OPTIMISING COMMUNICATION CHANNELS FOR ENHANCING PROJECT MANAGEMENT EFFICIENCY IN THE IT SECTOR

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Abstract

This qualitative study explores communication channel in project management in the IT field. The study is looking to determine the main communication channels used, most effective ways of communication integration into agile processes, obstacles that prevent efficient communication, and variables that impact on communication efficiency.

IT professionals with knowledge of project management were interviewed in a semi-structured manner. Thematic analysis was used for data analysis which revealed the emerging themes.

The results show that IT teams mostly depend on digital communication channels like instant messaging, video conferencing, project management tools, email, and shared document repositories. Best practices for integrating communication into project management are holding regular meetings, using project management tool, promoting regular communication, controlling team communication, and documenting decisions.

Nevertheless, the study also points out problems of remote communication, like a delay in response, absence of live interaction and possible misunderstandings. Some of the key factors that affect the communication efficiency include team culture, tool selection and standardization, documented processes, individual preferences, remote work challenges, and cross-functional communication.

The study suggests how to solve the communication challenges in IT organizations: to invest in strong communication infrastructure, to create clear protocols of communication, to be proactive about addressing the communication problems, to develop a team culture of collaboration, and to keep adapting the communication approach.

This study adds to the expanding literature on communication in project management in the IT sector providing recommendations for practitioners and academics to improve project results and overall success in the ever-changing digital environment.

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Chapter 1: Introduction:

1.1 Chapter Overview

The following chapter aims to develop a strong foundation for the research by introducing the research topic, which is "Optimising Communication Channels for Enhancing Project Management Efficiency in the IT Sector". It will outline the research aims, objectives and questions that will be addressed through the primary and secondary research conducted. In addition, the significance of the research in the contemporary world will be highlighted along with the gaps to grab identified, providing a brief overview of the entire research paper. Lastly, the entire research paper will be outlined, highlighting each chapter and its description.

1.2 Research Background

The field of project management has seen a significant evolution in recent years, with the adoption of agile methodologies becoming increasingly prevalent, particularly in the fast-paced and dynamic environment of the IT sector. Project management is devoted to the issue of iterated development, ongoing improvement, and flexibility around changes in requirements. This approach precisely matches the permanent changes which IT projects feature.

Effective communication plays a critical role in the success of project management, facilitating collaboration among team members, stakeholders, and other project stakeholders. Even though it is recognized how important it is to be agile regarding the communication channel and the strategy in the IT field, the understanding of the nice techniques used in this effort is not complete.

Existing literature offers some insights into the role of communication in project management and the use of specific communication tools and techniques in agile practices. However, there remains a notable gap in empirical research that systematically identifies the primary communication channels employed within the IT sector. Additionally, there is a need for further investigation into their impact on project management outcomes, as well as the strategic adoption of communication channels within project management practices.

This study aims to address this gap in the literature by providing a comprehensive analysis of communication channels in project management within the context of the IT sector. The research will spotlight communication practices and their efficiency influence in task management. Hence, the study will widen the knowledge base for practitioners and researchers with the ultimate aim of improving and perfecting the advancement of task management practices in the IT sector.

1.3 Problem Statement

The effectiveness of communication strategies throughout the various stages of project management in the IT sector is paramount, as they play a crucial role in supporting team engagement and project success. However, as highlighted by Dühring and Zerfass (2021), these strategies face significant challenges that impact the overall efficiency and outcomes of project management within the IT sector. For instance, the Indian IT sector encounters communication hurdles due to time zone differences when managing projects for clients from North America and Europe.

To address these challenges, it is essential to offer best practices for communication in project management within the IT sector. Furthermore, this study aims to highlight influential factors of communication channels, providing valuable insights for future researchers seeking to explore and develop solutions to address communication challenges. By doing so, we can enhance communication practices and ultimately improve project outcomes in the IT sector.

1.4 Research Aims

The research aims to elaborate on the role of effective communication channels within the IT sectors to explore how they effectively enhance the project management efficiency. By exploring their dynamic integration between communication strategies and project methodologies and tools within the organisational framework, the study further seeks to provide insights into why organisations need to work on their strategic communication adoption to foster employee engagement and productivity in project management.

1.5 Research Objectives

The following research objectives will be addressed through the research.

● To analyze the communication channels used in the IT sector and their impact on project management.

● To identify optimal methodologies for incorporating strategic communication to drive success at each stage of project management within the IT sector.

● To investigate the challenges within communication channels used that impact the efficiency of project management within the IT sector.

●To explore the factors influencing communication channels to enable efficient project management practices within the IT sector.

1.6 Research Question

The following research questions will be answered through this research:

What are the optimum communication channels for enhancing in project management efficiency in the IT sector?

1.8 Research Hypotheses

The research hypotheses are as follows:

Hypothesis 1: There is a positive relationship between the use of effective communication channels and project completion time in project management in the IT sector. For example, project phases that require technical businesses to communicate with their suppliers might fit the description of rapid completion, while phases that do not can last for a long period of time.

Hypothesis 2: The use of strategic communication channels positively influences stakeholder satisfaction in project management in the IT sector. Such projects conducted based on media engagement strategies will score higher on stakeholder satisfaction than those which do not.

Hypothesis 3: Effective communication channels contribute to better adherence to project budgets in project management in the IT sector. In this respect, projects which are communicative effective

will have a stronger chance to keep within budget compared to others which are in communication effectiveness weaker.

1.9 Research Gaps

The topic of this research is important in the contemporary world as the IT sector is becoming rapidly virtual forcing people to communicate through different online channels. Thus, Dühring and Zerfass, (2021) stated that the importance of communication strategies and the use of communication channels in the modern workplace cannot be ignored. However, there is a significant gap in academia regarding the most influential factors of communication strategies integration in the project management of the IT sector, which will be addressed in this research through both primary and secondary research. The primary research approach used is qualitative using semi-structured interviews.

1.10 Research Outline

An outline of the entire research paper is provided below describing the chapters and their content.

In chapter 1, The topic is introduced, stating the problems to be addressed. The research questions, aims, and objectives are outlined. Further, the potential research gaps and significance have been highlighted.

In chapter 2 Literature Review, it delves into numerous works to construct a comprehensive understanding of the topic at hand. It thoroughly examines a diverse array of academic contributions, drawing from various disciplines to establish a robust knowledge base.
By consolidating a broad range of academic sources, this chapter conducts a comprehensive analysis of essential concepts and insights pertinent to the research topic. Moreover, it discerns potential research gaps and avenues for future exploration, thereby enriching scholarly dialogue within the field.
In chapter 3 Research Methodology is methodological foundation of the literature, Ranging from research paradigm, design, approach, and additional methodological considerations.

Chapter 4, Findings and Analysis, in this chapter the findings have been discussed by analysing the data collected from interviews using thematic analysis.

Chapter 5, Discussion, this chapter provides an in-depth analysis of the research findings. It delves into the central role of communication, explores best practices and challenges identified, and discusses factors influencing communication effectiveness. Additionally, practical implications for practice, limitations of the study, and suggestions for further research are addressed.

chapter 6, Conclusion, this chapter sums up the main findings of the study. It discusses the practical implications, acknowledges limitations, and suggests areas for future research. It underscores the importance of refining communication strategies for project success in the ever-evolving digital landscape of the IT Sector

1.11 Chapter Summary

Overall, the chapter has introduced the research topic along with its different key aspects. For instance, it has offered a background overview of the topic, highlighting available data regarding the communication strategies of project management. Further, the problems that are aimed to be addressed have been stated appropriately in the chapter, including the lack of data regarding the influential factors of different communication channels in project management. The research approach and structure have been outlined including the research objectives, questions, and significance.

Chapter 2: Literature Review

2.1 Introduction:

In a rapidly evolving industry driven by the integration of advanced technology and cutting-edge software tools, project management emerges as a pivotal driver of industrial progress, particularly within the dynamic realm of the Information Technology (IT) sector. This section explores the intricacies of these project management approaches, with a particular emphasis on the role of communication channels in driving organizational success. Additionally, drawing on established literature and theoretical frameworks, this chapter examines the opportunities and obstacles associated with communication channels that impact the efficacy of project management practices.

2.2 Communication Channels Used in Current Work Practices:

The present scenario in the industry, where effective organizational outcomes are concerned, is largely dependent on effective communication among internal and external stakeholders. They are all covered by the communicative channels. Good communication allows the team members to be aware of the leader or manager's view and the organization's objectives of projects. Communication channels play a significant role in team collaboration network by helping in providing updates, facilitating informed decision, and controlling project outcomes, as highlighted by Jillian Zambon (Ed.D., MBA, PMP).

Nordahl-Pedersen and Heggholmen (2023) argue that to have an effective project outcome, proper communication and sharing of information are key factors. Team members communication and interaction ensures high performance and commitment, leading to operational effectiveness and project success. Those testing period and meeting various expectations when developing software and services in IT sector could be quite extended. For the duration of the project, effective communication is critical in passing the information on the budget, timescale, quality, and effectiveness. In the organizational arena, different communication models and media such as email, face-to-face meetings, print media, and video conferencing influence employee-organization relationships. The worldwide pandemic of 2019 caused a lot of multinationals IT firms to have to work from home, which increased the use of online community channels and project management tools. The businesses such as Texaport use the Microsoft 365 and cloud phone

systems so that the communication among the employees becomes better which the success factor is attributed to.

Conversely, organizations that do not implement good communication approaches result in poor performance, disputes between the employees, burnout, and a bad working environment. The IT department can achieve effective communication, centralization of task management, and follow-up ability which is a success in IT projects using communication channels just like Jira, Asana, and Trello.

In general, the IT Sector emphasizing on effective communication channels exposes the need to include the strategic communication practices for the successful project management. Communication not only plays a critical role in the team collaboration and decision making but also in the overall success of an organization that is constantly changing in the IT landscape.

2.3 Optimal methodologies for incorporating strategic communication to drive paramount success in project management within the IT sector.

Strategic communication is fundamental for the success of project management in the IT sector. As per Ramezani and Camarinha-Matos (2020), techniques in project management focus on real-time collaboration, responsiveness to change and adaptability to change. Effective communication has a significant role in achieving such objectives of methodology. The best practices through strategic communication ensure that projects in the IT sector can bring paramount success.

2.3.1. Strategic communication for establishing clear channels of communication:

Wang *et al.* (2023), mention that the IT sector sets up transparent and open communication channels in a team project. They use tools such as instant messaging platforms to facilitate effective communication. Microsoft (2024), stated on their official website that they use their in-house communication tool Yammer as their primary communication platform to inform the team members about the changes in a project and to answer questions of the team members. They also use communication platforms to provide real-time insights that improve employee experiences. Team members stay updated through a communication channel about the project developments. Bertin et al (2020), argue that the heavy reliance on the communication channels by IT companies

can lead to an overloading of information and team members in the project can feel overwhelmed by the constant messages and notifications. By this analysis, it can be evaluated that there should be a balance between the direct and indirect communication channels, and both should be integrated for effortless and project management in the IT sector.

2.3.2 Strategic communication for defining objectives of projects:

With strategic communication, the IT companies' community the objectives of a project and ensure that all the team members understand the mission, vision and desired results of the project. Oracle (2024) stated that they use their communication services for centralising the project plans. Their WebRTC Session Controller is a communication platform that is used for optimising session routing and interoperability. However, Pargaonkar (2023), argues that as the project objective evolves rapidly, the communicable strategies also have to evolve with the changing priorities and requirements in the IT sector. From the analysis, it can be comprehended that employees in the IT sector may struggle with the changing nature of communication strategies and have steep experiences in learning. This can impact the productivity of the team members in projects, and there also can be compatibility issues leading to workflow disruptions,

2.3.3 Demonstrating iterative communication:

Rush and Connolly (2020) pointed out that as an agile project in the IT sector allows iterative communication, they implement daily communication sessions like sprint reviews or daily meetings. From this information, it can be analysed that companies in the world are focused on short and crisp yet meaningful interactions, which can allow the team members to talk about the progress of the project and the perceived challenges and opt for continuous improvements.

2.3.4. Encourage team members' collaboration using strategic communication:

Ames Zegarra and Sabanovic (2022), mention that in agile projects in the It sector, various cross-functional teams are involved. All of them possess divergent skills needed for the success of the project. For this reason, Rampa and Agogué (2021), pointed out that IT companies foster collaboration among those coming from various disciplines by conducting regular meetings, brainstorming sessions, and workshops. Moirano et al (2020), affirm that this inter-disciplinary collaboration helps in creating latest ideas and solves problems promptly, encouraging the team

members in a project to work in an inclusive environment. IBM (2024) mentioned that they use their CEA or "Communication Enabled Application" Web collaboration session to interact with the team members so that they can collaborate among themselves by sharing linked browser sessions.

However, Meares and Bennett (2020), argue that creating collaboration in cross-cultural teams is challenging in IT companies as they suffer various departmental silos. In projects, team members may suffer to balance the cross-disciplinary collaboration and maintain the socialised tasks. From the findings of the Meares and Bennett (2020), it can be said that there are possibilities of lack of coordination among the departments and knowledge may not be effectively shared across the teams. This will lead to working chaos, failure, and poor outcomes for the project. There must be a balance between collaboration and clarity among the team members.

2.4. Challenges in Communication Channels in Project Management in the IT sector

Project management tools are fundamental for the management and coordination of complex project tasks. They also assist in tracking the progression of tasks and enable timely delivery of the project to the clients. Although there are several benefits of communication tools in the IT sector, several challenges limit the productivity of the team members.

Over-dependence on the asynchronous strategy of communication:

Over-dependence on the asynchronous strategy of communication: Many project tools help in asynchronous communication through updates and comments. Over-reliance on such communication tools leads to delays in the decision-making process, which slows the overall development of a project. This information affirms the fact that project management tools can lead to misunderstandings and misinterpretations, decreasing the quality of a project in the IT sector.

Fragmented Communication:

A study conducted by Zoho (2024), showed that project management tools lead to fragmented communication. Zoho (2024), pointed out that they have experienced fragmented communication problems with the team members. Here, team members decentralised their conversion with incomplete modes of communication. They have addressed this issue by sourcing

multiple communication applications for their employees. They have opted for a unified communication platform to reduce the time that employees waste accessing important information and to lessen the chances of miscommunication. Zoho (2024), stated that the Zoho Cliq is their communication tool, which all team members use for unified communication, and it made the team members 52 per cent more productive. IT companies often struggle due to fragmented communication, and there must be a unified communication tool where different information can be streamlined, and employees can reduce wasting time in switching different communication tools to consolidate information.

Security Concerns:

In the IT sector, projects are involved in proprietary and sensitive information. In this scenario, as state by Chadwick *et al. (*2020), ensuring data security and preventing cyber-attacks in the system is necessary. Multiple challenges, in this case, impact the overall productivity of IT projects. One of the major issues is the confidentiality challenges. As project management includes several project management tools like software, breaches of sensitive information are common and can lead to compromise and leads of data. Perwej *et al.* (2021), argue that IT companies have to build robust security frameworks to protect team members from vulnerabilities.

Cultural Barriers:

The IT sector is rapidly diversified in the contemporary world, and the project management process is witnessing these influences as well. The influence of cultural barriers in the communication channels is critical. As stated by Brett, Behfar, and Kern (2020), the emphasis on diversity was prevalently prioritised by the IT sector due to its ability to offer innovation and creativity. The intention to gather more creativity and innovation in the IT sector by acquiring employees from diverse backgrounds has led to the challenge of communication forced by cultural barriers. In addition, as stated by Brett, Behfar, and Kern (2020), the communication process is not restricted to verbal communication only, as nonverbal cues influence the outcome of the communication as well. Thus, cultural barriers are key challenges faced by project management in the IT sector, hindering the productivity of project management tools as they limit the outcome of non-verbal cues.

As projects in the IT sector involve different team members coming from different backgrounds, they also possess different communication styles. One of the major challenges of the varying communication styles is that it can lead to misinterpretations or misunderstandings in communication. Safapour *et al.* (2022), observed that misunderstanding in projects results in delays, errors, and reworks and reduces the collaborative approach of a project team. Pangrazio, Godhe, and Ledesma (2020), mentioned that technical terms in different countries are different, and the tech jargons vary in every context. Morrison-Smith and Ruiz (2020) suggested that the project manager, in this case, can use a commonly known language such as English, where the project members can get a nuanced understanding and the chances of misinterpreting can also be lessened.

According to SAP (2023), most team members in their company ate bi-lingual or multi-lingual. They use translation applications, Google Translate and other tools to bridge the gap of communication challenges. They encourage the team members to learn new languages and help each other by learning the language curve. It enhances their cooperation with the clients and mutual collaboration. It is evident from such information that language and cultural barriers have a significant impact on the successful completion of projects in the Its sector. The project managers must incorporate cultural sensitivity into the team members with effective training in languages.

Differences in Time Zone:

Globalisation has critically influenced the IT sector as it connects organisations from different parts of the world. As stated by Lee (2021), the COVID-19 pandemic has forced the IT sector-based project management process to emphasise remote work which forced the communication to be online channel-based as well. Therefore, the diversity of the project management teams forced by virtual communication was exposed to critical challenges due to the differences in the time zone of the team members. The limited overlapping of time zones and delayed responses in communication led to hindering the overall outcome of project management and the productivity of the project management tools. Thus, the negative influence of diversity in terms of time zones is critical, affecting the overall productivity of the project management teams and tools in the IT sector.

2.5 The factors shaping communication channels to enable efficient and project management practices within the IT sector.

Project management is a complex task and requires the involvement of various stakeholders. The presence of multiple stakeholders and numerous stages of the project often leads to challenges which further require dedicated support from robust communication using different channels to ensure efficiency and agility in the entire project management process of the IT sector.

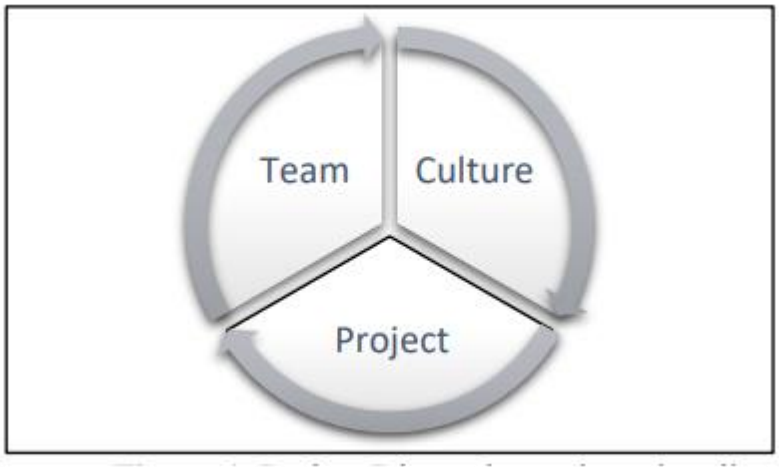

Figure: Dimensions of Project Management

Source: (Noteboom *et al.* 2021),

As per the above image by Noteboom *et al.* (2021), the project management process has different dimensions, including teams, cultures, and the project. Therefore, the ability to create a relationship among these dimensions requires dedicated support, or a relationship between these dimensions requires multifaceted communication channels. The communication channels in project management are further divided into several factors. These factors include external and internal project communication, which can be divided further into other different underlying factors. As stated by Nyandongo and Davids (2020), the communication channels are divided into two critical factors including external and internal. In addition, these factors are divided into written communication, interpersonal communication, and scheduled and non-scheduled

communication. These types of communication channels require resources like documents, written data, and project management systems used for communication.

One of the key factors of communication channels that is primarily prevalent in the project management process in the IT sector is the interpersonal communication which occurs between project stakeholders, including managers and team members. On the contrary, Swart, Bond-Barnard, and Chugh (2022), have highlighted that the factors of communication channels in the modern and digitalised world include trust, cultural diversity, and different collaboration tools and technologies. In addition, Swart, Bond-Barnard, and Chugh (2022), also discussed that the project management team consist of different and diverse people and therefore, the role of leadership in offering psychological safety to the team members is assessed as a critically important factor in the successful flow of communication channels.

As stated by Ju, Ferreira, and Wang (2020), electronic information often acts as a critical factor of communication channels in the project management of the IT sector. In addition, Ju, Ferreira, and Wang (2020), have also highlighted that the pervasive innovation atmosphere is one of the other critical factors of communication channels by accelerating business processes and improving the overall flow of communication and coordination in project management. In the context of project management in the IT sector, teams promote organisational project agility and lead to the success of the used communication channels.

The leadership in the project management teams have been highlighted as a critical factor that easily coordinates different communication channels, as stated by Shakeri and Khalilzadeh (2020). They highlighted that good communication and good leadership go hand in hand, and therefore, the communication channels require dedicated support from leadership to yield the desired results from the project management process. More specifically, the use of different leadership styles and their emphasis on communication also influence the efficiency of the communication process in the project management of the IT sector. For instance, as stated by Shakeri and Khalilzadeh (2020), the autocratic leadership style emphasised by project managers in the IT sector leads to decreased communication as the team members often act in a certain way that serves the demands of the leaders from the project management.

Project managers that emphasise the democratic, servant, or type of leadership styles empower the team participating in the project management of the IT sector. Thus, leadership styles

can be assessed as critical factors that influence communication channels. Overall, the communication channels in project management in the IT sector are influenced by different critical factors, including leadership, leadership styles, interpersonal communication, trust, cultural diversity, and many more.

2.5.1.The Influence of the Technological Developments on the Communication Channels in Project Management

The development of technology has made the process of communication to be used in project management to be conducted in a completely different way in IT sector. According to Rosen, Levin, & McBride, (2021) the advent of digital instruments and software has made the process of communication speedier and more organized. Instant communication and collaboration have been facilitated by applications such as Slack, Microsoft Teams, and Zoom which are used by project team members regardless of their location.

In addition, the AI and machine learning integration in communication tools has facilitated the innovation of project management. As per Bhardwaj, Subramanian, & Srinivasan, (2021) they can automate routine communication tasks, analyze data for valuable aspects, and foretell project outcomes depending on historical data. But also, Kumar, Shankar, & Choudhury, (2020) mentioned that the application of these technologies also creates issues such as personal data and security problems and ongoing increasing of employees to work with these new tools.

2.5.2. The role of interpersonal skills in the effective communication for Project management

Although technology is a critical factor, the underlying aspects of communication in project management rely on interpersonal skills. In relation to the work of Park & Lee (2020), emotional intelligence, active listening, empathy, and conflict resolution abilities become crucial for good communication in a project team. As per Mishra, Boynton, & Mishra, (2020) these abilities contribute greatly to the development of trust, creation of open conversation, and upholding mutual understanding among team members, all of which are particularly important in project management.

2.5.3. The Impact of Organizational Culture on Communication in Project Management

The communication channels in project management are affected by the organizational culture. Denning (2020) states that an organization with an open and collaborative culture supports transparent and frequent communication, a prerequisite of project management. Conversely, Alharbi & Yusuf, (2021) states that the hierarchical and bureaucratic culture prevents proper communication and slows down the agility in project management.

2.6 Literature Gap

While the research paper regarding how communicational efficiency tends to shape project management within the IT sector discusses the components or factors that effectively enhance or mitigate the impact of communication efficiency, the study is not without gaps. One of the most notable gaps in the existing literature is the discussion of automation and machine learning systems which have been popular in recent times. Furthermore, while both positive and negative factors of effective communication-fail to provide sufficient information on how to rid those disadvantages to grow the project's effectiveness.

2.7 Chapter Summary

Overall, this literature review discusses the importance of communication channels in project management in the field of IT and their implications for project outcomes. It starts by underlining the crucial role of agile methodologies in the IT sector, specifically their flexibility and ability to respond to change. One of the critical factors in project management is effective communication which helps in promoting collaboration and ensuring project success.

The chapter describes the existing communication channels in the IT sector, which cover all types of communication – face-to-face, written, video and IT-based collaborative tools. It also emphasizes the role of the effective communication in the process of achieving team alignment in the context of project success, with reference to the companies that have reached the communication tools into their project management.

In addition, the chapter reviews proper ways of implementing strategic communication in project management. It describes the necessity of setting up clear communication paths, determining project goals, and fostering team cooperation. Some examples of companies that

utilize communication tools such as Yammer and WebRTC Session Controller are given to demonstrate how communication can improve project outcomes.

Nevertheless, the chapter also addresses the limitations present in communication lines that limit the efficiency of project management tools in IT. Problems such as over-reliance on asynchronous communication, broken communication, security issues, cultural barriers, and time differences are presented as challenges which can affect the efficiency of the project.

Moreover, the section analyses determinants of the communication channels for effective project management in the IT sector. It points out leadership, interpersonal communication, trust, and cultural diversity in influencing communication channels. The chapter focuses on the requirement of harmony between various communication media to support efficient project management.

Summing up, this chapter gives an in-depth reflection on communication channels used in project management in IT. It brings to the forefront the opportunities and challenges in communication channels and the factors that affect their effectiveness. The chapter creates a foundation for the future research on the optimization of communication channels to enhance the effectiveness of the project management in the IT sector.

Chapter 3: Research Methodology

3.1 Introduction

This chapter outlines the selected methods that have been used to conduct this research project. The methodology is critical to the research as it is like a guide to be used in investigating the research problem and accomplishing the research objectives. It also provides integrity, truth and reliability of the study. The methodology chapter will discuss the research paradigm, approaches, methods, data collection method, analysis method, reliability, and validity, ethical consideration, and limitations.

3.2 Research Paradigm

According to Rehman (2016), the research paradigm is the foundation of the research that offers philosophical and conceptual Delon. It defines the type of reality under analysis (ontology), the connection between the researcher and reality (epistemology), and how this reality is understood and interpreted (methodology).

Ontology is our perception of reality or what being is or the nature of being. This study uses a constructivist ontological position, where reality is said to be created through people's interactions with their social worlds. This position is right for this study since it explores the communication channels in project management in the IT sector, which is a subject that is highly related to social interactions and subjective perceptions.

Epistemological issues are about what knowledge is and what counts as knowledge in a certain field. This research employs an interpretivist epistemological stand, where the researcher is to understand the subjective experiences of people. This position is reasonable, as the study is set to comprehend the IT professional's perception and experience in communication channels during project management.

The methodology is the outline and process of the research which includes steps from general assumptions to specific methods of data accumulation and analysis. This study uses a qualitative research approach and is focused on the utilization and success of communication channels in project management within the IT sector. This method is more suitable for the detailed

examination of the research problem, and thus, it offers expressed, extended, and sophisticated results.

3.2 Research Strategy

The research methodology to be used for this study is qualitative which is suitable for probing complex phenomena that necessitate a profound understanding. The approach was selected because **it enabled the researcher to** study the attitudes and experiences of IT professionals in connection to the communication channels in project management. According to Fossey (2022), Qualitative research focuses on getting insight into the 'why' and 'how' of phenomena, which follows with the appropriateness for our research objectives.

The qualitative method also offers the required adaptability to accommodate new themes and trends that may occur during the process of research. This flexibility is especially beneficial in the IT field, which is among the most dynamic, where new communication practices can appear at any time.

The semi-structured interview form will be used to apply the qualitative research approach.

3.2.1 Semi-Structured Interviews

In this research, semi-structured interviews have been selected as the main data collection method. Adeoye-Qlatunde (2021) mentioned that this approach entails an interview guide, which offers precise guidelines for the interviewers and provides consistent qualitative data.

Semi-structured interviews are intended to be interviewer-cued with a set of questions in advance but also permit the interviewer to deviate and probe more into the subject. Thus, it gives a happy medium between the structured interview that does not allow for probing and the unstructured interview that can go away too far from the research questions.

Semi-structured interviews are highly appropriate for this research as they provide the opportunity for a comprehensive discussion of the participants' experiences and points of view. This approach offers the opportunity to change the interview guide when new themes or ideas come up during the interviews, which is crucial for a fast-growing field of IT. The interviews will be held with the people that are professionals in IT sector having some expertise in project management. The participants will have to provide information about their experience with and

perception of different communication channels, their pros and cons and their impact on project outcomes. The interviews are going to be audio recorded and transcribed for subsequent analysis.

3.3 Research Methods

3.3.1 Qualitative vs Quantitative vs Mixed Research Methods

According to Taherdoost (2022), Research methods often fall into three categories: qualitative, quantitative, and mixed methods. Qualitative research is open-ended and seeks to know “how” or “why” a phenomenon takes place. It does this with the help of direct quotes and detailed descriptions. On the other hand, quantitative research is based on the measurement of quantity or amount and is appropriate for answering questions that require a response in the form of 'how much' or 'how many'. Mixed methods research combines qualitative and quantitative method research methods.

Every approach has both advantages and disadvantages. Qualitative research is versatile and has a great focus on the context; however, it is time-consuming, and it does not yield generalizable results. Quantitative research enables a more extensive study with many subjects and the results are statistically significant; however, it does not capture the context of the phenomenon. In this case, mixed methods are able to bring a complete vision, but it is very hard to combine the results.

A qualitative approach has been selected for this research due to its appropriateness for research objectives. The objective of the present research is to investigate and comprehend the experiences and perceptions of IT professionals regarding communication channels in project management that are more suitable to be addressed by a qualitative design.

3.3.2 Qualitative Research Methods

The qualitative methods selected for this study include semi-structured interviews and document analysis. The semi-structured interviews, discussed in the previous section, offer a chance to conduct a comprehensive study of the subject participants’ experiences and perceptions. They allow for the possibility to adjust to new topics or ideas that arise during the interviews, which is crucial in a dynamic sector like IT since.

Document analysis will also serve as an alternative means of data collection. This is done

by looking through the old research topic documentation, such as project documentation, communication records and other relevant documents. Document analysis is an inside look at the communication practices in project management and can provide more insights that might be missed in interviews.

The selection of these qualitative approaches is justified on the grounds that they give a profound, fine-grained understanding of the research topic, thus providing extensive data that can be used to address the research questions.

3.4 Data Collection Method

3.4.1 Primary Data

The data collection method is the most important part of a research methodology as it helps to collect data that generates latest ideas. For this research topic, a ***primary*** *qualitative data collection method* has been followed for specific methods, and ***an interview questionnaire instrument*** has been adopted. As per Ribeiro-Navarrete et al (2021), the primary data collection method is imperative for research as it provides real-time information about the nature of the study. Similarly, to get specific and hands-on information about the optimisation of communication channels for increasing the efficiency of project management in the IT sector, the primary qualitative method has paramount importance. The interview method helped the paper to capture the current and recent state of communication channels that are present in Project Management. This was significant for proposing optimisation strategies, which are not just theoretical but also relevant to practice, particularly in the current IT sector.

The interview was an effective tool that was well-designed and used to collect information from various stakeholders. Husband, (2020) mentioned that this tool is beneficial in collecting data from a diverse and large sample of participants. This research will obtain the primary data using semi-structured interviews. The participants will be IT professionals knowledgeable in project management. The interviews will take place either in person, via telephone, or video conferencing, subject to the participants' choice and availability.

The interview questions will aim at probing the participants' practice and understanding of

various communication channels in project management. The interviews will be audio-taped upon agreement of the participants and their transcriptions will later be used for data analysis.

3.4.2 Secondary Data

Secondary data is the data, which was already gathered by someone else and, thus, is ready for use by other researchers. This research will be a document analysis of secondary data. This involves evaluating the existing literature, project documents, communication files, and other necessary paperwork.

The secondary data will also give more information about the research topic and will complement the primary data obtained through interviews. This will also contribute to the completeness and credibility of the research results.

The method of data collection is going to be conducted in accordance with the ethical principles adhering to the privacy and confidentiality of the participants. All personal data collected during the study will be anonymized and kept on a secure storage to protect the privacy of the participants.

3.5 Sampling Strategy

In every primary qualitative research, sampling is important as it helps to select a small group of population from a large data set to get a generalised perception (Rashid et al. 2021). The strategy of sampling for this study will be purposive sampling According to Suri (2011), a non-probability sampling method often used in qualitative research. The purposive sampling selects participants of the study based on their knowledge, experiences, or positions on the investigation topic. The study will use a sample of IT professionals who are familiar with project management. They are selected because their pasts and perspectives are especially appropriate to the research questions. The concept of saturation will inform the size of the sample, which is where no new information or themes are observed in the data. These were the individuals who were associated with project management in the IT sector.

According to McEwan (2020), Population selection in research is pivotal as it increases the validity of the research. For this dissertation, ***a sample size of five individuals*** had been selected

who had experience working in the project management departments in the IT sectors. A sample size of five people was feasible as it helped in smooth and easy data collection that ensured the study would be carried out within realistic constraints like money and time. A larger sample size could have delayed the research outcomes, and it was also logistically challenging.

As the IT sector involves different company sizes, technical landscapes and project scales, the population of the sample represents the variations proportionally. It aimed to get a generalised idea of how they use and what their experiences are in using the different communication channels for the benefit of the projects.

	Sector	**Role**	**Company**
Interviewee 1	IT	Project Manager/ Director	Company A (India based)
Interviewee 2	IT	Test Lead	
Interviewee 3	IT	Tech Lead	
Interviewee 4	IT	Senior Test Engineer	Company B (Ireland based)
Interviewee 5	IT	DevOps Team Member	

3.6 Data Analysis Method

As per Dobakhti (2020), the data collection method enhances the credibility of the research. in qualitative research, the selection of the data analysis method plays a particularly significant role because it significantly affects the perception and interpretation of research data.

There are various analysis methods including content analysis, narrative analysis, grounded theory. While each analysis method has its own strengths and applications. However, Thematic analysis has emerged as the most suitable analysis method. As per Braun & Clarke (2006), The method offers a systematic and rigorous approach to the identification of patterns, themes, and

meanings in qualitative data. It allows researcher to organize qualitative data collection and analysis more systematically and efficiently and is especially useful in studies that involve semi-structured interviews, like the one in this research.

Furthermore, Thematic analysis is particularly well-aligned with the interpretivist epistemological stance that underpins this study. According to Braun & Clarke (2019), Thematic analysis, aligned with an interpretivist methodology, aims to delve into the subjective viewpoints, opinions, and experiences of participants, exploring their attitudes and perceptions in depth.

By employing thematic analysis, this research aims to provide a rigorous and systematic approach for the interpretation of the qualitative data collected from semi-structured interviews conducted

3.6.1 Thematic Data analysis method

Aria *et al.* (2022) pointed out that thematic data analysis helps to investigate a dataset more intricately. It helped this paper to observe the trends, strengths and challenges of the different communication channels used by the project management stakeholders in the IT sector. With the application of thematic data analysis, the commonalities and differences in the patterns of using the communication channels could be observed easily. Moreover, the ***thematic data analysis*** technique drew meaningful results from the interview data, identifying the visual representation. Key insights were gained on the most preferred communication channels in Project management. The reliability and credibility of the research findings were enhanced by thematic data analysis as the interview data was thoroughly scrutinised based on empirical evidence rather than depending on personal bias or anecdotal observations. It further helped in making benchmarks and comparisons between the findings of the existing data. Percentages were measures to analyse the primary trends and to contextualise the communication practices in project management in the IT sector**.**

3.7 Reliability and Validity

In this research paper, the sampling strategy and thematic data analysis have enhanced the reliability of the data found and minimised the bias by providing a systematic interpretation. It also ensures the validity of empirical scrutiny and representative sampling and strengthens the

credibility of the research findings. In this connection, it needs to be mentioned that the concept of reliability is typically referred to as the consistency of a measure while validity can indicate the overall accuracy in the research work in terms of the measure. Keeping the dynamic and random nature of the IT sector in mind, the cross-sectional approach provided a comprehensive view of the efficiency of different communication channels at a specific point in time. This can certainly signify the accuracy of the current research work for the creation of validity and reliability. Moreover, this approach was favourable in understanding the current state and nature of the communication practices, challenges, and preferences in the project management of the IT sector. This can, directly and indirectly, enhance the consistency of the research work regarding the study topic. Data collected at a definite time made the research completion much easier as it had time constraints.

3.8 Ethical Considerations

Research based on primary data collection has to undergo ethical parameters. This research maintained ethical considerations to uphold the integrity of the study. All participants will be told about the aim and methods used for the research and written informed consent will be obtained. The involvement in the study will be only voluntarily, and the participants will have the right to withdraw at any time without the negative consequences. Strict confidentiality will be adhered to. All the data to be collected will be anonymized in order to ensure the anonymity of the participants. The raw data will be depersonalized by removing or altering personal identifiers creating pseudonyms and only the researcher will have access to the raw data. Every data will be stored with high security to ensure that it is safe. After a certain time, it will be destroyed according to the institutions guidelines.The participants involved in this research represented a diverse workforce from the IT sector for this reason, their cultural experiences and backgrounds were respected to avoid perpetuating biases or stereotypes. Honest communication between the participants and the researcher built the desired ***honesty and transparency*** that establishes trust and contributes to gaining a holistic perspective of the participants.

3.9 Limitations

All research methodologies are limited, and it is essential to reveal these limitations to create a perspective to read the findings.The sample size of five participants has limitations in providing insights into diversity of the communication practices in the IT sector.. Moreover, the reported data could have produced potential bias. The first limitation of this study regards the sample which was chosen. The purposive sampling approach can cause the sample members not to represent all IT professionals working in project management, and the generalizability of the findings would be limited. Hence, the resulting findings will mainly be the impressions and opinions of the participants.

Second, using qualitative methods, even though they deliver deep detailed information, has its drawbacks. The qualitative data analysis can be affected by researcher's personal bias and pre-conception. Even though actions will be initiated to ameliorate this (For example, reflexivity, peer debriefing), total objectivity will not be fully achieved.

Finally, IT is a rapidly changing field, and conducting research in this field is a challenge. The technology and communication practices in project management could evolve, making the results to be of a temporal value.

3.10 Chapter Summary

This chapter discussed the methodological approaches to primary and secondary research. The positivism paradigm helped to study the patterns and trends of the various communication channels in the IT sector and helped to make predictions based on qualitative data. It adopted a deductive approach and used an interview method for the collection of data to get real-time insights into the research topic. The cross-sectional approach was beneficial for descriptive design as it collected data within a specific time. The thematic data analysis method increased the reliability, value, and credibility of the research outcomes, contributing to the research field with new information and knowledge.

Chapter 4: Findings and Analysis

4.1 Introduction

This chapter presents the insights obtained from the semi-structured interviews; to optimize the insights of the interview, it was necessary to review the processed accomplished from the given interviews. Six interviews were conducted. Five out of six interviews were recorded. All interviews provide valuable insights from project managers and key team members in the IT sector. The data analysis approach was thematic analysis, with four main themes emerging from the primary research conducted. This chapter will evaluate the impact of online communication on different project stages and the challenges associated with using communication tools on project timelines. Also, it will evaluate the impact of complex communication for managing internal and external teams on the project's timeline. All these evaluations will be based on the data gathered in the interviews conducted.

4.2 Primary Research Approach:

Interview Analysis:

4.2.1 Interview Participants:

The first three interviews focused on a specific team within the Company A (India based)

- INTERVIEWEE 1: Project Manager/Director, offering a combined perspective on high-level communication strategies and their practical implementation within the team.
- INTERVIEWEE 2: Test Lead shedding light on communication within the testing process and its integration with overall project flow.
- INTERVIEWEE 3: Tech Lead providing insights into technical communication practices and their impact on project execution.

The remaining two interviews were from different teams within the company B (Ireland based)

- INTERVIEWEE 4: Senior Test engineer offers a specialist viewpoint on communication challenges and solutions within the testing domain.

- INTERVIEWEE 5: DevOps team members provide insights into communication between development and operations teams in an agile environment.

Interview questions asked can be viewed at Appendix A.

4.2.2 Data Analysis Methodology:

Thematic analysis was used to identify themes and patterns from interview data, this analysis focused on exploring communication practices used in agile methodologies, including:

- frequency and channels used for team communication (For example., daily stand-up meetings, asynchronous tools like Slack, project management software),
- strategies employed to ensure clarity and transparency in communication,
- challenges encountered in communication within agile teams,
- perceived impact of communication practices on project efficiency.

The results from the thematic analysis conducted will be further analyzed using correlation techniques to identify connections between various communication practices and project efficiency.

The below is a summary of the main themes identified from Interview Analysis conducted:

Main Themes	**Sub Theme**	**Description**
THEME1: Online Communication as Primary Method used by teams in IT Sector	Theme 1.1: Reliance on Online Communication	Interviewees highlighted online communication as the primary method at all project stages, emphasizing its widespread use in both domestic and international team settings.
	Theme 1.2: Impact on Project Timelines	Concerns were raised regarding the impact of over-reliance on online communication on project timelines, particularly in instances of internet disruptions or server issues.

	Theme1.3: Cultural Issues and Trust	Cultural issues and trust were identified as challenges, especially during ad hoc calls or meetings when team members appeared online but were unavailable, leading to questions of trust.
THEME 2: **Challenges of Project Management and communication**	Learning Curve with New Tools and Technologies	Interviewees discussed the challenges associated with learning new project management tools and technologies at the start of each project, leading to delays in project timelines
THEME 3: **Tools Used in Different Projects**	Impact on Project Timelines	The use of different project management tools across projects was found to impact project timelines, as team members needed time to familiarize themselves with each tool.
THEME 4: **Working Across Internal and External Teams**	Complexity of Multiple Communication Channels	Working across internal and external teams introduced complexity due to multiple communication channels, potentially leading to missed information and delays.
	Impact of Time zone Differences	Time zone differences added to the complexity of communication, impacting coordination and potentially delaying project timelines.

4.3 Findings:

4.3.1 Theme 1: Online Communication as Primary Method used by teams in IT Sector

In all the interviews, IT teams are heavily dependent on a mix of instant messaging tools (Microsoft Teams, Slack), video conferencing software (Webex, Microsoft Teams), project management platforms (JIRA, Azure DevOps, data.com), email, and shared document repositories (Confluence, Box) to make sure that the project communication is seamless. Uotinen *et al. (*2022)

Also mentioned that online communication helps in virtual team management and platforms like JIRA, Slack, Outlook, and Webex help the company and the project management team to communicate seamlessly from anywhere and at any time

The integration of these digital channels has also resulted in a substantial change in the project management effectiveness. Virtual stand-ups and video conferencing meetings have proven to be very efficient for remote collaboration. With the help of such communication tools, teams can stay focused on goals, share updates, and solve problems quickly. Project management software acts as a hub from which attention regarding tasks, assignments, and progress can be assigned from a single place, allowing for transparency and accountability.

For example, Interviewee 1, a Project Manager/Director within the IT sector, emphasized the prevalent use of online communication channels as the primary method throughout all stages of project management. With extensive experience overseeing various IT projects, Interviewee 1 highlighted the importance of online platforms such as Teams, and collaboration tools such as JIRA, Slack in facilitating seamless communication and collaboration among team members. Swart, Bond-Barnard and Chugh, (2022) also stated that online communication has become significantly important in project management which is helping from planning to execution as well as monitoring and evaluation of a project. Interviewee 1 stated that "Online communication tools have revolutionized project management, enhancing task management and team collaboration. These platforms improve efficiency and effectiveness in technical discussions and issue resolution."

Similarly, Interviewee 2, Test Lead, illuminated the critical role of online communication tools specifically tailored for testing endeavours. With a laser focus on testing processes, Interviewee 2 emphasized how online communication serves as the linchpin throughout all stages of testing projects. They underscored the pervasive use of testing communication, tools such as Slack for real-time updates, zoom for virtual meetings, and TestRail for streamlined test case management. Regardless of project complexity or team composition, Interviewee 2 highlighted how these tools seamlessly integrate into testing workflows, fostering collaboration, and expediting issue resolution among both local and distributed testing teams. In support, Interviewee 4 also stated that "*As a senior test engineer, I've observed the pervasive reliance on online communication channels across all project stages. From communicating test plans to reporting bugs, the convenience of online platforms has facilitated smoother coordination and faster*

resolution of testing-related tasks, regardless of team location or time zone differences." From the insight collected by all the interviewees it can be said that it has become one of the most important communication processes in every step of project management to maintain the seamlessness and effectiveness of the project management approach.

Interviews also stress the problems of remote communication like delay in replies, lack of face-to-face communication and possibility of misunderstanding. In support Interviewee 1 stated that "Using online communication helps us work faster, but it can also make us feel disconnected from our team. For better teamwork, we need to balance efficiency with building strong relationships online." Some teams resolve this problem by taking hybrid approach that comprises of remote work with some meetings in presence that also encourages good relationships in communication.

For example, Interviewee 3, Tech Lead, highlighted concerns regarding the impact of over-reliance on online communication on project timelines. With a focus on technical efficiency, Interviewee 3 underscored the importance of seamless communication in maintaining project momentum and meeting deliverables, emphasizing the need for robust communication strategies to address challenges posed by internet disruptions or server issues. They emphasized the reliance on platforms like Slack for team collaboration and GitLab for version control, noting that any disruptions in these tools could have cascading effects on project timelines, necessitating proactive measures to mitigate risks and ensure uninterrupted communication flow.

They also pointed out that reliance on platforms like Microsoft Teams for virtual meetings and Trello for project tracking can exacerbate delays if technical issues arise, underscoring the importance of diversifying communication channels to minimize the impact on project timelines.

4.3.2 Theme 2: Challenges of Project Management and communication

Despite the benefits of communication tools, the interviews surface several challenges that can hinder their effectiveness:

Learning curve for new tools, the transition to new project management tools and technologies often presents a significant learning curve for team members, leading to delays and productivity setbacks at the outset of projects. Pargaonkar, (2023) mentioned that as the project objective evolves rapidly, the communicable strategies also have to evolve with the changing priorities and

requirements in the IT sector, which can lead to employees struggling with the changing nature of communication strategies.

Several interviewees shared their insights and experiences regarding this challenge. In support of this Interviewee 3 stated that "*Learning how to use new tools can be quite the journey. We really need solid training and support to make the most out of them.*"

For example, transition to JIRA Software cited by Interviewee 3 involved the organization's transition to JIRA Software for project management. While JIRA offered powerful features for task tracking and collaboration, team members initially found it challenging to adapt to the platform's complex configuration options and terminology. To address this, the organization implemented targeted training sessions and created custom templates and workflows tailored to their specific project requirements. Over time, with hands-on experience and support from experienced users, team members gradually overcame the learning curve and became proficient in using JIRA for project management.

Another example from Interviewee 4 is to mitigate the challenges associated with the learning curve for new tools, Interviewee 4 suggested the use of interactive tutorials, video tutorials, and online resources provided by tool vendors. Additionally, they recommended leveraging internal expertise through mentorship programs and peer-to-peer learning networks to facilitate knowledge transfer and skill development. By combining these resources and approaches, organizations can expedite the learning process and minimize disruptions to project timelines during tool transitions. Also New team members might find it difficult to effectively utilize project management tools, thus resulting in inconsistencies of updating tasks or miscommunication.

Information overload, the abundance of information available through project management tools often led to information overload, making it difficult for team members to sift through and prioritize essential tasks and updates. Several interviewees shared their insights and experiences regarding this challenge. When a lot of channels such as emails, chats, and documents are used, the teams have a problem to remember all the information and updates, thus, the chances to miss a critical detail are high.

Interviewees emphasized the importance of streamlining communication channels and implementing clear protocols for information dissemination to prevent overload. They highlighted

the need for establishing guidelines for organizing and categorizing information within project management tools, ensuring that team members can easily access relevant information without being inundated with unnecessary details. By implementing these measures, teams can better manage the flow of information and maintain focus on critical tasks.

For example: Managing Notifications in Slack: Interviewee 4 provided an example of how their team addressed information overload within Slack, a popular messaging platform. They mentioned that initially, team members were bombarded with notifications for every message or update, leading to distractions and reduced productivity. In response, the team set up rules for handling notifications, urging team members to adjust their notification preferences according to their roles and duties. This approach helped in minimizing unnecessary notifications, allowing team members to concentrate on critical updates and alleviate information overload, thus enhancing their task focus.

Ensuring consistency and clarity, in a project management tool like Trello or JIRA, team members often encounter ambiguity in task descriptions, leading to misunderstandings and delays. For instance, a task assigned to a team member may lack clear instructions or objectives, making it challenging for them to understand what is expected or how to proceed.

Having a single source of truth and getting everyone on the same page about project status and next steps are difficult to achieve, particularly in distributed teams.

Interviewee 4, the Senior Test Engineer, emphasized the need for clear documentation and guidelines to minimize ambiguity and promote clarity in communication. By establishing standardized templates for task descriptions and providing clear instructions for task assignments, organizations can mitigate the challenge of ambiguity in communication within project management tools.

Time zone and availability differences, in projects with a global client base, team members are spread across different time zones, presenting a challenge when scheduling meetings and discussions that suit everyone's availability. For instance, if the client's time zone is 8 hours ahead of the team's primary time zone, organizing meetings becomes difficult as it may demand team members to adapt their working hours or join meetings at unconventional times.

Time differences and work schedules in global teams can result in communication delays and problem resolution, as not all the team members are available at any given time.

Language proficiency disparity and cultural subtleties when working with international clients or teams may lead to misunderstanding or misrelated expectations.

Cultural differences in communication styles, hierarchy, and decision-making processes can further exacerbate these challenges, leading to friction and inefficiencies within teams.

To address these challenges, teams place the focus on providing proper tool training, defining communication protocols, having regular status checks, and promoting the culture of transparency and understanding.

In conclusion, the challenges identified underscore the complex dynamics of communication and project management within the IT sector. Addressing issues such as the learning curve for new tools, information overload, and time zone differences is essential for enhancing project efficiency and team collaboration. By overcoming these challenges, organizations can better align their communication strategies with project objectives, thus fulfilling the objectives of identifying optimal methodologies for driving success and exploring factors influencing communication channels in IT project management.

4.3.3 Theme 3: Tools Used in Different Projects:

In addition to presenting challenges, the interviews also present loads of best practices that can be used in integrating communication in project management effectively.

An example of such practice is the holding of regular meetings. The initiation phase is very important in a project since during this stage requirements are communicated to clients via calls and meetings, and internally among the team of managers and developers. Stand-ups on a regular daily or weekly basis throughout the duration of the project keep the team in sync with respect to progress and goals.

Interviewee 1, as a Project Manager, underscored the crucial function kick-offs meetings in harmonizing stakeholders' anticipations. These sessions act as a venue for project stakeholders to convene, deliberate on project aims, targets, and deliverables, and forge a shared comprehension and accord. Kick-off meetings offer a chance to present key team members, elucidate project boundaries, and tackle any preliminary apprehensions or inquiries. By nurturing transparent

communication and teamwork right from the start, kick-off meetings establish the groundwork for a prosperous project expedition.

This resonates with the observation by Rush and Connolly, (2020) that agile projects in the IT sector allow iterative communication through daily communication sessions like sprint reviews or daily meetings, which enable team members to talk about the progress of the project, the perceived challenges, and opt for continuous improvements.

Another important practice is utilizing project management tools, In the planning and strategy development stage, interviewees stressed the importance of integrating project management tools to optimize communication and collaboration. These tools, including Asana, Trello, or Microsoft Project, provide features for task management, progress tracking, and team coordination. Interviewee 3, a Tech Lead, emphasized the significance of utilizing project management tools to establish clear roles and responsibilities from the project's inception.

Likewise, Interviewee 5, a DevOps Engineer, underscored the pivotal role of such tools in streamlining deployment processes, ensuring project delivery remains on course. Tools such as JIRA and Azure DevOps are used for writing features, user stories, and tasks after the initial discussion. With the help of these tools, progress tracking, updates sharing, and feedback loops with clients are possible. Regular communication is also recognized as a crucial practice. Team communicating in the open through group chats, project board updates, and ad-hoc discussions. With this approach, all team members are on the same page and are able to act promptly whenever there emerges a problem or a change. This echoes the observation by Ames Zegarra, (2022) that agile projects in the IT sector involve various cross-functional teams possessing divergent skills needed for the success of the project, and IT companies foster collaboration among those coming from various disciplines by conducting regular meetings, brainstorming sessions and workshops.

Another good practice is the organization of teams in such a way, so that communication becomes effective. Some organizations have special communication channels or discussion groups dedicated to development and testing teams to discuss role-specific issues and solutions. The approach of directed communication removes the factor of noise and improves the efficiency.

In addition, documentation of decisions and rationale is also emphasized as an important practice. Teams use collaboration tools as well as shared repositories to document critical

discussions, requirement elucidations, and problem-solving strategies. This practice forms a useful knowledge repository for future use and facilitates the smooth entry of new team members. Interviewee 5 as well noted that reasoning should be documented and fully exposed to create context for the rest of the project journey.

Progress Dashboards, Interviewee 1 underscored the significance of progress dashboards in ensuring stakeholders remain abreast of project advancements and pivotal milestones. Platforms such as Microsoft Project or Trello furnish adaptable dashboards, visually depicting project progression, milestones, and vital tasks. These dashboards afford stakeholders a comprehensive snapshot of project performance, empowering them to monitor advancement, recognize probable risks, and execute informed decisions promptly.

Integration of these practices resulted in the teams receiving successful project outcomes, better collaboration, and quicker issue resolution. Manifestation of these practices has led to reliable results, such as successful project delivery, improved collaboration, and quicker issue resolution.

4.3.4 Theme 4: Working Across Internal and External Teams

The interviews discuss the determinants of communication effectiveness in agile IT projects that do not seem to be separable factors. Results of this analysis reveal team culture to be an important factor, with effective communication flourishing in an open, transparent, and teamwork-based environment. By enabling team members to directly communicate with each other and top management, issues can be promptly resolved, and information can be well spread. Interviewee 1 emphasized that while tools and processes are important, cultivating a strong team culture should be a priority for organizations aiming to optimize communication in agile projects.

The choice and normalization of tools also have a crucial influence. Selection of proper communication tools according to organizational rules and project particulars helps facilitate the coordination and minimize the conflicts. Using a uniform suite of tools in each project helps team members to learn and remain productive. They shared the example where interviewees encountered issues with communication breakdowns and missed deadlines due to the use of disparate communication tools, they explained. "Some team members preferred to communicate

via email, while others relied on messaging apps or project management platforms. This led to confusion and inefficiencies, as important messages would sometimes get lost in the shuffle."

Documented processes are pointed out as another key factor. A clear process for documentation, communication and issues escalation help in ensuring that everyone knows how to communicate and where to find the needed information. Clear systems of work remove confusion and wastage of effort. This echoes the argument by Nyandongo (2020), that the communication channels are divided into two critical factors including external and internal, and these factors are divided into written communication, interpersonal communication, and scheduled and non-scheduled communication, which require resources like documents, written data, and project management systems used for communication.

Another consideration that is emphasized is the accommodating of individual preferences. Accepting and accommodating the individual styles and choices in communication like writing or speaking makes the members of the team more at ease and encourages better cooperation. With the increasing acceptance of remote and hybrid work patterns, the management of the challenges of remote work is of growing importance. Teams must cope with isolation, absence of environment, and technological problems that affect communication. Frequent updates, online team-building exercises, and clear remote work instructions will maintain communication productivity. One of the most important considerations is the improvement of cross-functional communication as well, especially in projects covering several teams or locations. Defining proper communication lines, roles, and protocols is crucial. Regular sync-ups, assigned contacts, and shared project boards help to ensure good communication and eliminate silos. The interviews also show that project size, complexity, and global nature affect the choice of communication tools and processes. More advanced project management software and formal communication channels may be adapted by larger, more complex projects, as opposed to smaller teams where informal communication methods work fine.

Culture of the organization and technology progress also referred to as main factors of the future of communication in agile IT project management. Mention is made of the potential effect of AI-powered chatbots and virtual collaboration platforms. This align with the argument by Denning (2020), that an organization with open and collaborative culture supports transparent and frequent communication, which is a prerequisite of project management.

4.4 Key Findings:

- Project teams communicate using a variety of methods, including instant messaging, video conferencing, project management tools, email, and shared document repositories.
- Virtual meetings and stand-ups are a good means of remote collaboration, but there are challenges such as slow responses and no face-to-face interactions.
- The best practices of communication integrated into project management are regular meetings, use of project management tools, promoting frequent communication, team structuring for effective communication, and recording decisions and rationale.
- Some of the communication challenges that reduce project management effectiveness are learning curves for new tools, information overload, ensuring consistency and clarity, time zone and availability differences, and language and cultural barriers.
- Factors affecting communication effectiveness in agile IT projects include team culture, tool choice and standardization, documented processes, individual preferences, remote work challenges, and cross-functional communication.
- The size of the project, complexity, global distribution, organizational culture, and technological developments determine communication approaches in agile IT project management.

4.5 Chapter Summary:

In conclusion the interviews have revealed just how crucial communication is in agile IT project management. They have shown us that using a mix of real-time and delayed communication channels is key for smooth collaboration and sharing important project details. Plus, integrating effective communication practices into agile methods is vital for project success. By tackling communication challenges head-on, teams can navigate their projects more effectively and reach their goals with greater ease.

The four main results are- the need for the appropriate tools, a culture of collaborating, clear processes, and the unique aspects of remote and global teams. In the wake of technology advancements, organizations should be proactive in optimizing their communication approaches for the purpose of enhancing efficiency, transparency, and team unity in agile IT project management.

Chapter 5: Discussion

5.1 Introduction

Results of this research give essential information about communication channels in project management in IT sphere. This chapter will reflect on these findings in relation to the current literature, emphasizing the practical implications, the study's limitations, and the possible directions for future research.

5.2 Interpretation of Findings

The interviews illustrate the significant role of communication in IT project management, in agreement with the literature, which continuously highlights the importance of communication in agile methodologies, which is also discussed by Hummel et al., (2013) and Pikkarainen et al. (2008) in their previous works. The results show that the IT teams depend significantly on a mix of digital communication channels that allows for quick sharing of information, collaboration, and problem solving, all of which are vital for the fast pace and iteration in agile projects as mentioned by Dingsøyr et al. (2012). Nevertheless, the study also emphasizes the problems of remote communication, replicating the problems raised in the literature regarding the issue of achieving effective communication in distributed agile teams, which aligns with the work by Alzoubi et al., (2015).

The interviewees also identified the best practices for dealing with such issues, and they are creating clear communication protocols, promoting a culture of openness and empathy, and using a hybrid work model where it is suitable, which corresponds to suggestions outlined in the literature of improving communication in distributed agile teams similar to what Hoda et al., (2013) and Moe et al.,(2015) discussed in their research work.

The finding of best practices of communication integration into project management is a major contribution of this research. The interviews disclose several practice areas such as frequent meetings, usage of specific tools for project management, constant communication, structured team communication, and recording of decisions and the justification as per the principles of agile that advocate regular feedback, collaboration, and transparency like the work by Beck et al., (2001). The focus on weekly meetings is online with literature that discusses agile practices used by Stray

et al., (2016), thereby, creating a structured platform for the team members to update on their outputs, share their challenges, and align their activities. The project management tools usage helps in implementing the agile practice of visualization of work as well as tracking its progress similar to Azizyan et al., (2011), while prompt communication promotes transparency and provides the opportunity for quick problem resolution as mentioned by (Hummel, 2013). The results also emphasize the need for structuring team communication, and making sure that decisions and rationale are being documented, so all team members have access to important information and can contribute effectively to the project, which complies with the knowledge sharing and documentation literature worked in agile teams by Razzak et al., (2013) and Santos et al.,(2015).

Several challenges and barriers of communication which may undermine the efficiency ofmanaging projects in agile IT projects were identified by the study For example, learning curve of a new tool, information overflow, consistency and clarity, the difference between time zones and availability of team members and language and culture. These findings are consistent with those noted in relevant literature on agile project management by Conboy et al., (2011). An important thing is to provide proper training and support, as the learning curve can cause inconsistencies and miscommunication as documented by Gandomani et al., (2013). The result is that information overload may cause the loss of important details making clear communication protocols and tools that support information organization and retrieval even more essential which Stray et al., (2013) also discussed in his work. Consistency and clarity of communication are challenging, especially in teams that are geographically distributed, arguing there for having a single source of truth and regular checking of project status are crucial aspects of alignment, as is outlined in the literature on coordination in agile teams by Strode et al., (2012). The time zone and availability differences can determine the delays of communication and the possible solutions are the necessity of making with the communication channels and protocols developed for distant members as mentioned by Bannerman et al., (2012). In global teams, language and cultural barriers can cause confused beliefs and misaligned expectations, consistent with the literature on cross-cultural communication in agile projects by Holmström et al., (2006). Tackling these challenges is an active process which includes language support, cultural awareness, and the culture of inclusiveness and understanding like the work by Dorairaj et al., (2012).

Several factors that impact communication effectiveness in agile IT projects have been identified in the study, including team culture, tool selection and standardization, documented

processes, individual preferences, remote work challenges, and cross-functional communication are in accord with the literature on agile team dynamics and communication by Pikkarainen et al., (2008). Team culture plays a crucial role in the team communication effectiveness and such findings have been well-documented. Specifically, it was suggested that the open, transparent, and collaborative team culture is required for the effective communication, which is in line with agile principle of individuals and interactions over processes and tools by Beck et al., (2001). Standardization in the use of appropriate communication tools across projects is one way of reducing conflict and enhancing coordination. On the other hand, documented processes for information sharing, issue escalation, and decision-making help to reduce ambiguity and duplication of efforts. Respecting the individual communication preferences can make the team members more comfortable and involved as Mishra et al., (2012) mentioned in his research paper, whereas problems related to working at distance may be resolved by proactive tactics like regular check-ins and virtual team-building activities Moe et al., (2015) mentioned in previous works. Streamlining cross-functional communication by defining roles, protocols, and using shared project boards is a measure to avoid silos and ensure effective collaboration as Dingsøyr et al., (2012) explained earlier.

The size, complexity, and global distribution of IT projects also have an impact on the selection of communication tools and approaches too, with larger and more complex projects requiring more sophisticated project management software and formal communication channels, whereas smaller teams might prefer informal communication which aligns with (Boehm and Turner, 2003). The future of communication in agile IT project management is most likely to be influenced by the organizational culture and technological advancements such as AI-powered chatbots, and virtual collaboration platforms mentioned by Dingsøyr and Moe, (2014).

5.3 Implications for Practice

This study has numerous implications for practice. IT organizations should invest in a high-quality communication infrastructure that comprises both synchronous and asynchronous channels to support collaboration in agile projects, determining right tools for instant messaging, video conferencing, project management, document sharing and other means of communication. Organizations should set clear communication protocols and best practices to make sure that all team members have access to important information and hence contribute to the success of the

project in an efficient way, including holding frequent meetings, using project management tools to track progress and share updates, promoting constant communication, formatting communication of the team, and documenting decisions and reasons. The communication challenges and barriers in this study should be addressed by organizations proactively by training and supporting the use of new tools, implementing clear guidelines for information sharing to avoid overload, employ strategies to ensure communication consistency and clarity, accommodate time zone and availability differences, and promote cultural awareness and inclusivity. Teams that are effective crave openness, collaboration, and constant improvements through direct communication at all levels of the organization, open sharing of information and knowledge, and rewarding team achievements. Lastly, organizations need to transform the communication approaches on an ongoing basis to match the changing nature of agile IT projects, by conducting regular reviews and updates of communication tools and processes, maintaining an experimental approach with respect to modern technologies and methodologies, and seeking feedback from the team members to find areas for improvement.

5.4 Limitations of the Study

This study though having some useful information about communication channels in agile IT project management, has some limitations. The research was based on a small sample of IT professionals which may reduce the applicability of the results. The research was conducted using self-reported data collected in interviews, which could be biased and wrong. The study was done at a specific point in time and may fail to cover the dynamic aspect of the communication practices prevalent in agile IT projects. However, the study mainly concentrated on the viewpoints of project managers and team members and might not comprehensively reflect the opinions of other stakeholders, including clients or executive sponsors.

5.5 Further Research:

While the interviews provide valuable insights into communication practices in IT project management, further research could strengthen and expand upon these findings. For example, A quantitative approach using surveys would give access to a bigger sample size of IT professionals which would help support identified best practices, challenges, and influencers, and give more generalizable results.

Comparative analysis could also be used. Researching practices of communication across various industries, types of projects and organizational sizes may provide an opportunity to analyze what contextual factors influence communication strategies more broadly.

A longitudinal study would provide a long-term analysis of communication practices and project results, though, would help in revealing the long-term effect of various communications tactics and locating trends and patterns.

Another option would be technology impact studies.÷ Investigating the influence of the emerging technologies, such as AI-based communication tools and virtual reality collaboration platforms, on agile communication could contribute to the development of future communication strategies.

Research focused on cross-cultural communication would support in understanding the challenges and the best practices for productive communication within global, multicultural teams may help organizations to deal effectively with cultural differences and synergy.

Lastly, remote work optimization÷ focused case studies in the strategies that promote effective communication and collaboration in remote and hybrid work environments could offer practical recommendations to the teams that embrace the new patterns of work.

In this regard, the academic and sector communities will have the opportunity to improve the level of their knowledge of efficient communication practices in IT project management and produce evidence-based strategies for improving the performance of teams in the dynamic digital realms.

5.6 Chapter Summary

To summarize, this study emphasizes the importance of efficient communication in agile IT project management. According to the results, multi-channel strategy with communication integration into agile practices is a successful approach for teams to work together and complete the projects effectively. Yet, the study also outlines several communication issues and barriers that organizations need to address positively to ensure the success of their project management practices. Communication efficiency influencing factors allow organizations to have a template upon which they can optimize their communication approaches. With the growing complexity and global distribution of IT projects, organizations have a need to keep evolving the way they

communicate with their teams and stakeholders. Development of the understanding of effective communication in project management and the adoption of evidence-based approaches are the areas for further investigation and application of best practices in the IT sector to ensure success in the dynamic digital environment.

Chapter 6: Conclusion

This research has tackled the importance of communication channels in project management in the IT industry. The study was about the most popular communication channels, communication integration best practices in agile processes, communication barriers, and factors affecting communication effectiveness.

The outcomes highlight the importance of successful communication in the agile management of IT projects. According to Hummel et al. (2013) and Pikkarainen et al. (2008), a mix of digital communication channels such as instant messaging, video conferencing, project management systems, email, and shared document repositories is used by IT teams. Dingsøyr et al. (2012), Mentioned these channels allow for quick information sharing, teamwork, and problem resolution, which are critical for agile projects that are fast-moving and iterative.

The study identified several integration practices such as holding periodic meetings, using project management tools, fostering frequent communication, setting team communication patterns, and documenting decisions. As mentioned by Beck et al. (2001), these practices align with agile principles of feedback, collaboration, and transparency, leading to successful outcomes and improved collaboration.

Nevertheless, the study also pointed out different communication issues and barriers that could make it difficult for project management in agile IT projects to work. Such things include learning curves for new tools, information overload, need for consistency and clarity, time zones and availability differences and language and cultural barriers. To handle these challenges, proactive approaches would include proper tool training, communication protocol definition, regular status checks, and a culture of transparency and understanding. Mishra et al. (2012) and Pikkarainen et al. (2008) emphasize that several significant variables that affect communication efficiency in agile IT projects are team culture, tool choice and standardization, documented processes, personal preferences, remote work issues, and cross-functional communication. These parameters are to be considered by the organizations while optimizing their communication strategies to suit the changing demands of the agile IT projects.

The study also highlights that project size, complexity, international distribution, organizational culture, and technological advancements are the major factors in determining

communication strategies in agile IT project management. With IT projects becoming more intricate and geographically dispersed, organizations must change their communication approaches to make it more efficient, transparent and keep the team united.

The results of this study have specific implications for IT corporations. Some of the key recommendations that can help in improving the project management practices is to invest in an effective communication infrastructure, set clear communication protocols and best practices, being proactive in tackling communication challenges, creating a team culture, and continually change the way we communicate.

However, this research has some limitations. The sample that is rather small, the use of self-administered research instruments and the cross-sectional design of the study may affect the generalization of the results. Quantitative methods could be used in future research to achieve comparative studies across industries as well as types of projects, to explore the effects of emerging technologies, and to investigate specific challenges and best practices for multicultural, global teams.

To sum up, well-developed communication is a basis for efficient project management in the field of IT. Successful project management practices that optimize communication channels through understanding of the most used channels, best practices, challenges addressed, and factors that affect communication efficiency among others will yield better project results in organizations. as stated by Moe et al. (2015), with the developments in the IT arena, more research and execution of evidence-based strategies need to practice improving the performance and success of project teams in this changing digital arena.

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Appendices

Interview Questions: Managers and Team Members

Context Questions:

1. How many people do you directly manage in your team?
2. How long have you been in this role?
3. Tell me about any changes in your team size or dynamics recently.
4. Does your team work fully remotely, fully on site or in hybrid model (if hybrid, can you please tell me how many days in office and how many days remotely)

Objective 1: To analyze the communication channels used in the IT sector and their impact on project management.

1. What main communication channels does your team use for project management?
2. How do you ensure effective communication within your team, especially in a hybrid work setup?
3. Are there tools that work better for remote collaboration than others?
4. Have you seen any specific communication channels become effective since shifting to a hybrid model? For example. Do you find virtual stand-ups as effective as in person meetings?

Objective 2: To identify optimal methodologies for incorporating strategic communication to drive success at each stage of project management within the IT sector.

1. Thinking about your project management, what communication channels do you use at the start of the project?
2. What do you do as the project progresses to help keep team members connected and aligned towards the overall project goal?
3. What strategies do you use to integrate effective communication into your agile project management process?

4. How do you ensure all team members, regardless of location, are informed and engaged through various channels? For example, Do you utilize project management tools to share updates and tasks and rely on instant messaging for quick questions?
5. Tell me about the time where effective communication channels made a real difference in project outcomes?
6. Have you seen any changes in project management practices due to utilizing specific communication channels?

Objective 3: To investigate the challenges within communication channels used that impact the efficiency of project management within the IT sector.

1. Have you ever faced any problems with the way your team communicates using project tools?
2. What do you do to make sure everyone is on the same page and knows what is happening in terms of project progress?
3. Are there any specific communication methods that consistently lead to successful outcomes in agile project success?
4. How do you address information overload or communication within project teams when using various channels?

Objective 4: To explore the factors influencing communication channels to enable efficient project management practices within the IT sector.

1. What are the key factors for successful communication in an IT team? Specifically in hybrid culture?
2. Can you give an example of how different things affect which communication methods are used in agile project management?
3. How do you pick and use communication methods that fit the needs of agile projects in IT?
4. Why do you believe selecting the appropriate communication methods is crucial for agile project success?
5. Do modern technologies change how you pick and use communication methods for agile project management?

6. How does the culture of your organization and how your team works together influence what communication methods you use for agile project management?

Out of the six interviews conducted for the study, five were recorded to ensure accuracy and thorough analysis of the data. Transcripts of these recordings are available upon request for further examination and validation.