Agile coaches, thematic analysis provided insight to explore collaboration dynamics and identify opportunities for improvement. The findings serve as a guide for organizations considering a hybrid approach to project management.

This study aims to provide a comprehensive overview of the company's approach to implementing agile methodologies within its operations, focusing on identifying strengths and weaknesses inherent in its current practices. By evaluating and examining the motivations behind the adoption of a hybrid project management method, the study seeks to shed light on how this approach influences project outcomes and the collaborative processes within agile teams. Additionally, this research will explore the

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theoretical frameworks surrounding hybrid methodologies and how they can be applied to enhance the company's agile practices. By drawing connections between theory and practice, the study aims to offer actionable insights that can inform further improvements in the company's hybrid approach, ultimately leading to more effective project execution and greater overall satisfaction among stakeholders.

1.2. Statement of the research problem

The problem addressed in this research is the reasons behind the decision of the hybrid approaches in telecommunication industries by considering on the conflicts and collaborations in the sample company. As an enterprise establishment in the telecommunications industry, the sample company is obligated to comply with regulatory standards, and it has a complex organizational structure with comprehensive domain systems to manage, a context in which the Agile Manifesto is insufficient, and hybrid approaches standardization can be complicated. In addition, the enterprise companies are implementing different standardizations and developing their own hybrid approaches. Regarding different hybrid approaches and lack of standardization in the field, telco companies have significant challenges in managing their own process team collaboration, project oversight, role boundaries, etc., due to the struggle between traditional PM and Agile manifest.

In order to these reasons, it is become essential to analyze current hybrid approaches of the company to recommendations for improving the balance between agile flexibility and traditional project control in telecommunication companies. Also establishes a guiding framework for other companies in the industry elaborate to adopt or refine hybrid project management practices.

1.3. Objectives

This study aims to examine;

- To identify the current practices and status of hybrid project management in the Chief Technology Officer (CTO) unit development projects of the sample company.
- To analyze the strengths, weaknesses, and challenges related to the adoption of hybrid project management in the sample company.

To understand the nature of collaboration and conflicts between agile teams and project management teams within the company.

- To recommend improvements to the current hybrid project management practices, focusing on enhancing team collaboration and reducing conflicts between agile and project management teams.
- The main result is a report on the current situation by giving information about team collaboration between PM and agile teams and a recommendation on how to improve the current situation for the sample company.

2. Literature Review

Agile methodologies, introduced through the Agile Manifesto in 2001(Manifesto, 2001) , emphasize transparency, iterative development, and customer involvement. These principles advocate for breaking projects into smaller phases, with continuous collaboration and improvement at each step. Agile is structured around four core values (Cohn, 2005): prioritizing individuals and interactions, delivering functional products over extensive documentation, fostering customer collaboration, and adapting to change. The methodology also highlights twelve guiding principles, such as frequent delivery, embracing change, and maintaining motivated, self-organizing teams (Gong & Ribiere, 2023). Agile frameworks are commonly divided into three categories: Scrum, Kanban, and Lean (Stellman & Greene, 2014). Scrum operates through iterative cycles called sprints, involving roles like Product Owners and Scrum Masters, with daily stand-ups and retrospectives to track progress (Selvi &

Majumdar, 2013). Kanban, on the other hand, focuses on visualizing tasks and ensuring continuous flow without fixed sprints, often used in operational or campaign management (Junior & Godinho Filho, 2010). Lean, originally developed by Toyota, aims to maximize value and minimize waste, making it suitable for innovative proj”ects that prioritize resource and time management(Tripp et al., 2018). These methodologies offer adaptable, efficient solutions for complex project management, allowing teams to respond to change and continuously improve their processes.

Hybrid Agile Project Management combines predictive and adaptive methodologies to leverage the strengths of both (Tolbert & Parente, 2020). This approach integrates the detailed planning and requirements gathering of Waterfall with the iterative development and flexibility of Agile. Common hybrid methods include Water-Scrum-Fall and Agile-Waterfall(Jamous et al., 2021). The key advantage of this approach is its flexibility, allowing structured planning during the initial stages and Agile's collaborative techniques during execution. Benefits include improved adaptability, balanced planning and execution, enhanced stakeholder engagement, and risk mitigation (Papadakis & Tsironis, 2020). However, hybrid methodologies also pose challenges, such as increased complexity, resistance to change, and the need for additional training and resource management. Despite these challenges, hybrid approaches are especially effective in complex projects with evolving requirements, leading to higher success rates in meeting project goals (Ciric et al., 2018).

The Open Group Architecture Framework (TOGAF) is an enterprise architecture that provides a comprehensive approach for designing, planning, implementing, and governing enterprise information systems. Its core methodology, the Architecture Development Method (ADM), enables organizations to align IT strategies with business goals, ensuring adaptability and efficiency in achieving strategic objectives (The Open Group, 2022).

Incorporating frameworks like TOGAF into hybrid Agile project management further enhances the flexibility and adaptability of project execution, especially in complex enterprise environments (Kotusev, 2018). While Agile focuses on iterative development and continuous feedback, TOGAF’s Architecture Development Method (ADM) aligns well with these principles by allowing iterative refinements in enterprise architecture(Guntara et al., 2020). Both emphasize stakeholder involvement and flexibility, ensuring that evolving business needs are met efficiently. This alignment strengthens the hybrid approach by integrating strategic architecture with Agile’s dynamic execution, resulting in better project outcomes across large-scale organizations (Josey & Hornford, 2022).

Agile methodologies have transformed project management across various industries, particularly in the IT, telecommunications, and software sectors (Conforto et al., 2014). The above comprehensive information on agile frameworks and hybrid project management approaches, while this section focuses on recent trends in agile practices. It highlights the reasons behind businesses adopting agile methodologies and examines the evolving role of project managers within these frameworks. Additionally, this section delves into the hybrid project management concept, discussing its adoption in industries, specific implementation strategies, collaboration, and challenges faced within the telecommunications sector (Kerzner, 2018).

Agile usage trends are often analyzed through reports from reputable survey companies, such as the 16th Annual State of Agile Survey by digital.ai and Gartner reports. These reports help organizations, including the case study company, understand the benefits, challenges, and patterns of agile methodologies. They offer insights into which frameworks might best suit a company's needs, how to scale agile practices for better project outcomes, and address common obstacles in agile implementation. Furthermore, they explore collaboration and conflicts between agile teams and project management, offering valuable recommendations for improvement (AI, 2022). Agile satisfaction varies significantly by company size. According to the 2023 17th Annual State of Agile Report, 52% of small companies reported high satisfaction with Agile, compared to 39% of medium-sized and 43% of large

companies (AI, 2023). This highlights the challenges of agile adoption in larger organizations. Small companies benefit from Agile's flexibility and adaptability, facilitating easier implementation and higher satisfaction. In contrast, 26% of medium and 30% of large companies indicated that Agile is not working well for them, reflecting greater challenges in its adoption. These findings are particularly relevant for the telecommunications industry, where complex organizational structures complicate agile adaptation. While the advantages of Agile are often highlighted during adoption, medium- and large-sized companies face significant challenges (Rover et al., 2014). The evolving role of Project Managers (PMs) within Agile frameworks reflects this shift toward flexibility and collaboration. Traditionally focused on detailed planning and strict control, PMs now emphasize facilitation and leadership, becoming key enablers of team success (Meng & Boyd, 2017).

Key changes in the PM role include:

- **Leadership Evolution**: PMs have transitioned from command-and-control management to servant leadership, focusing on removing obstacles and fostering collaboration while empowering self-organizing teams.
- **Responsibility Shifts**: In Agile frameworks like Scrum, responsibilities are divided between the Scrum Master, who guides the team, and the Product Owner, who prioritizes tasks based on customer needs.
- **Project Management Body of Knowledge (PMBOK) 7th Edition Insights**: PMBOK recommends shifting from centralized to distributed management, aligning with Agile's flexible roles. In this model, responsibilities are shared among team members, reducing the need for a dedicated PM.

Despite these changes, PMs remain essential in large organizations for coordinating efforts across teams and managing dependencies. They must develop new skills in Agile methodologies and conflict resolution to enhance project outcomes, team dynamics, and stakeholder satisfaction. Adopting Agile presents distinct challenges, especially for medium and large enterprises. While smaller organizations benefit from Agile’s flexibility and adaptability due to simpler structures, larger companies face difficulties rooted in traditional practices and complex hierarchies. The primary challenge is the cultural shift required, as Agile’s self-organization and iterative progress often conflict with established, top-down management styles. Integrating Agile across departments also encounters resistance, necessitating strong change management and continuous stakeholder engagement. Overcoming these hurdles requires customizing Agile practices to fit the organization's context and securing top management support (Norton, 2008).

Hybrid project management is increasingly popular, with 42% of respondents adopting hybrid approaches that combine Agile, DevOps, or other methodologies. Medium and large companies prefer this model due to challenges with full Agile adoption, with 49% and 45% using it, respectively. The hybrid model allows organizations to tailor methods to their needs, combining Agile with frameworks like DevOps or Waterfall for greater flexibility and efficiency. This trend reflects the growing demand for adaptable, collaborative project management approaches that better align with business needs (Fernandes et al., 2018). Businesses are increasingly opting for hybrid project management due to declining satisfaction with agile practices, especially in medium and large companies. The hybrid model offers flexibility, combining structured planning with Agile's iterative approach. Key motivations include scalability for managing complex projects, improved resource management, balancing predictability with adaptability, and enhanced project monitoring through tools like Gantt charts alongside agile techniques. This allows organizations to customize their approach based on project needs and complexity (Zasa et al., 2020). Telecommunication companies, with their complex structures and strict regulatory demands, often adopt a hybrid project management approach, combining methodologies like

Scrum-DevOps and Waterfall-Scrum. While the Waterfall model suits the structured, regulatory-driven aspects of their projects, agile methods help address technological changes and customer needs with flexibility. This integration allows telecom companies to manage both planned and dynamic aspects of their projects efficiently (Balmer et al., 2020).

Even if the hybrid approach promises benefits to enterprises like the sample company, it has significant challenges regarding the lack of standardized guidance, frameworks, and cooperation between established methodologies like PMBOK and Agile, which limits its adoption across industries. Especially, PMBOK, and Agile frameworks don't suggest comprehensive correlation with each other to provide a bridge the gaps between traditional and modern project management practices.

Based on the review of the literature, the following were identified as major areas of inquiry for this research: The approach adopted in implementing Agile Project management, Agile project management and organization structure, Challenges and issues in Agile implementation, Strategies used to overcome the challenges of Agile implementation, Why Business Choice the Hybrid Project Management, Challenges in the Realization of Hybrid Approach, Hybrid Project Management in Telecommunication. How the TOGAF can be a bridge between agile teams and PMO to elaborate collaboration.

These issues will be analyzed based on qualitative data to evaluate and examine the motivations behind the preferred hybrid method on the company projects and agile team working process.

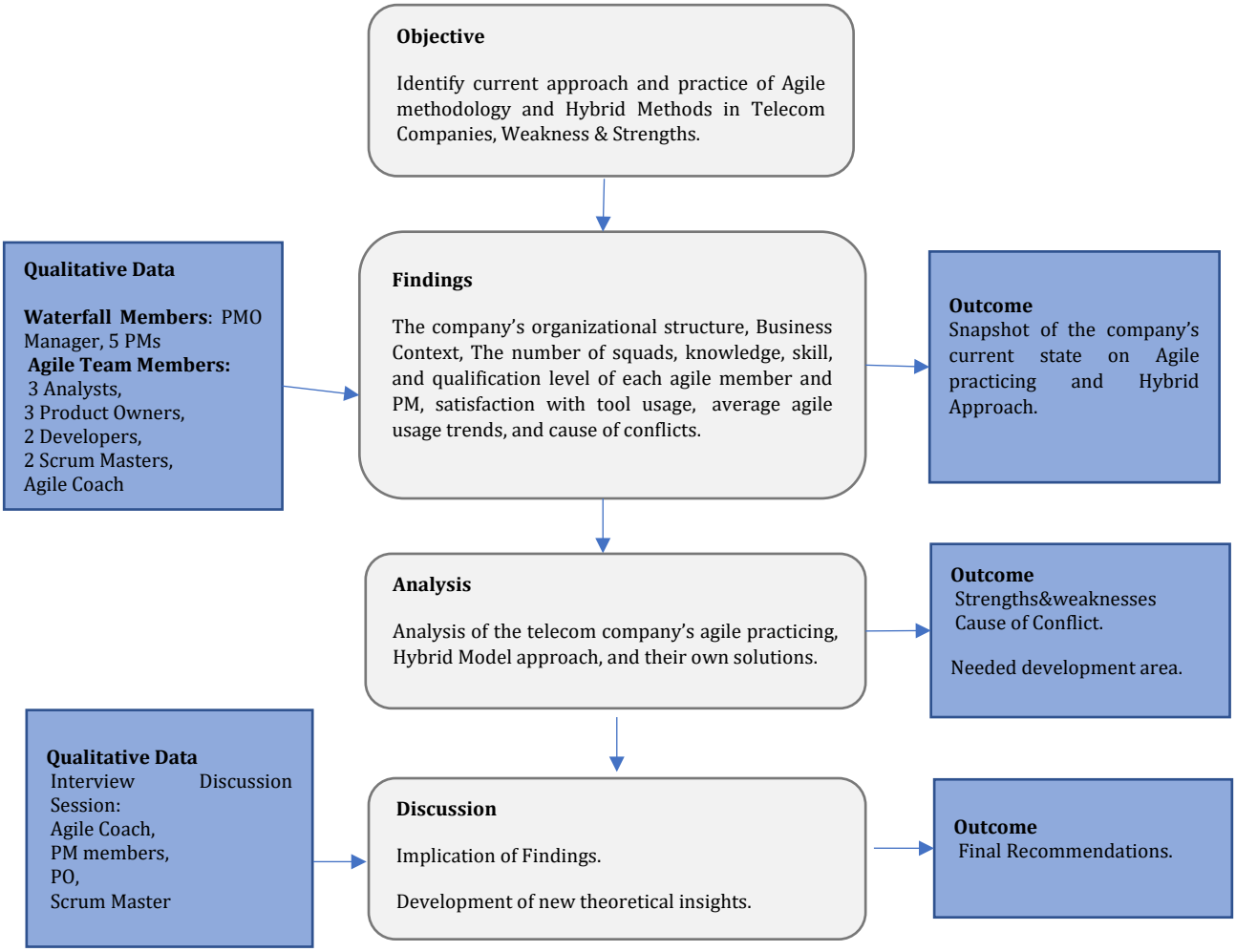
3. Methodology

3.1. Research approach

In view of the nature of the research problem, this study is exploratory in nature and follows the case-study design approach (Yin, 2009). The study utilizes a qualitative research methodology involving in-depth interviews with the key stakeholders in the telecommunications sector. The goal was to gather insights on agile and hybrid methodologies, focusing on interactions, conflicts, and complexity management within Agile teams. The structured research design, illustrated in Figure 1, aims to collect, categorize, and analyze qualitative data from these interviews to enhance understanding of hybrid Agile project management processes. The study began with interviews to assess the company's Agile practices and hybrid methods, supplemented by relevant documents and reports for a comprehensive view of the organizational structure.

Figure 1

The Research Design of Paper



3.2. Data collection and analysis

3.2.1. Sample selection

The selection of telecommunication company was based on the convenience to collect data. We interviewed 12 project management leadership staff with the selected organization. The respondents included: Project Management Office (PMO) Head, Project Managers, Agile Analysts, Product Owners, Scrum Masters, and Agile Coaches. There purposive sampling procedure was followed to identify and approach the respondents.

We started getting similar patterns of data after 10 interviews, and therefore, we decided to stop the study after 12 interviews. Each in-depth interview focuses on the key aspects of alignment with Agile and traditional approaches, team qualifications, and satisfaction with current tools. The analysis involved constant comparison to ensure depth and consistency, linking findings to theoretical literature. Finally, the analysis was validated with participants, leading to practical recommendations for improving hybrid Agile practices, such as enhancing communication and implementing training programs.

3.2.2. The interviews conducted with the participants

Initial interviews with the key stakeholders clarified the understanding of the organization's project management methodologies while interviews with Head of the Development provided general

information was received about the company's Waterfall and hybrid approaches and were identified other persons who are specialized for further consultancy.

Furthermore, interviews with the Agile Coach and some of the internal documents provided insights on the actual number of Agile squads, utilization trends, and how Agile squads have integrated within the organization particularly around the introduction of the Customer Framework.

In-depth interviews with the different Agile roles further explored the motivations behind the hybrid approaches, the main reasons of conflicts and collaborations, and why the other directorates have not implemented agile practices.

Finally, interpretation of the findings and identification of the development areas and strengths and weaknesses were established with Agile Coaches, Product Owners, Scrum Masters, and Project Managers. Information gathered in this consultation was used to form proposals for process improvements and actionable recommendations toward bettering hybrid agile practices by the company. The above-mentioned steps have made sure that the methodologies undertaken by the company in project management have been understood deeply and analyzed in their detail, thus proving invaluable in deriving qualitative insights for the dissertation detailed information about the data collection process is presented in Table 1 below.

Table 1

Overview of the Data Collection Process for Analyzing Project Management Methodologies

Date	Participant & Role	Duration	Type of Interaction	Discussion
1.05.2024	Head of Development Team	60 min	Meeting	General knowledge of the Waterfall and hybrid approach of the company. List of specialized people, who are experts in diverse positions related to Agile roles and PM for their consultancy.
Develop of Findings Section				
2.05.2024	Project Manager	30 min	Meeting	Review of where the company stands with the implementation of the hybrid approach.
12.05.2024	Agile Coach	30 min	Meeting	Description of the Agile squad identification, the use frequency, and position within the organization structure. Identified experts in Agile and PM for consultation.
12.05.2024	Internal Document	24 hours	Text	Detailed documentation on Agile usage trends, organizational structure, and Customer Framework development.
13.05.2024	Project Manager	60 min	Meeting	Exploration for motivation for adopting the hybrid approach, reasons some directorates resist Agile, PMs' knowledge of Agile tools, and conflicts arising from using separate tools.
14.05.2024	Product Owner	60 min	Interview	Discussion on conflicts and collaborations in hybrid project management from an Agile perspective.
14.05.2024	Scrum Master	60 min	Interview	Insights on conflicts and collaborations in hybrid project management from an Agile perspective.

Table 1 (Continued)				
15.05.2024	Project Manager	60 min	Interview	Exploration of conflicts and collaborations in hybrid project management from the PM perspective.
Develop of Analysis Section				
23.05.2024	Agile Coaches, Product Owners Scrum Masters Project Managers	2 days	Meeting	Interpretations of findings. Define development areas, strengths & weaknesses. Evaluate the customer framework and whether can be an example story for the telecom industry.
Develop od Discussion Section				
23.05.2024	Agile Coaches, Product Owners Scrum Masters Project Managers	2 days	Meeting	Development of proposals for improvement in identified areas and building a strategy for future implementation.

4. Findings and Analysis

This section discusses the findings from the sample company. Also, it evaluates these results based on the data and theories from the literature, and the research questions. Key discussions are incorporated into the analysis to directly answer the research questions while emphasizing the benefits and drawbacks of the agile and mixed-methods approaches used by the company.

The result of separate interviews with each participants structured the Findings were analyzed and discussed in followed two more meetings involved by all participants together regarding on their main concerns;

POs Concerns: How they manage the aligments across organizational boundaries while cope with challenges regarding Agile and Scrum implementation, backlog management, and inputs from various projects.

PMs Concerns: How they navigate organizational complexity, role conflicts, and the hybrid model across multiple teams, highlighting role boundaries between Agile teams and Project Management.

Agile Coaches Concerns:How they drive Agile transformation and resolve cultural or structural challenges.

Development Heads Concerns: How Agile implementation impacts their teams and workflows.

Agile Team Members Concerns: How to communicate with the PM and other teams, business unit.

4.1. The organizational structure of the sample company

The case selected for the study is a telecommunications company with a hierarchical structure and a history of its work for more than 20 years. There also are key barriers to adopting Agile practice: The company's hierarchical culture makes it difficult to facilitate change at all organizational levels, especially at the middle level.

As illustrated in Figure 2, the organizational structure begins with the Chief Executive Officer and several C-level who perform different tasks in different domains. The Chief Information&Communication Technology Officer (CIO) kicked off this change drive in 2012 through the beginning of Agility with Scrum methodology throughout the company. As mentioned, the company has adopted agile at around 70 percent. Yet, several directorates, such as the Chief Legal & Regulation Officer

and the Chief Financial Officer, still uphold the conventional systems because of issues concerning regulation compliance and the assurance of financial security, respectively. This divergence has led to:

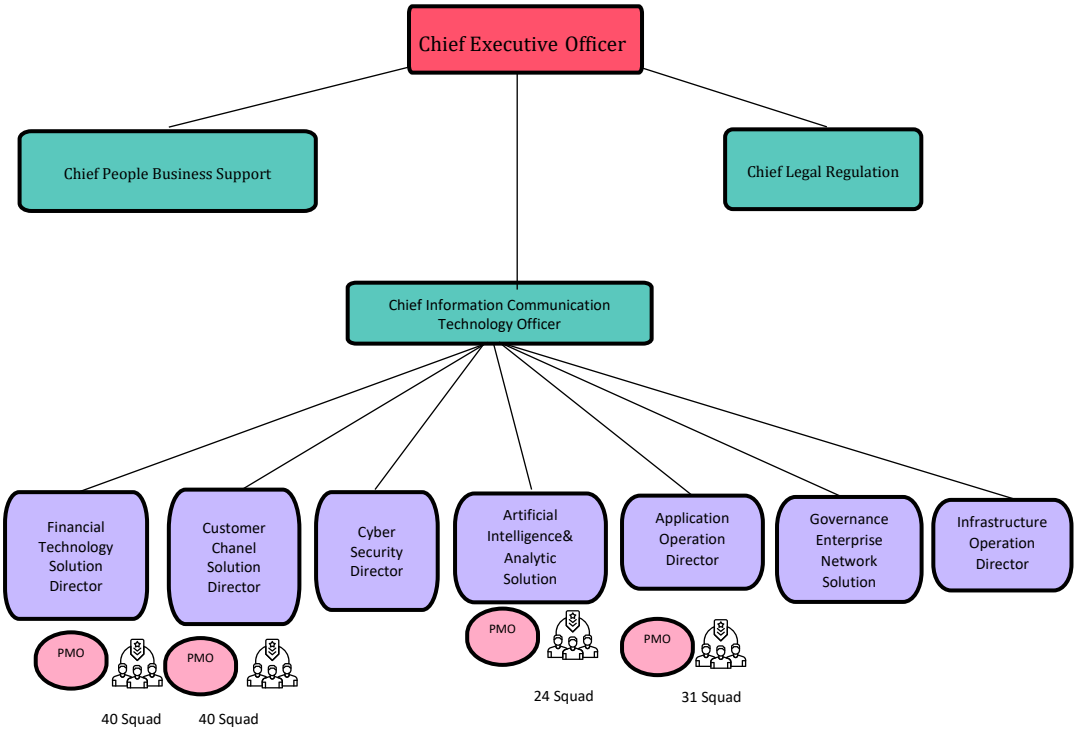
Management Challenges: Integration issues arise between those directorates classified as Agile or non-Agile since strategies differ.

Communication Issues: The organizations adopt operational strategies that act as enablers and impairors of collaboration.

The Chief Information&Communication Technology Officer (CIO) is managing 140 Scrum squads, but 4 directorates out of 7 completely use Agile methodologies; the others still resist. Such hybrid implementation implies the proper balance between freedom and frameworks, which makes the company an ideal object for researching the tendencies of the hybrid management of projects.

Figure 2

Organizational Structure of the Sample Company



4.2. Current agile practicing of the sample company

The organizational structure are mostly under concerns of Development Heads, PMs, Agile Coach and POs. The valuable insight has given by them regarding on the questions listed below;

POs,Agile Team Members: How they are implementing Agile rituals. The reasons behind the decision of the Agile Frameworks.

Agile Coach: What kind of challenges the company has within its complex organizational structure in aligning Agile practices across teams?

Development Managers: How does the company's adaptive approach to Agile methodologies like Scrum or Kanban impact your team's workflow and results?

PMs: What challenges do you face in managing projects that involve multiple directorates using different methodologies?

How do you ensure coherence and collaboration when working with external vendors on project requirements?

The sample company has taken the adaptive approach in applying Agile methodologies and its frameworks such as Scrum, Kanban, Lean, and DevOps blended with whole experience and knowledge. These adaptations are supported by the literature, which shows that the satisfaction arising from implementing the agile methodology decreases with an increase in the company's size (Melo et al., 2011).

Mostly the teams are responsible on operational process are implementing Kanban to utilize its prioritizing of the tasks and handling unexpected issues. Teams are under solution development are implementing Scrum to cooperate with their customer, business units and at the same time can focus on innovations while realizing regulative expectation of the company.

There are changes in the structure of the agile teams, and although the change enhances flexibility and innovation, knowledge management and resource allocation are some of the challenges faced by the current structure of the agile teams (which consist 14-20 members and may include external vendors). The findings also consider that the company complies with its compliance requirements, and agile works in tandem with the objective. In this case, the company follows data protection and privacy guidelines as it releases information through a mechanism set by a government body monthly.

On the other hand, smaller durations of sprints (14-30 days) temper the efficacy while enabling teams to gradually enhance and be flexible enough to meet regulatory requirements and business needs. This balance depicts the distinction between organization adaptability and structure, as the dynamics between Jamous and colleagues (2021) observations depicting resource conflict from innovation, defect management, and customer-facing projects. For instance, using third parties and managing various responsibilities, including innovation projects, defect management, and customer-facing app development, create resource allocation and priority setting conflict.

This complex company-level organizational structure, combined with the various methodologies applied under the sponsor of the CTO, demonstrates a strong commitment to agile transformation. As emphasized in the Literature I and II sections, practicing Agile methodologies can be challenging, and satisfaction tends to decrease as the company size grows. For the Agile Coach guidance of the Agile teams in some how can be insufficient due to the different priorities. The Agile board are responsible on updating the Agile teams for new features or reminding of detailed Agile practices. In some terms requests and requirements from C-Level impact on the Agile Teams views and concerns, Due to these high level concerns teams are struggling to follow Agile Coach units guidance. Thus, there may be a period of distance between teams and agile coach guidance.

According to Development Managers following of the company strategies and innovation and in the same time managing of the others units requests which are not implementing Agile can be cost of overhead.

Lastly, From the PMs views, the company's own approach and custom development solutions; which provide harmony between project management and agile methodologies, might be a valuable model for other companies. However, Coherence and collaboration are complicated by the multiplicity of horizontal organization units, especially in a project where implementation involves different teams of various directorates. The strong possibility that the complex structure will often generate difficulty in ensuring cohesion among diverse teams suggests that anything other than multiple stakeholders and scale will make the project complex for project management. In some cases, the project's requirements are outsourced from external vendors, adding one more level of complexity. These issues drive the necessity for an integrated way of managing agile practices within a complex, large organization.

4.3. Hybrid project management approach

The interviews with PMs and POs were taken longer than the other participants, as they are the key roles for the organizations on understanding of the company's hybrid approaches, collaboration and reduce conflicts between Agile teams and PM. According to gathering valuable information from the participants the Figure 3 depicts the implementation of Scrum Framework and Figure 4 depicts the process conducted on Hybrid Project Management.

The following main topics were mainly addressed in the interviews;

-The primary reason behind the Hybrid Project Management Approach.

-How the company implements its own style Scrum process to bridge between Agile Teams and PMO.

-Project Management Lifecycle of the company around its structured stages with Agile focus.

-Resource balancing between Agile sprints and projects, compliance and security conflicts, and communication gaps, coordination overhead due to multi-project management.

4.3.1. The primary reason behind the hybrid project management approach

Due the being a telecommunication company; security, data privacy, and regulation are the main concerns. Therefore, the sample company adopts a hybrid project management approach driven by the management of complex domains considered with regulatory and security requirements aligned with business and strategic objectives.

On one hand, for management of the business and strategic objectives such as constitutional regulation, security, financial regulation, data privacy, cost management, and budget adherence Waterfall leverages its features such as the structured, predictable nature, etc. With the Waterfall approach, the company aims to ensure compliance, security, and financial integrity, which are non-negotiable in a highly regulated sector. On the other hand, the business and strategic objectives related to AI integration, digital transformation, revenue growth, and market expansion require adapting to change quickly and flexibly which are the core of agile methodologies. Therefore, with a hybrid approach, the sample company aims to remain compliant and secure while simultaneously fostering innovation and market responsiveness. Integrating both methodologies mean adopting a balanced strategy that supports these varied and evolving business goals, aligning with the company's overall business and strategic objectives.

4.3.2. How the company implements its own style Scrum process to bridge between agile teams and PMO

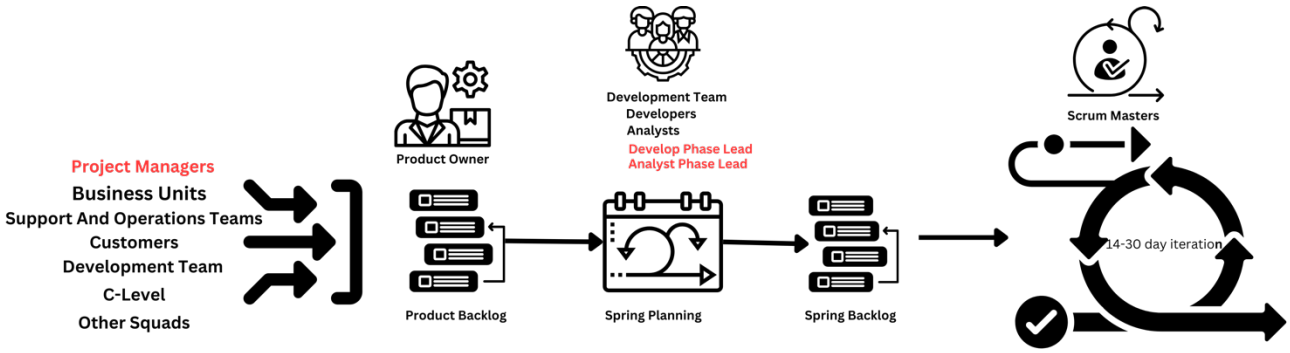
The company is applying Agile Scrum Principles and implementing all the required rituals such as daily stand-ups, sprint planning, sprint reviews, and retrospectives under guidence of its Agile Coachs. The training program are regularly taken by Agile Unit and also documents and articles are published.

As shown in Figure 3, the company customized the Scrum framework for its own solutions to support its Hybrid Project Management approaches. Beside of the usual agile roles the teams have Analyst Phase Leader (APL) and Development Phase Leader (DPL) to bridge between its iterations and Projects under responsibility of the PMOs.

In addition, As can be seen on the Figure 3, the backlog inputs are more diverse than a normal agile team, which means that agile teams in the company need to manage different focal points.

Figure 3

The Sample Company's Scrum Implementation



4.3.3. Project management lifecycle of the company around its structured stages with agile focus

The company, as shown in Figure 4, has a structured process managed by the Project Management Office (PMO) and Agile teams to evaluate tasks related to projects.

Here are step by step how an issue or request evaluated as a project and implementation of all project processes;

Evaluation of a Project: The PMO board plays a crucial role in this evaluation, making final decisions based on requests for evaluation from Agile teams or Business Units, as well as direct requests from C-level executives.

Business units often submit new requirements, called "Fast Track," to Agile teams for consideration. The teams assess these tasks, and if deemed complex enough to qualify as a project, they forward them to the PMO Board.

The board evaluates each task using specific Key Performance Indicators (KPIs) such as stakeholder involvement, impact on multiple services, budget considerations, potential revenue growth, regulatory requirements, and C-level sponsorship. This thorough evaluation ensures that only tasks with significant organizational impact are escalated to project status.

Assignment of a PM: The PMO in the sample company follows the PMBOK 5th edition, implementing five project management stages: Initiating, Planning, Executing, Monitoring & Controlling, and Closing. With the adoption of the PMBOK 7th edition, which emphasizes agile methods, project managers are undergoing training to align with new standards. Once the PMO board qualifies a task as a project, a project manager (PM) is assigned, overseeing 7-8 projects simultaneously and agile teams might be given tasks from various projects aside from operations and business management units. This very high level of diversity in tasks, which causes the prevention of cohesiveness and coherence, is a significant issue. Since there is no fully dedicated agile team for each project, PMs depend on the applied experiential learning process to address this issue, and agile teams concentrate on their domains. However, these might generate incongruity and conflicts whenever teams are multi-tasked with more than two projects simultaneously.

During the initiation stage: The PM defines the project's scope with stakeholders and forms teams. However, due to resource management, Agile teams are not fully dedicated to projects and must balance their sprint work with ongoing tasks.

Mostly, POs and agile teams focus on the product and the development to continue keeping in perspective the in-house developed applications and services that can be realized with agile which provides to adopt any change quickly and fosters customer feedback. Especially in order to prevent conflict between PO and PM and to bridge the gap between Agile teams and PMO, teams are assigned two important roles that are not in Agile.

These custom solution developed by the Sample Company to support the PM, an Analyst Phase Leader (APL) or Development Phase Leader (DPL) from the Agile team assists in project management.

In the Planning: stage, PMs and Product Owners (POs) collaboratively develop project plans, ensuring alignment with Agile teams' sprint plans.

The Execution Stage: involves all Agile teams, with PMs managing schedules and stakeholder engagement while ensuring compliance with regulations.

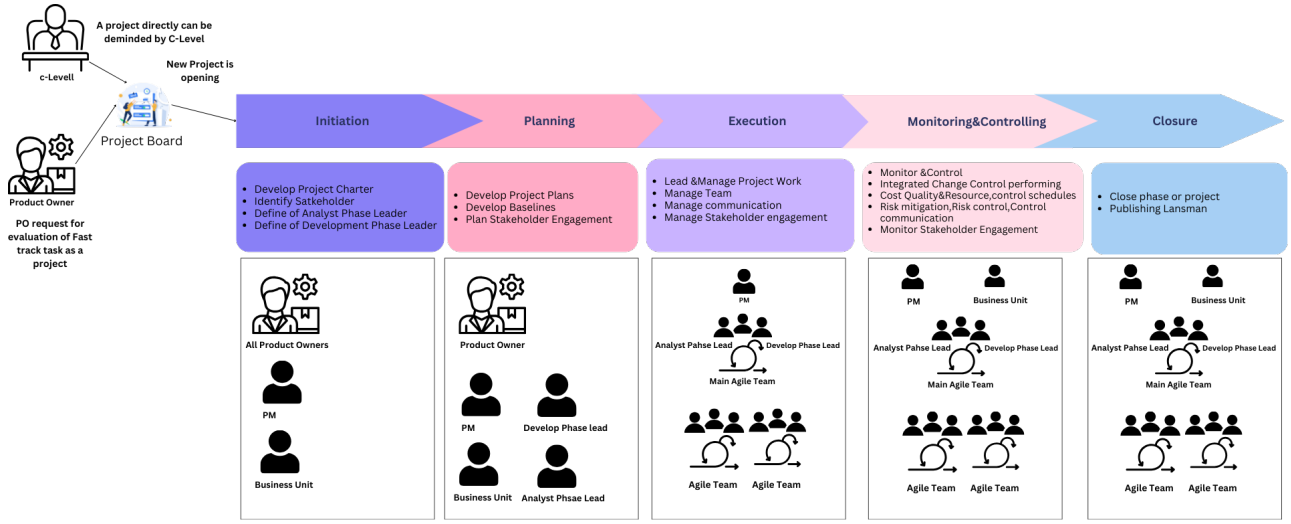
Agile teams work on their iterations, adapting sprint plans as new requirements arise. PMs attend daily stand-ups and review rituals to monitor progress and identify risks, although managing multiple projects makes regular attendance challenging. They may gather updates through status meetings instead. Conflicts may arise due to regulatory and security issues, which require coordination with security experts. During the Monitoring and Controlling phase, PMs and Agile teams conduct integration tests and monitor stakeholder engagement.

When the more Agile Teams are involvement in a Project, the overhead challenges arise for the PMs. To deal with these challenges, the company is adopting an Agile Frameworks such as SAFe that provides guidance to align multi–Agile Teams. The SAFe approach has been very cautious, though, for several reasons: project coordination is complex when serving numerous stakeholders across departments; size and operations are just so enormous that a uniform adoption of agile practices cannot be effected easily; regulatory compliance, with strict security protocols in place, needs a much more controlled and predictable type of project management; concerns over data security and privacy indeed include care in its oversight and risk management; resource allocation is provoking about a balance between current operations, which are running successfully, and new agile initiatives, given the increased efficiency.

Finally, in the Closure Stage: Project outcomes are published, postmortems are conducted, and the project is formally closed.

Figure 4

Hybrid Project Management Life Cycle



4.4. Collaboration and conflict between agile teams and PMs

As a main participants Agile Team Members and PMs provided valuable insight by asking questions;

Agile Team Members: How do you manage collaboration with multiple stakeholders, such as security units, business units, and other Agile teams, while handling tasks from multiple projects?

PMs: How do you ensure effective resource allocation and planning while addressing conflicts and maintaining cohesion across Agile teams working on multiple projects?

Agile teams have become the central of collaboration for the teams by the allocation of duties across all channels. These teams are also engaging with security units, business units, and other agile teams in realizing their responsibilities, concurrently, they are taking tasks as inputs in their backlog from multiple projects.

Furthermore, this collaborative environment of the company requires an APL (Anaylist Phase Leader), as well as a DPL (Develop Phase Leader), to be on hand to support the PMs, in case of if the team's qualifications align well with the project requirements. Whereas PMs focus on resource allocation and planning, APLs and DPLs guide the other agile teams to achieve cohesiveness and allocate side by PMs to manage business units.

To escalate collaborations between teams, the company leverages common standards leadership styles along with agile methodologies and hybrid method approaches. One of them is the servant leadership style, after comprehensive and efficient agile transformation in the company the PMs embraced servant leadership by PMs and the change from control-based to supportive roles.

In addition, the company enables disruptive leadership, where leadership roles constantly shift depending on qualifications and the projects' needs. This, together with APL and DPL roles, makes PMs collaborate with Agile teams, even though this approach remains relatively new globally.

Despite these advancements, can't prevent complete conflicts between PM and agile teams also with the other main participants who are involved in the same project, there are still conflicts that arise due to limited authority given to APLs and DPLs roles, which is distributed among every agile team. This limitation and absence of separated enterprise level of architectural governance to govern and preserve current applications, services, and infrastructure. from agile teams' complicate cohesion and coherence across teams, the result is an increased potential for conflicts between PMs and agile teams.

Overall, Multiple projects managed by project managers and the diverse tasks performed by agile teams are the main reasons for most conflicts. The different responsibilities and the urge to complement PMs with agile teams in both technical and business areas may be overwhelming. Also, the differing opinions between PMs and POs can bring up misaligned objectives during heavy workloads. Since the APLs and DPLs are drawn from agile teams, there may very well be a scenario where a handful of diverse, agile teams work for the very same project, albeit in discreet silos according to their piece of work; therefore, issues of authorization would crop up, and a formal establishment should be there for any kind of disagreement. This underpins, in the very essence, the necessity of a governance structure, which will assist in controlling the conflicts and ensuring that all these teams, which will be affected one way or the other, get to work in a seamless operation under a common umbrella. By addressing those issues and clearly defining who has the authority and the governance, the company will increase collaboration and reduce conflicts, where as a result, the following outcomes and teaming may improve.

4.5. Strengths and weaknesses of current practices

The current state analysis of the company's Hybrid Project Management practices has several strengths and weaknesses which is given briefly as in Table 2;

Table 2

Strengths and Weaknesses of Current Practices

Category	Details
Strengths	The company's strengths include robust training programs and extensive expertise in management, project management, and the Software Development Life Cycle (SDLC), supported by C-level sponsorship of agile methodologies such as Scrum, DevOps, Lean, and Kanban. Agile teams leverage their deep knowledge while implementing these methodologies, providing a valuable model for enterprises.
	The company has invested in agile tools and developed the Trex program to integrate project management workflows with agile methodologies and CI/CD processes. It has created a much more collaborative and transparent environment. This initiative has fostered efficiency in collaboration across the departments and brought transparency among all participants in projects or other tasks.
	Additionally, the company's custom solutions enhance collaboration between agile teams and project managers, preventing conflicts.
Weaknesses	Agile teams are not fully dedicated to projects due to resource management issues, leading project managers to juggle an average of 7-8 projects simultaneously, which detracts from their focus.
	This division of responsibilities creates misalignment and conflict, as project managers prioritize budgets and compliance, while Product Owners concentrate on iterations and product development.
	Each agile team operates independently, which can hinder standardized approaches and cohesion when multiple teams work on the same project.
	The limited authority of Analysts and Development Phase Leaders adds to this challenge, increasing the potential for conflicts with project managers. There is no formal organization in place to manage and maintain legacy applications, services, and infrastructure across ongoing projects.

5. Discussion

This study analyzed the implementation of hybrid agile project management in a telecommunications company under the narrative of the collaboration and conflict between agile teams and project managers. The key findings revealed the fact that, although agile methodologies are adopted extensively in this company, especially Scrum, the necessity to adapt to a hybrid approach is driven by the company's organizational complexity and regulatory requirements. While agile teams operate in their iterations, they are also engaged in project tasks, as well PMs are leading more than 7 projects which poses difficulties in resource allocation and coherency across project teams. The findings of the research

indicate that the hybrid approach is emerging to fill the gap between flexibility in Agile methods and the controlled planning of traditional project management. This is substantially consistent with current literature, which suggests that hybrid methods are capable of enhancing adaptiveness while ensuring systematic compliance with predefined standards and regulations. However, the study also highlights that role boundaries and resource allocation are signification challenges due to the gap in the literature and research. These findings comply with the research by (Tolbert & Parente, 2020), which emphasizes the difficulties of integrating Agile and traditional methods in large organizations. For telecommunications companies, considering adopting a hybrid project management approach may lead to improved project outcomes by leveraging the strengths of both Agile and traditional methods. The sample company's use of a hybrid model allows it to recoup constricted regulatory requirements while fostering innovation and responsiveness to market changes. However, the concurrent allocation of agile teams to multiple projects and assigning to each PM more than 7 projects underscores the need for improved resource management practices. Companies should consider fully dedicating agile teams to specific projects, especially large-scale projects that require long-term development time, to reduce conflicts and enhance focus. Thus, the company may reconsider implementing various Agile frameworks like LeSS or SAFe which it previously avoided due to its resource management policy. Fully dedicated agile teams and using appropriate agile frameworks in hybrid projects could improve collaboration and harmony between teams.

5.1. Theoretical contributions

This research further consolidates the concept of Hybrid Agile Project Management by concretizing it with empirical data gathered from the interviews with the main experts who intensively work with a hybrid approach within the telecommunications sector. The work extends the effort to elaborate on how hybrid methods are practically used and customized in a rigorous, regulated environment. The research also includes studying areas like role clarity and resource management, which have few examples in the sectors and are less emphasized in the literature. To assist its custom approach that APL and DPL roles assignments, the introduction of an enterprise architecture unit aligned with TOGAF could standardize practices and improve cohesion suggestions as negotiators across teams.

5.2. Limitations and challenges

The selected major challenges of significant importance include the management of cultural change required by Agile, integration of Agile practices within various departments, and maintaining coherency across the teams. As well, the complex organizational structure and the dual focus of agile teams on project tasks and sprint iterations also lead to inconsistencies and potential conflicts. Due to regulatory and security considerations, the company and interviewees avoided sharing specific details about the custom framework developed for the hybrid project management solution. Therefore, the custom solutions of the company are mentioned on a high-level basis. The study's scope is limited since only one company was considered, which may limit the generalizability of the findings. Additionally, the reliance on qualitative data from interviews may introduce subjective biases.

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List of Abbrevitations

APL (Analysis Phase Leader) a role assigned from a main agile team involved in a project. APL is a role to assist the PM in business and technical areas to enhance collaboration between agile teams with PMs.

DPL (Development Phase Leader) a role assigned from a main agile team involved in a project.DPL is a role to assist the PM in business and technical areas to enhance collaboration between agile teams with PMs.

TREX Is the sample company program conducted to ıntegratıon traditional project management process wıth agıle to enhance collaboration and decrease conflict.

PM (Project Manager) is an individual responsible for planning, executing, and closing projects, ensuring that they are completed on time, within budget, and to the required quality standards.

PO (Product Owner) a role in agile and Scrum methodologies, responsible for defining the features and requirements of a product, managing the product backlog, and ensuring that the development team delivers value to the business.

PMO (Project Management Office) is a centralized team or department within an organization responsible for maintaining project management standards, and best practices, and overseeing the execution of projects.

PMBOK (Project Management Body of Knowledge) a set of standard terminology, guidelines, and best practices for project management, published by the project management ınstitute (pmı).

Chief Executive Officer (CEO): Responsible for overall company strategy, vision, and leadership.

Chief Technology Officer (CTO): Oversees technology strategy and development.

Chief Information Officer (CIO): Focuses on IT strategy and aligning technology with business goals.

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