الجمهورية الجزائرية الديمقراطية الشعبية
Ministry of Higher Education and Scientific Research
وزارة التعليم العالي والبحث العلمي
People's Democratic Republic of Algeria

HIGHER SCHOOL OF MANAGEMENT AND DIGITAL ECONOMY

H.S.M.D.E

المدرسة العليا للتسيير والاقتصاد الرقمي

Major : Digital Management

SUBJECT:

The Impact of Structured Communication on Project Success

CASE:

Project M47- Reinforcement of Quays 18-21 COSIDER TP

Presented by :

Ms ,

BOUCHAHDANE Chaima

Supervised by :

Mrs,

KHODJA Nour Elhana

Academic year

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Summary

Dedication

This thesis is the result of more than just effort it's the reflection of quiet strength and the people who carried me when I couldn't carry everything alone.

***To God** who gave me clarity when things were overwhelming, and faith when the path felt uncertain thank You.*

***To my parents** You gave without waiting, trusted without questioning, and loved without condition.*

You were the quiet hands behind every one of my steps steady, strong, and unseen.

***To my sister Ouissem the** silent force behind my focus. You made sure I had the space, the calm, and the time to do this. You handled everything without ever letting me worry. I'll never forget that.*

***To my family** thank you for the motivation, the small check-ins, and the big belief you always had in me. You were my team, even from a distance.*

***To Wiam**, my true friend even with your full plate, you still found ways to show up for me thank you.*

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To all of you: you made this possible, even when you didn't know it.

With all my heart thank you.

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My sincere appreciation goes to the company COSIDER, and particularly to the M47 project team within the construction site, for offering me the opportunity to carry out my internship with them. I am grateful to the entire team for their warm welcome and support throughout this enriching professional experience.

Special thanks are due to the members of the examination committee for taking the time to evaluate my work and for their valuable feedback, which helped me improve the final version of this thesis.

Finally, I express my deepest gratitude to my family and close friends for their unconditional love, patience, and support. Without their encouragement, this work would not have been possible.

To all of you, I offer my sincerest thanks.

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ABBREVIATIONS:

- **KPI**: Key Performance
- **KSF**: Key Success
- **PMBOK**: Project Management Body of Knowledge
- **PMI**: Project Management
- **PRINCE2**: Projects IN Controlled Environments 2
- **RACI**: Responsible, Accountable, Consulted, Informed
- **PERT**: Program Evaluation and Review Technique
- **CPM**: Critical Path Method
- **SAFe**: Scaled Agile Framework
- **SDLC**: Software Development Life

ABSTRACT

Effective communication is widely recognized as a cornerstone of successful project management. In large-scale and complex environments, poor communication is one of the leading causes of delays, budget overruns. This dissertation examines the impact of structured communication on project performance, through a case study of the M47 quay reinforcement and terminal rehabilitation project at the Port of Algiers, managed by COSIDER TP.

Structured communication refers to the deliberate use of consistent processes and defined roles to ensure that information is clearly shared and decisions are well coordinated throughout the project. The study explores how these practices influence key areas of project success, such as stakeholder engagement, timely decision-making, team coordination, and risk management. A qualitative approach was used, drawing on semi-structured interviews with core project team members.

The findings show that applying structured communication practices leads to better coordination, increased trust among stakeholders, and a noticeable reduction in project risks. In contrast, weaknesses in transparency and knowledge transfer were linked to delays and inefficiencies. This research concludes that communication is not a secondary support function, but a critical driver of success in complex infrastructure projects.

Keywords:
Structured Communication, Project Success, key success factors , KPIs , communication elements, Construction Projects

الملخص

يُعتبر التواصل الفعّال أحد الركائز الأساسية لنجاح إدارة المشاريع. ففي البيئات المعقدة وذات النطاق الواسع، غالبًا ما يكون ضعف التواصل من الأسباب الرئيسية للتأخير، تجاوز الميزانية، وسوء توافق التوقعات. تهدف هذه الأطروحة إلى دراسة أثر التواصل المنظَّم على أداء المشروع، من خلال دراسة حالة مشروع تدعيم الأرصفة M47 وإعادة تأهيل الرصيف في ميناء الجزائر، بإشراف شركة كوسيدار للأشغال العمومية.

يشير مفهوم "التواصل المنظَّم" إلى الاستخدام المتعمد لإجراءات ثابتة وأدوار محددة تضمن وضوح تبادل المعلومات وحسن تنسيق القرارات طيلة دورة حياة المشروع. تتناول الدراسة كيف تؤثر هذه الممارسات على مجالات رئيسية في نجاح المشروع، مثل إشراك أصحاب المصلحة، اتخاذ القرار في الوقت المناسب، تنسيق الفريق، والتحكم في المخاطر. وقد تم اعتماد منهج نوعي، بالاعتماد على مقابلات شبه مهيكلة مع أعضاء أساسيين في فريق المشروع.

أظهرت النتائج أن تطبيق ممارسات التواصل المنظَّم يُحسّن بشكل ملموس من التنسيق، ويُعزّز الثقة بين الأطراف المعنية، ويُقلل من المخاطر المرتبطة بالمشروع. في المقابل، ارتبطت أوجه القصور في الشفافية وتبادل المعرفة بظهور تأخيرات واختلالات. وتخلص الدراسة إلى أن التواصل ليس مجرد وظيفة مساندة، بل عنصر حاسم في نجاح المشاريع المعقدة، خاصة في مجال البنية التحتية

الكلمات المفتاحية

التواصل المنظم، نجاح المشروع، الكلمات المفتاحية، عوامل النجاح الرئيسية، مؤشرات الأداء الرئيسية، عناصر التواصل، مشاريع البناء

GENERAL INTRODUCTION

General Introduction

In the field of project management, failure to deliver projects on time, within budget, and according to specifications remains a persistent concern. Despite the evolution of methodologies whether traditional, agile, or hybrid and the widespread adoption of digital collaboration tools, projects continue to suffer from delays, cost overruns, and unsatisfactory outcomes. Repeated analysis shows that these failures are not primarily due to technical shortcomings or resource constraints, but rather to communication breakdowns. Contradictory instructions, unclear responsibilities, inappropriate channels, and the absence of traceable documentation are among the most frequently cited communication issues in the literature. This challenge is particularly acute in complex, highly regulated environments such as infrastructure projects in Algeria, where the reliable and traceable circulation of information is essential for coordinating teams, complying with QHSE standards, managing risks, and ultimately creating value.

While communication is widely recognized as a key determinant of project success, most empirical research focuses on broad aspects such as frequency, style, or tools, often neglecting the critical dimension of structured communication. This concept involves not only the act of transmitting messages, but also the deliberate design of formal processes, assigned responsibilities, validation protocols, and systematic documentation. In a setting such as the M47 project for the reinforcement of Quays 18–21, structured communication is not merely a best practice it is a foundational element for stability and long-term performance.

The motivation for this research is rooted in both objective analysis and personal experience. From an academic perspective, several studies indicate that more than 80% of project failures or delays are attributable to communication issues. This alarming figure highlights a disconnect between the theoretical importance assigned to communication in frameworks such as PMBOK and PRINCE2, and the limited practical implementation of formal communication processes, especially in Algerian project environments.

On a personal level, the researcher’s motivation stems from repeated exposure to dysfunctional communication processes during professional internships, including La BADR , SONELGAZ and now at COSIDER TP. These experiences revealed a consistent pattern: the lack of formal communication structures led to misunderstandings, undocumented decisions, ,unclear accountability and misaligned expectations . Although not in a position to implement changes directly, the researcher witnessed firsthand how these issues affected team dynamics and slowed

decision-making. This exposure sparked a deep interest in understanding how structured communication could prevent such failures and improve overall project outcomes.

Research Problem

Despite broad consensus on the importance of communication in ensuring project success, many organizations particularly in Algeria continue to rely on informal, fragmented, and undocumented communication practices.

Main Research Question

How do structured communication processes influence project success, and which specific elements contribute most to improving key success factors?

Secondary Questions

1. How do standardized channels, defined protocols, and clearly assigned roles contribute to stakeholder engagement, role clarity, and strategic alignment?
2. How do communication frequency and transparency support conflict resolution, informed decision-making, and risk management?
3. In what ways do documentation and knowledge-sharing mechanisms influence information flow, team productivity, and long-term alignment?
4. How do structured communication processes as a whole enhance adaptability, responsiveness, and success in complex construction projects?

Hypotheses

- **H1:** Defined roles, communication channels, and protocols contribute to stakeholder engagement, strategic alignment, and role clarity by creating a structured and predictable environment for collaboration.
- **H2:** Frequent and transparent communication supports conflict resolution, informed decision-making, and risk management by ensuring continuous information flow and early identification of issues.
- **H3:** Documentation and knowledge-sharing mechanisms improve information flow, team productivity, and long-term alignment by preserving institutional memory and reducing redundancies.

- **H4:** Integrated structured communication processes enhance adaptability, responsiveness, and success in complex construction projects by enabling proactive coordination and faster responses to change.

Research tools :

This research employs a qualitative methodology , to gather in-depth insights, the primary data collection tool used was semi-structured interviews. These interviews were conducted with a targeted group of key project stakeholders, including the personnel supervisor, QHSE manager, procurement supervisor, technical deputy director, accountant, stock manager, and deputy director of works. This approach allowed for the collection of rich, contextual data on the communication practices within the project, while providing flexibility to explore emerging themes during the discussions

Structure of the Thesis

This thesis is organized into two main chapters . The first chapters present the theoretical framework and divided into three sections :

The first section establishes the theoretical foundation by presenting key project management concepts, prevailing methodologies, and critical success factors (KSFs). It also introduces the selected KSFs that serve as the framework for evaluating the role of structured communication.

The second section defines structured communication, explores its conceptual and theoretical underpinnings, and presents an analytical framework composed of seven essential elements. This section connects structured communication practices to recognized standards such as PMBOK and draws on relevant communication models.

The third section groups both variables and analyses the impact of structured communication elements on project success ,more specifically on the Key Success Factors .

The second chapter is dedicated to the case study. It provides an empirical analysis of how structured communication elements presence and their absence manifest in the M47 project. Through interviews and field observations, it examines the impact of structured communication on the seven key success factors and evaluates how communication practices shape project outcomes.

This research ultimately aims to contribute to a deeper understanding of structured communication as a practical and strategic tool in project management .

CHAPTER ONE:
THEORETICAL FRAMEWORK

Section 01 : Core Principles and Practices of Project Management

Introduction

Project management has evolved into a formal discipline that plays a crucial role in addressing the increasing complexity of projects. It is essential for structuring work, managing resources, and achieving strategic goals. By applying established principles, procedures, and policies**1**, project management ensures that projects are completed in a manner that meets all articulated outcomes, including spending limits and end goal objectives. This discipline is vital in today's business environment, as it helps organizations run more efficiently and effectively, fostering better communication and collaboration among teams, and providing data driven insights for business decisions.

The importance of project management cannot be overstated. It saves time and money, empowers data driven decision making, enables scalability, fosters alignment across teams and stakeholders, facilitates better risk management, and optimizes workflows for smoother processes and happier employees. As such, understanding the foundations of project management is crucial for appreciating its impact on organizational success.

To lay the groundwork for understanding project management, we begin with key definitions before exploring its historical evolution and theoretical foundations.

[1] Project Management Institute (2004), *A guide to the project management body of knowledge (PMBOK® Guide)*, 6e éd., PMI Publications, Newtown Square**.**

1 foundations and frameworks of project management

Understanding the structure of project management is key to grasping how communication practices influence outcomes. In this section, we explore the formal definitions, methodologies, and frameworks that underpin project delivery. These serve as a theoretical backbone for the study.

1.1 Introduction to project management

To appreciate the role structured communication plays within projects, it is important to first establish a clear understanding of what project management is, how it has evolved, and what principles guide its execution across different environments.

1.1.1 Definition and core concepts:

- **PMI (Project Management Institute):**

The PMI defines project management as "*the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements."* [1]This definition emphasizes a structured, process-driven approach, viewing project management as the systematic application of standardized practices to deliver successful outcomes within defined constraints.

- **PRINCE2:**

PRINCE2 describes project management as "*a structured approach to managing projects, ensuring control, organization, and alignment with business objectives."* [2]Its philosophy centers on governance, control, and business justification, highlighting the importance of clear roles, strong oversight, and a continued focus on delivering value to the business.

Some scholars view project management primarily as a technical discipline,[3] stressing the role of tools, techniques, and quantitative methods. This perspective prioritizes efficiency, predictability, and structured resource allocation as essential for effective execution.

Others present project management as a strategic enabler, focusing on how projects drive organizational growth, innovation, and value creation. This broader view shifts emphasis from simply meeting deadlines and budgets to delivering long-term strategic benefits and fostering capability development.

These varying definitions reflect distinct philosophies of project execution. PMI and PRINCE2 advocate for structured control and predictability effective for stable, plan-driven projects. In

[1] Project Management Institute (2004), *A guide to the project management body of knowledge (PMBOK® Guide)*, 6e éd., PMI Publications, Newtown Square**.**
[2] AXELOS (2017), *Managing successful projects with PRINCE2*, The Stationery Office, London.
[3] Cleland David I. (1994), *Project management: Strategic design and implementation*, McGraw-Hill, New York.

contrast, the strategic perspective supports flexibility and responsiveness, better suited for dynamic and complex environments. The tension between these approaches has significantly shaped the evolution of project management methodologies, a topic explored further in Part 2.

As project environments grow more complex and unpredictable, the need to balance structured control with adaptive flexibility becomes increasingly important.

1.1.2 Theoretical Foundations of Project Management

Project management is underpinned by several theoretical frameworks that shape both its practice and evolution. Systems thinking is a foundational concept, viewing projects as dynamic systems composed of interconnected components.[1] This perspective recognizes the influence of both internal and external factors and promotes a holistic approach to decision-making and problem-solving.

Process-based approaches provide a structured path from project initiation to closure. [2]Frameworks such as phased process groups and stage-based methodologies offer guidance on planning, executing, and monitoring projects through standardized procedures. These approaches aim to enhance consistency, efficiency, and control throughout the project .

In contrast, adaptive theories including agile principles and complexity theory support more flexible, decentralized forms of project management.[3] These approaches are particularly suited to unstable environments where rapid change and stakeholder engagement are critical. By embracing feedback loops, iterative planning, and cross-functional collaboration, adaptive methods enable projects to evolve in real time.

Together, these theoretical pillars illustrate the dual nature of project management: as both a structured discipline and a responsive, context-sensitive practice. Their interplay continues to shape the methodologies and strategies adopted across industries today.

1.1.3 The Evolution of Project Management:

Project management has evolved from informal practices used in ancient construction to a formalized discipline with globally recognized standards and methodologies. Early examples, such

[1] Johnson Gerry, Kast Fremont E., Rosenzweig James (1964), “General systems theory and business management”, *Management Science* ,vol.10.

[2] Kerzner Harold (2017), *Project Management: A Systems Approach to Planning, Scheduling, and Controlling*, Wiley, Hoboken.

[3] Shenhar Aaron J., Dvir Dov, *op. cit.*

as the construction of monumental structures, relied on basic organizational skills without formal techniques.

The 20th century marked a turning point, introducing formal planning tools such as the Gantt Chart and the development of scheduling techniques like PERT and CPM. These innovations supported more systematic planning and execution, particularly in large-scale, complex projects.

The establishment of professional bodies such as the PMBOK institutionalized the discipline by promoting standards, certifications, and best practices. This professionalization laid the groundwork for the development of structured methodologies in the late 20th century, responding to the increasing complexity and dynamic nature of projects.

As organizations faced new challenges rapid innovation cycles, shifting stakeholder expectations, and resource constraints traditional linear models proved insufficient. Adaptive methodologies emerged to address these issues, emphasizing flexibility, collaboration, and iterative progress[1]. This shift underscored a broader transformation in project management: from rigid, sequential processes to integrated, responsive systems capable of navigating uncertainty.

1.2 Project Complexity and lifecycles :

1.2.1 Project Complexity

Project complexity plays a vital role in determining the most suitable management approach. Projects vary in their structural and dynamic complexity, requiring tailored strategies to address specific needs. Understanding these dimensions enables project managers to choose appropriate methods for effective execution.

Over time, project management has evolved through various strategic generations from scheduling and teamwork to managing uncertainty and simultaneity. This evolution reflects ongoing efforts to align management practices with project intricacies.

Recent frameworks offer structured ways to assess project complexity and guide methodology selection. [2]Tools like the Diamond Framework, Stacey Matrix, and Cynefin Framework categorize

[1] Morris Peter W. G. (1997), *The Management of Projects*, Thomas Telford Publishing, London.

[2] Snowden David J., Boone Mary E. (2007), “A leader’s framework for decision making”, *Harvard Business Review*. vol. 85, n°11.

projects by novelty, technology, complexity, pace, certainty, and agreement. These frameworks help managers decide whether traditional, adaptive, or hybrid models are most suitable.

They acknowledge that no one-size-fits-all strategy exists. Aligning management methodologies with project complexity improves outcomes and enhances adaptability in dynamic environments.

1.2.2 the Project Lifecycle

The project lifecycle outlines the core stages of a project's development. Though terminology may vary by methodology or industry, four primary phases are commonly recognized: initiation, planning/preparation, execution, and closure. Each phase includes evaluation activities that influence the project's success from its inception.[1]

A typical structure divides the lifecycle into:

- Phase I: Prefeasibility and feasibility (economic, technical, financial)
- Phase II: Basic design
- Phase III: Detailed design, procurement, supervision, and revisions
- Phase IV: Project closure

These phases can be adapted based on project complexity and stakeholder needs.

In contrast to traditional models, Agile methodology avoids fixed phases and structures work into iterative sprints. This approach emphasizes adaptability, incremental development, timely delivery, and continuous improvement, enabling rapid responses to change.

While the lifecycle defines key execution stages, the chosen methodology determines how projects are planned, managed, and adapted shaping the entire project journey.

1.3 Project Management Approaches and Frameworks

1.3.1 Traditional Project Management Approaches

Traditional project management methodologies focus on structure, control, and predictability. They follow a sequential logic that emphasizes upfront planning, detailed documentation, and proactive risk mitigation to ensure that projects meet time, cost, and quality constraints.

[1] Kerzner Harold (2017), *Project Management: A Systems Approach to Planning, Scheduling, and Controlling*, Wiley, Hoboken.

Their primary strength lies in clarity: defined milestones, roles, and deliverables reduce ambiguity and support progress tracking. The linear progression of phases each completed before the next begins helps minimize scope creep, enforce quality, and maintain alignment with initial objectives.

One of the most prominent models in this category is the Waterfall framework, which progresses through fixed stages such as requirements gathering, design, implementation,

testing, and deployment. It promotes a methodical workflow, reinforced by rigorous documentation and limited client involvement after the initial planning phase.[1]

This structured approach is particularly effective in stable environments with clearly defined goals, such as construction or manufacturing. However, its rigidity can be a drawback in n dynamic or uncertain environments where requirements evolve frequently, such as in software development or innovation-driven sectors. In such cases, adapting the plan mid-project can be costly and time-consuming.

Other traditional approaches include:

PRINCE2: A process-driven approach focused on governance and documentation. It defines clear roles, divides work into stages, and emphasizes alignment with business objectives.

SDLC (Systems Development Life Cycle): Designed for software and technical projects, SDLC follows a structured path from planning to maintenance, with a strong focus on quality control and documentation.

PMBOK (Project Management Body of Knowledge): Not a methodology but a standard that outlines best practices across all areas of project management. It provides flexible guidance applicable across various methodologies.

1.3.2 Agile and Adaptive Methodologies

Agile methodologies emerged in response to the rigidity of traditional project management, offering a more flexible, iterative approach that emphasizes collaboration, responsiveness, and continuous value delivery. Projects are broken into short cycles (typically 2–4 weeks), allowing for rapid feedback, early delivery, and continuous improvement.[2]

[1] Royce Winston W. (1970), “Managing the Development of Large Software Systems”, Proceedings of IEEE WESCON. vol. 36, n°6.
[2] Beck Kent et al. (2001), “Manifesto for Agile Software Development”, https://agilemanifesto.org

Agile relies on cross-functional, self-organizing teams that communicate frequently through practices like daily stand-ups, sprint reviews, and retrospectives. Roles such as Product Owner and Scrum Master help facilitate alignment and adaptive planning. Instead of exhaustive documentation, Agile prioritizes direct interaction, transparency, and early stakeholder involvement.[1]

This adaptive nature makes Agile particularly effective in dynamic environments such as software development, where rapid change and user feedback are constant. Agile supports early delivery of high-value increments, shortens time to market, and strengthens team ownership and morale. It also fosters transparency and alignment through regular stakeholder engagement.

However, Agile can be challenging in large-scale or highly regulated environments due to its lower emphasis on documentation and reliance on team discipline. Frequent changes may introduce scope creep, and the model demands active stakeholder involvement and a collaborative culture to succeed.

Key Agile Frameworks

Scrum: Focuses on fixed-length sprints with defined roles (Product Owner, Scrum Master, Team,). Emphasizes structured ceremonies like Sprint Planning, Daily Scrums, and Retrospectives for alignment and feedback.

Kanban: Visualizes work on boards, limiting Work in Progress (WIP) to improve flow and reduce bottlenecks. Suitable for continuous delivery environments.

Extreme Programming (XP): Prioritizes technical excellence through practices like pair programming, test-driven development, and continuous integration ideal for high-quality software development.

1.3.3 Hybrid Models

Hybrid project management integrates structured elements from traditional methods with the iterative flexibility of Agile. This approach allows organizations to maintain control over planning and documentation while adapting to changing project demands.[2]

Key characteristics of hybrid models include :

[1] Highsmith Jim (2009), Agile Project Management: Creating Innovative Products, Addison-Wesley, Boston.
[2] Project Management Institute , PMBOK , (2020), op.cit.

- **Structured Planning**: Traditional methodologies provide clarity through detailed scheduling, documentation, and milestone tracking.
- **Adaptive Execution**: Agile components enable responsiveness through iterative development, stakeholder feedback, and continuous improvement.

Applications of hybrid models include:

- **Large Enterprises:** Combining governance with Agile execution improves coordination across departments.
- **Regulated Industries**: Traditional frameworks ensure compliance, while Agile practices allow for adaptable development.
- **Software Development**: Teams often plan requirements using traditional methods and execute iterations using Scrum or Kanban.
- **Construction Projects**: Traditional approaches are used for permitting and design, with Agile-inspired tools supporting daily site operations.

By combining the strengths of traditional, Agile, and Lean methodologies, hybrid models offer a tailored approach to managing complexity, ensuring both strategic control and operational agility.

1.3.4 Project Governance and Strategic Alignment

Project governance provides the structural foundation for ensuring that project activities align with organizational strategy. It establishes decision-making authority, accountability mechanisms, and oversight processes that guide project execution toward strategic objectives. Effective governance relies on clearly defined roles, transparent communication, and integrated risk management across all project phases.

Governance bridges the gap between strategic intent and operational execution. Without it, organizations risk initiating projects that diverge from core objectives, resulting in wasted resources, missed opportunities, or outright failure. Poor governance can lead to major consequences such as cost overruns, stakeholder misalignment, and inadequate risk anticipation. By enforcing alignment between projects and broader business goals, governance enhances decision-making, safeguards investments, and ensures that projects deliver tangible value.[1]

[1] Shenhar Aaron J., Dvir Dov, Levy Ofer, Maltz Alan C. (2001), “Project Success: A Multidimensional Strategic Concept”, Long Range Planning. vol. 34, n°6.pp.56-59

- **Governance Across Methodologies**

Governance is implemented differently across project management methodologies:

Traditional (Waterfall) methods use structured, sequential stage gates to validate progress at key milestones. This model suits projects with well-defined scopes, offering high predictability and control. However, it can hinder flexibility in dynamic environments.

Agile governance emphasizes real-time oversight, decentralized decision-making, and stakeholder collaboration. It relies on iterative reviews, transparent prioritization, and rapid feedback to maintain alignment with evolving goals. While adaptive, it requires a cultural shift to sustain strategic direction across autonomous teams.

Hybrid approaches combine the control of traditional governance with the responsiveness of Agile. Stage gates may govern funding and phase transitions, while Agile tools manage execution. This model supports complex projects by integrating high-level oversight with iterative adaptability.

- **Strategic Alignment Mechanisms**

Strategic alignment is achieved through governance structures that:

- Prioritize projects based on strategic relevance using evaluation matrices or scoring models.
- Allocate resources toward initiatives with the highest strategic value, often delaying or cancelling those with limited impact.
- Embed risk management throughout the project lifecycle, defining acceptable risk thresholds and proactive mitigation plans.

While methodologies and frameworks provide the structural backbone for managing projects, their effectiveness ultimately depends on how well critical success factors are addressed in practice. The next section focuses on the KSFs reflecting that role.

2 Key success Factors in project management

2.1 Understanding Project Success

Achieving project success hinges on a multitude of factors that influence every stage of the project lifecycle, from initiation and planning through execution and closure. These Key Success Factors (KSFs) are pivotal in ensuring projects align with strategic goals, effectively mitigate risks, and

optimize team performance. This section outlines the specific KSFs deemed critical to this study's examination of structured communication's impact on project outcomes. Project success, as a multifaceted concept, is shaped by the complex interplay of various factors Recognizing this complexity, this research focuses on the following seven KSFs, chosen for their particular relevance to the essential role of communication in realizing project objectives

To fully understand how these KSFs contribute to effective project delivery, it is important to examine how the concept of project success has evolved over time.

2.2 The Evolution of Project Success Criteria

Project success definitions have evolved significantly. Initially, success was measured by the Iron Triangle time, cost, and scope.[1] Modern views emphasize value creation, innovation, and long-term impact, recognizing that success depends on context[2.] Value creation benefits stakeholders through market share or satisfaction; innovation provides competitive advantage; long-term impact covers sustainability and social effects.

Different project types prioritize different success factors for example, IT projects focus on adaptability, while infrastructure projects prioritize cost control. This shift reflects a broader understanding, moving beyond efficiency to include strategic outcomes like stakeholder satisfaction and sustainability. Effective communication is now seen as vital for engaging stakeholders and aligning goals.

A comprehensive approach to project success involves traditional efficiency measures and broader strategic outcomes, which will be explored in later sections.

Project success is complex due to varying stakeholder expectations, organizational goals, and project dynamics. Success criteria are measurable indicators of performance, and clearly defining them reduces subjective judgments.

Over the past 40 years, the view of project success expanded from the Iron Triangle to include stakeholder satisfaction, business value, and environmental/social factors.

[1] Atkinson, Roger (1999), “Project management: Cost, time and quality, two best guesses and a phenomenon, it's time to accept other success criteria”, *International Journal of Project Management*, 17(6).vol.17

[2] Jugdev, Kam, and Müller, Ralf (2005), “A retrospective look at our evolving understanding of project success”, *Project Management Journal*, 36(4) , n°4, pp. 19–31.

Success factors are project elements that increase the likelihood of success when properly influenced.[1] The concept originated in 1961 and evolved into "critical success factors," which are essential areas that must go right for project and organizational goals.

2.2.1 Difference Between Success Factors and Success Criteria

Success criteria measures if a project succeeded; success factors are conditions that help achieve success. Some factors indirectly impact outcomes but are critical when combined with others throughout the project lifecycle. Project management has shifted from technical focus to a holistic view including people and collaboration.[2]

The next sections will examine seven key success factors that drive project performance and success

2.3 The strategic role of key success factors

The purpose of choosing these particular KSFs :

Identifying the factors that contribute to project success has been a longstanding focus in project management research. Fortune & White conducted an extensive analysis of 63 studies to determine the most frequently cited success factors, highlighting key elements such as top management support, realistic and clear objectives, an up-to-date operational plan, an effective communication system incorporating feedback mechanisms, customer involvement, and a qualified project team. These factors, widely recognized in the literature, provide a solid foundation for understanding project success.[3]

However, the effectiveness of these factors depends on the specific project environment and management approach. This study adopts a structured communication perspective, emphasizing the role of clear, systematic, and transparent communication processes in enhancing project outcomes. Based on this focus, the following seven Key Success Factors (KSFs) have been identified as the most relevant:

- Stakeholder engagement and strategic alignment
- Risk management and decision making
- Clarity in roles, responsibility, and accountability

[1] Belassi, Walid, and Tukel, Oya I., *op. cit.*
[2] Jugdev, Kam, and Müller, Ralf, *op. cit.*
[3] Fortune, Jeffrey, and White, David (2006), *Framing of project critical success factors by a systems model*, *International Journal of Project Management*, vol. 24, n°1, pp. 53–65.

- Information flow and knowledge management
- Change management and adaptability
- Conflict resolution and issue tracking
- Team performance and productivity

2.3.1 Detailed presentation of the KSFs :

- **Stakeholder Engagement and Strategic Alignment**

Projects succeed more often when stakeholders are actively engaged and aligned with broader organizational goals. Effective engagement means recognizing diverse interests, managing expectations, and involving key actors in meaningful ways. When stakeholders feel heard and valued, trust improves, resistance decreases, and collaboration becomes more productive.[1]

Strategic alignment ensures that project outcomes support the organization's larger mission. This increases executive support, optimizes resource use, and fosters cross-departmental cooperation. However, misalignment often caused by unclear objectives or conflicting priorities can derail progress. Maintaining alignment requires consistent dialogue and strong leadership throughout the project.[2]

- **Risk Management and Decision Making**

Proactively managing risk is essential to prevent disruptions and ensure project stability. Identifying potential threats early and preparing appropriate responses helps reduce delays, cost overruns and minimises operational inefficiencies .[3]

Good decision-making under uncertainty relies on evaluating options carefully, drawing from past data and anticipating possible scenarios. When risk management and decision-making are reactive rather than planned, projects become vulnerable to crisis and inconsistency.

[1] Freeman, Edward R. (1984), *Strategic management: A stakeholder approach*, Pitman, Boston.
[2] Aaltonen, Kirsi, and Kujala, Jaakko (2010), "A project lifecycle perspective on stakeholder influence strategies in global projects", *Scandinavian Journal of Management*, vol. 26, n°4, pp. 381–397.
[3] Raz, Tamar ,(2002), "Risk management, project success, and technological uncertainty", *R&D Management*, vol. 32, n°2, pp. 101–109.

Dey et al found that Organizations that embed a forward-looking risk mindset and support data-driven decision-making processes are better equipped to adapt and deliver successful results even in unpredictable environments.[1]

- **Clarity in Roles, Responsibilities, and Accountability**

Clear definition of roles and responsibilities is fundamental to project efficiency. When team members understand what is expected of them and who holds decision-making authority, collaboration improves and confusion is minimized. Role clarity fosters trust and strengthens team alignment, reducing delays and duplicated efforts.[2]

Projects that establish clear expectations tend to perform better, with smoother coordination and higher individual accountability. In contrast, unclear roles often result in overlapping tasks and project stagnation. Maintaining clarity requires early definition of responsibilities , creating channels for regular feedback, and reinforcing key messages consistently throughout the project lifecycle.

However, achieving clarity can be challenging. Resistance to change, inconsistent role frameworks, and differing cultural interpretations of accountability may cause friction. [3]Addressing these obstacles calls for intentional effort to define expectations and ensure that everyone understands their contributions to the project's success.

- **Information Flow and Knowledge Management**

Effective management of information and knowledge is essential for project success. When relevant data is accessible and well-organized, teams can make timely decisions, adapt to change and more than that , avoid repeating mistakes. Good knowledge management ensures that valuable insights are preserved and shared, especially in complex or long-term projects.[4]

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[1] Dey, Prasanta K. (2003), "Analytic hierarchy process helps evaluate project risks", *International Journal of Project Management,* vol. 21, n°8, pp. 585–594.

[2] Project Management Institute (2021), *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)*, 7e éd., PMI

[3] Kantor Ben, CIO Staff (2024), "The RACI Matrix: Your Blueprint for Project Success",

[4] Nonaka Ikujiro, Takeuchi Hirotaka (1995), *The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation*, Oxford University Press, Oxford.

Organizations that prioritize knowledge retention and open information flow tend to have stronger coordination and fewer errors. Efficient knowledge sharing also helps bridge gaps between departments and supports continuity in staffing or leadership transitions.

Yet, challenges remain. Knowledge hoarding, poor documentation habits, and disconnected systems can lead to silos and missed opportunities. Overcoming these issues requires fostering a culture that values transparency and emphasizes the long-term benefits of capturing and reusing organizational knowledge.[1]

- **Change Management and Adaptability in Project Success**

Projects operate in constantly evolving environments, making adaptability vital for sustaining progress and relevance. Being responsive to changing requirements, stakeholder expectations, or external conditions ensures that teams can navigate disruptions and maintain momentum.[2]

Successful change management involves more than technical adjustments it requires clear leadership, and a culture that views change as growth rather than disruption. Organizations that prepare for change with deliberate, phased processes experience smoother transitions and higher stakeholder support.

Adaptability also strengthens innovation and risk management. When teams are encouraged to embrace flexibility and stay informed, they can better anticipate challenges and pivot when necessary. However, resistance to change or a lack of readiness can hinder progress and lead to disengagement.[3]

Fostering change readiness through participatory planning and continual learning helps align teams with shifting goals and reinforces resilience throughout the project lifecycle.

- **Conflict Resolution and Issue Tracking in Project Success**

In collaborative project settings, conflict is often inevitable. What determines success is how quickly and fairly issues are addressed. Effective conflict resolution relies on open dialogue, fair

[1] Barros Ouriques Rafael A., Wnuk Krzysztof, Gorschek Tony, Berntsson Svensson Richard (2018), "Knowledge Management Strategies and Processes in Agile Software Development: A Systematic Literature Review", *arXiv preprint*, vol. abs/1805.01402, pp. 1–37.
[2] Kotter John P. (1996), *Leading Change*, Harvard Business School Press, Boston.
[3] Anderson Dean, Ackerman Anderson Linda (2010), *Beyond Change Management: How to Achieve Breakthrough Results through Conscious Change Leadership*, Jossey-Bass, San Francisco.

mediation, and clear resolution pathways to prevent misunderstandings from escalating into major obstacles.[1]

When teams know how to express concerns constructively and feel heard, trust that is how cooperation improve. Timely resolution of disputes encourages transparency and keeps focus on shared goals.

Issue tracking further supports this by ensuring problems are logged, evaluated and resolved efficiently. This accountability reduces repetition of errors, allows for better resource planning, and keeps teams on track.

However, barriers such as cultural misunderstandings or the absence of formal procedures can allow conflicts to persist and damage morale. In such environments, unresolved tensions may lead to inefficiencies and compromised deliverables.[2]

To counter this, organizations should foster a culture that promotes transparency and structured resolution processes strengthening team dynamics and improving project outcomes.

- **Team Performance and Productivity in Project Success**

High-performing teams are vital to project success, as they ensure coordination and timely results. Clear roles and defined goals help streamline tasks, minimize delays and keep the project within scope and budget.[3]

As teams move through development stages from forming to performing the importance of cohesion and open feedback becomes increasingly clear when people understand their roles have, they autonomy to act and keep learning as they go, they tend to work more efficiently. Hello. As teams move the through development stages. From forming to performing the importance of cohesion and open feedback becomes increasingly clear when people understand their roles have the autonomy to act and keep learning as they go. They tend to work more efficiently. The research consistently shows these elements support sharper decision making and greater adaptability in fast moving environments.

[1] Rahim M. Afzalur (2002), “Toward a theory of managing organizational conflict”, International Journal of Conflict Management, vol. 13, n°3, pp. 206–235.
[2] Barki Henri, Hartwick Jon (2001), “Interpersonal conflict and its management in information system development”, MIS Quarterly, vol. 25, n°2, pp. 195–228.
[3] • Lencioni Patrick (2002), The five dysfunctions of a team: A leadership fable, Jossey-Bass, San Francisco.

However, teams often face challenges like low motivation, vague responsibilities, or communication gaps especially in remote or cross-functional settings. These issues can weaken collaboration and output.[1]

To enhance productivity, organizations should set clear expectations, monitor performance, and support professional growth through training and feedback. Encouraging a culture of shared learning and improvement reinforces long-term team effectiveness.

While these Key Success Factors provide strategic direction, they must be operationalized to drive project performance. The next step is to translate them into measurable indicators that can guide execution in real-time environments

3 From Key Success Factors to Key Performance Indicators

Key Success Factors (KSFs) define the essential conditions for achieving project success, but without measurable validation, their impact remains uncertain. Key Performance Indicators (KPIs) bridge this gap by translating KSFs into quantifiable metrics, ensuring that success is tracked, assessed, and aligned with project objectives. Without well-defined KPIs, evaluating whether KSFs are effectively driving project outcomes becomes challenging. Conversely, if KSFs are unclear, KPI tracking lacks strategic direction. Together, they provide a structured framework for assessing project performance, balancing both strategic alignment and operational efficiency.[2]

This section examines the evolution of KPIs, distinguishing between traditional efficiency driven metrics and modern success indicators that reflect broader project value.

3.1 The Evolution of KPIs:

Historically, project success was primarily assessed through the Iron Triangle time, cost, and quality . While these metrics ensured efficiency, they overlooked strategic alignment, stakeholder engagement, and long-term impact. As project management evolved, scholars recognized that a project could meet traditional constraints yet still fail in terms of business objectives, adaptability, and sustainability .

Modern project success measurement now integrates stakeholder satisfaction, adaptability, knowledge management, team collaboration, sustainability, and risk management Stakeholder

[1] Brett Jeanne M., Behfar Kristin, Kern Mary C. (2006), “Managing multicultural teams”, Harvard Business Review, vol. 84, n°11, pp. 84–91.
[2] Aithal A., Aithal P. S., Kumar P. (2023), “Application of Delphi Method for Prioritizing Key Success Factors in Project Management”, *International Journal of Management*, vol. 14, n°1, pp. 156–168.

satisfaction KPIs track engagement and alignment with expectations, while adaptability measures include responsiveness to risks and market changes Knowledge management KPIs assess knowledge retention and team learning , while teamwork and collaboration are increasingly recognized through metrics evaluating cross functional efficiency and shared decision making . Sustainability KPIs ensure projects align with environmental and corporate responsibility goals, while risk management indicators gauge proactive identification and mitigation of threats .[1]

As project environments become more dynamic, KPI frameworks are evolving to prioritize strategic impact, agility, and technology driven insights . KPIs now measure long term value creation, focusing on sustainability and business impact rather than mere efficiency. The emphasis on agility tracks an organization's ability to adapt to disruptions, while real time analytics and AI driven monitoring enhance KPI measurement accuracy. These shifts ensure that KPIs remain relevant, providing actionable insights for decision making and continuous improvement in modern project management.

3.2 Translating KSFs into Measurable KPIs

The translation of Key Success Factors (KSFs) into actionable Key Performance Indicators (KPIs) represents a critical bridge between strategic intent and operational execution. This process ensures organizational objectives are quantified, tracked, and aligned with measurable outcomes, enabling evidence-based decision making. Drawing from established academic frameworks and case studies, this section delineates the methodology for deriving KPIs from KSFs, with specific applications to the seven project management success factors identified.

3.2.1 Process for Deriving KPIs from KSFs

- **Strategic Objective Clarification**

KSFs must first align with organizational mission and vision. Aithal et al. propose a Delphi method for prioritizing KSFs through expert consensus, ensuring relevance and feasibility. For instance, clarity in roles and accountability emerges as a KSF when stakeholder surveys highlight ambiguity in task ownership.

[1] Cooke-Davies Terence (2002), "The 'Real' Success Factors on Projects", *International Journal of Project Management*, vol. 20, n°3, pp. 185–190.

- **KPI Identification and Validation**

Each KSF is decomposed into measurable components. The Balanced Scorecard's framework Kaplan & Norton, suggests mapping KPIs to four perspectives: financial, customer, internal processes, and learning/growth. For information flow and knowledge management, this might involve tracking system uptime (internal process) and knowledge sharing frequency (learning/growth).

- **Target Setting and Benchmarking**

Historical data and industry standards inform realistic targets. Kerzner emphasizes SMART criteria ensuring KPIs are Specific, Measurable, Achievable, Relevant, and Time bound. For example, a team productivity KPI could target a 15% increase in task completion rates within six months, benchmarked against prior project cycles.

- **Continuous Monitoring and Adaptation**

Dashboards and periodic reviews enable real time tracking. A study on higher education KPIs highlights the use of trend analysis to refine KPIs, such as adjusting conflict resolution time targets based on escalating project complexities.

Translating KSFs into KPIs requires a systematic approach grounded in academic frameworks. Kaplan and Norton's [1] Balanced Scorecard provides a robust structure for categorizing metrics, while Kerzner's [2]stakeholder focused methodology ensures practicality by integrating these models, project managers can create a dynamic performance measurement system that adapts to evolving strategic landscapes, ensuring sustained alignment between execution and objectives.

This structured approach ensures KSFs are operationalized into actionable metrics, fostering accountability, transparency, and strategic coherence across project lifecycles

With the foundations of project management in place, the discussion now turns exclusively to the second research variable: structured communication.

[1] Kaplan, R. S., & Norton, D. P. (1992). *The Balanced Scorecard: Measures That Drive Performance*. Harvard Business Review, 70(1), 71–79.
[2] Harold Kerzner, *op. cit.* p. 67

Section 2 : Theoretical Foundations and Conceptual Framework of Structured Communication

Introduction

Effective project management hinges on clear and organized communication. This necessitates a structured approach to communication, which involves the deliberate planning and execution of information exchange among project stakeholders. By establishing predefined channels, formats, and protocols, structured communication ensures clarity, accuracy, and timely dissemination of vital project information, ultimately contributing to project success. The PMBOK explicitly addresses this within Project Communications Management , outlining the importance of a comprehensive Communications Management Plan to ensure effective information exchange.[1]

Harold Kerzner in his foundational work on project management, underscores the vital role of effective communication in ensuring that information is understood and acted upon, bridging the gap between planning and successful execution.[2]

In today's complex project environments, characterized by diverse teams and intricate dependencies, a structured approach to communication is no longer optional but fundamental. It moves communication beyond ad-hoc interactions, providing a framework for managing complexity and driving projects towards successful completion.

To understand its relevance in modern project environments, it is necessary to examine how structured communication has evolved and what defines it.

1 Concepts and Characteristics of Structured Communication in Project Management

Brief history

Structured communication in project management has evolved alongside technological and organizational advancements. Pre-1960s practices were informal, relying on hierarchical, paper-based exchanges. The 1960s–1990s introduced formal methodologies (CPM, PERT) and standards (PMBOK, PRINCE2), systematizing communication via email and databases. The 2000s–2010s emphasized collaboration through Agile and digital tools, enabling real-time, dispersed teamwork.

[1] Project Management Institute , PMBOK , (2020), op.cit.

[2] Kerzner, Harold, *op. cit.*; Aithal, A. et al., *op. cit.*

Post-2020, AI, cloud platforms, and automation prioritize adaptive, cross-cultural strategies, balancing efficiency with stakeholder complexity. This progression highlights communication's shift from ad hoc interactions to structured, technology-driven frameworks critical for project success.

1.1 Definition

Structured communication in project management refers to a systematic and planned process of information exchange that utilizes predefined channels, protocols, and documentation strategies to ensure clarity and alignment among stakeholders throughout the project lifecycle .[1]

Rooted in organizational communication theory, structured communication differs from standardized communication. While standardized communication enforces uniform formats and procedures to reduce ambiguity, structured communication is more comprehensive it encompasses planning, stakeholder alignment, channel selection, timing, and feedback mechanisms to support decision-making and project cohesion .

Building on this definition, structured communication serves not only to transmit information but also to shape project dynamics. These roles can be categorized as follows:

Structured communication fulfils two essential roles in project environments:

- Instrumental Role: It facilitates the timely dissemination of critical project information, helping ensure shared understanding of goals, progress, and constraints, thereby reducing risks of miscommunication.
- Constitutive Role: Beyond information transfer, it shapes stakeholder relationships and influences project culture and organizational identity .[2]

The PMBOK defines project communication management as the processes required to ensure timely and appropriate generation, collection, dissemination, storage, and ultimate disposition of project information.

1.2 Characteristics:

Structured communication in project management exhibits several defining characteristics that distinguish it from informal or ad hoc communication styles. These characteristics reflect both the

[1] Kerzner Harold (2017), op.cit.
[2] Ramsing L. B. (2009), “Project communication in an internal strategic perspective”, Corporate Communications: An International Journal, vol. 14, n°3, pp. **345–357**.

theoretical underpinnings of organizational communication and the practical demands of complex project environments.

Intentionality: Structured communication is deliberately designed. It is guided by specific goals, such as aligning stakeholders, reducing uncertainty, or supporting decision-making, rather than emerging spontaneously.

Predictability: It follows clear patterns, rules, and processes. Stakeholders know when and how information will be delivered, reducing ambiguity and fostering trust in the communication process.

Consistency: Messages are communicated using standardized formats and terminology, ensuring uniform understanding across different teams, departments, or levels of authority.

Formality: Structured communication relies on formal channels and established protocols. It often includes documentation, scheduled meetings, reports, and approved communication pathways.

Clarity: Language, tone, and messaging are designed to be unambiguous. The structure supports message clarity through repetition, confirmation, and simplified formatting.

Transparency: Information is openly shared within defined boundaries. Structured communication allows visibility into processes, decisions, and progress, which supports accountability and collaboration.

Accountability: Clear roles and responsibilities are assigned for message creation, delivery, and response. This ensures traceability and reinforces commitment to accurate information exchange.

Traceability: Communications are recorded, archived, or logged, making it possible to retrieve past messages, track decisions, and evaluate communication effectiveness.

These characteristics make structured communication particularly suitable for environments that require coordination among multiple actors, complex decision-making processes, and high levels of stakeholder involvement and they form the foundation for understanding why structured communication significantly contributes to project outcomes.

1.3 The Importance of Structured Communication in Project Success

Structured communication is a critical component of successful project management. its value lies in its ability to transform scattered efforts into coherent progress. Rather than relying on

individuals to infer expectations, it institutionalizes clarity and consistency, minimizing uncertainty and enabling strategic execution . [1]

The consequences of poor communication such as unclear requirements, missed updates, or lack of timely feedback can lead to project delays, resource conflicts, and stakeholder dissatisfaction. In contrast, structured communication offers a systematic approach to sharing information, providing updates, and resolving issues across all project phases.[2]

Beyond its operational benefits, structured communication strengthens trust, encourages transparency, and supports proactive risk management. It facilitates smooth decision-making by ensuring that accurate and relevant information reaches the right people at the right time.

Moreover, by incorporating formal processes such as reporting cycles, escalation paths, and feedback sessions, structured communication fosters a collaborative project culture. It transforms communication from an informal activity into a strategic tool that contributes directly to project success.[3]

To further highlight structured communication's effectiveness, it is helpful to contrast it with its unstructured counterpart.

1.4 Key Differences Between Structured and Unstructured Communication

Structured and unstructured communication represent two opposing approaches to information exchange within project environments. Structured communication relies on planned processes, defined channels, and formal documentation to ensure clarity and consistency. In contrast, unstructured communication is spontaneous, informal, and often undocumented, leading to increased risks of misalignment and miscommunication.

One of the most important distinctions lies in feedback. Structured communication includes built-in mechanisms such as regular check-ins, debriefings, or reporting systems that facilitate timely responses and adjustments. Unstructured communication often lacks these loops, which can delay the resolution of issues and hinder decision-making.[4]

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[1] The PMBOK , 2017 , op.cit

[2] Čulo Kristina et Skendrović Vlado (2010), "Communication management is critical for project success", Informatologia, **vol. 43, n°3, pp. 228–235.**

[3] Müller Ralf et Turner Rodney (2007), "The influence of project managers on project success criteria and project success by type of project", European Management Journal , vol. 25, **n°4, pp. 298–309.**

[4] Thamhain Hans J. (2013), "Managing risks in complex projects", Project Management Journal , vol. 44**, n°2, pp. 20–35.**

Having distinguished structured from unstructured communication, we now turn to the key elements that define and shape structured communication in project contexts.

1.5 Key Elements of Structured Communication

Structured communication in project management is not a matter of chance; it is the result of deliberately designed mechanisms that regulate how information flows within and across teams. Drawing from both communication theory and project management literature, this study identifies nine core elements that consistently underpin effective communication in projects. These elements align with principles from systems theory by Luhmann and Niklas [1], which views communication as an organized process involving feedback loops, defined roles, and rule-based exchanges all essential in managing the complexity and interdependence of modern projects.

This framework also draws upon PMBOK's communication knowledge area , the Shannon-Weaver model's emphasis on clear channels and minimal noise , and insights from organizational learning theory, particularly in relation to documentation and knowledge sharing .

1.5.1 Standardized Communication Channels

A standardized set of communication tools such as project dashboards, email protocols, or instant messaging platforms forms the infrastructure of structured communication. According to Daft and Lengel's Media Richness Theory [2,] the effectiveness of a channel depends on its ability to convey nuanced, timely information. Standardized channels reduce ambiguity, ensure accessibility, and foster consistent information flow, especially in complex or multi-team environments. Their absence often leads to fragmented updates, delayed responses, and coordination failures.

1.5.2 Standardized Communication Protocols

Protocols define how communication should occur including formatting norms, escalation paths, and required content. These rules transform communication from a casual activity into a repeatable and controllable process. Inspired by systems theory, these protocols act as the "grammar" of project interaction, ensuring reliability and reducing the cognitive load of interpretation. In their absence, critical issues may be communicated vaguely, ignored, or misunderstood.

[1] **Luhmann, Niklas (1995),** *Social Systems*, **Stanford University Press, Stanford.**
[2]Daft Richard et Lengel Robert (1986), "Organizational Information Requirements, Media Richness and Structural Design", *Management Science*, vol. 32, **n°5, pp. 554–571.**

1.5.3 Defined Roles and Accountability

In structured communication, roles are clearly assigned: who communicates what, when, and to whom. This aligns with Mintzberg's organizational role theory, emphasizing defined responsibilities for effective coordination. Clear role distribution avoids duplication, ensures accountability, and streamlines the chain of command all essential for accurate reporting, approval cycles, and stakeholder management.[1]

1.5.4 Timing and Frequency

Information must be delivered at the right moment to retain its relevance. Regular updates whether daily standups, weekly reviews, or phase-end reports foster shared situational awareness. Communication timing also aligns with the temporal dimension of project dynamics Turner & Müller, supporting proactive rather than reactive behaviour. Inconsistent or untimely updates disrupt planning, reduce engagement, and compromise decision-making.[2]

1.5.5 Transparency

Transparent communication refers to the deliberate disclosure of both achievements and challenges. The concept draws from trust theory by Mayer et al., where open sharing strengthens team cohesion and stakeholder confidence. Transparent environments enable earlier detection of risks and issues, while opaque cultures encourage blame, speculation, and disengagement.[3]

1.5.6 Documentation

Effective communication is recorded. Documentation provides a traceable record of meetings, decisions, requests, and changes. It serves as a memory system that supports audits, accountability, and knowledge retention. Documentation also facilitates onboarding and ensures continuity when team members change. In line with organizational learning theory, documentation transforms short-term knowledge into long-term organizational assets.

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[1] Mintzberg Henry (1979), *The Structuring of Organizations*, Prentice-Hall, Englewood Cliffs.

[2] Turner Rodney J. et Müller Ralf (2003), "On the Nature of the Project as a Temporary Organization", *International Journal of Project Management*, n°1, vol. 21.

[3] Mayer Roger C., Davis James H. et Schoorman F. David (1995), "An Integrative Model of Organizational Trust", *Academy of Management Review*, n°3, vol. 20.

1.5.7 Knowledge Sharing

Structured communication is not merely about transmission it's about knowledge exchange. Sharing lessons learned, technical insights, and contextual knowledge reduces redundancy and accelerates problem-solving. This element draws from Nonaka's SECI model of knowledge creation , where structured dialogue and codification processes help teams move from tacit to explicit knowledge. Without it, teams repeat mistakes and lose valuable experiential insight.[1]

Together, these seven key elements form the backbone of structured communication in project management. With this practical framework established, the next part of this thesis explores the theoretical foundations that underpin these elements, drawing from communication and project management theories to deepen our understanding of structured communication's role in complex projects.

2 Theoretical Foundations of Structured Communication in Project Management

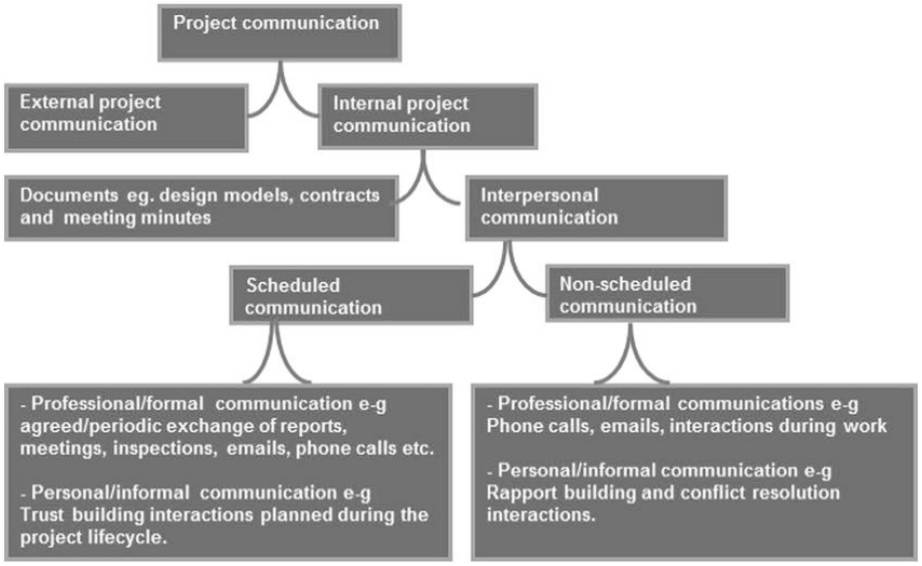
To ground this thesis in a solid theoretical base, this part presents a multi-layered exploration of communication within project management. It begins with organizational communication frameworks that shape communication practices, proceeds to foundational communication models that offer a conceptual understanding of structured interaction, and concludes with the PMBOK framework, which bridges theory and practice.

[1] Nonaka Ikujiro (1994), "A Dynamic Theory of Organizational Knowledge Creation", *Organization Science*, n°1, vol. 5.

2.1 Organisational Communication Framework

As shown in the figure above[1] Project communication encompasses internal and external exchanges, both formal and informal, and includes both scheduled and spontaneous interactions. These interactions directly influence project coordination, stakeholder engagement, and overall project success.[2]

Figure 1: Illustration of an adapted communication framework , based on Ramsing (2009) and Kerzner (2011)



2.1.1 External Project Communication

External communication addresses interactions with stakeholders outside the immediate project team clients, suppliers, regulators, the media, and the public. This type of communication ensures transparency, nurtures relationships, and maintains alignment with broader organizational objectives. Common external tools include contracts, client reports, public announcements, and press releases .

2.1.2 Internal Project Communication

Internal communication ensures synchronization among project actors and supports collaboration, decision-making, and operational efficiency . It encompasses:

- Oral: Meetings, verbal updates.

[1] Kerzner Harold (2011), *Project Management: A Systems Approach to Planning, Scheduling, and Controlling*, 11th ed., Wiley, Hoboken.
[2] Ramsing L. B. (2009), op.cit.

- Written: Emails, memos, formal documentation.
- Non-verbal: Body language and behavioural cues.
- Visual: Diagrams, presentations

Internal communication can be structured in two formats:

- Scheduled Communication

These are planned, systematic exchanges such as periodic reports, formal meetings, and scheduled inspections. They often follow formal protocols aligned with push communication principles . Additionally, scheduled informal communication (e.g., team check-ins) helps build cohesion and support morale

- Non-Scheduled Communication

Unplanned, real-time exchanges (e.g., quick calls or spontaneous discussions) help resolve issues as they arise. Even informal chats or unplanned coordination efforts can influence project momentum and culture .

These categories provide an essential backdrop for understanding how structured communication attempts to systematize and enhance these naturally occurring exchanges. To support this, we now turn to classic communication models that offer a conceptual lens for operationalizing structure and clarity in project interactions.

2.2 Communication Models: Theoretical Lenses for Structured Communication

Communication models help deconstruct the mechanisms behind message transmission, reception, and interpretation. By applying these models, one can better understand how structured communication supports clarity and enhances stakeholder alignment. Three models have been selected for their direct relevance to structured communication in project contexts: the Shannon-Weaver Model, Jakobson’s Model, and the Marketing Communication Model.

2.2.1 Shannon-Weaver Model

This linear model presents communication as a one-way process from sender to receiver, subject to potential disruptions or "noise." Within project management, this underscores the importance of minimizing ambiguity through formalized language, reliable channels, and feedback

mechanisms. Structured communication responds to these requirements by setting protocols for message clarity and delivery, especially in complex and high-risk environments.

2.2.2 Jakobson's Model

Jakobson's model offers a more comprehensive understanding by incorporating elements such as shared codes, context, and communicative functions (e.g., referential, emotional, conative). In multidisciplinary or technical project teams, structured communication mitigates semantic gaps through standardized templates, controlled vocabularies, and explicit contextual framing.

2.2.3 Marketing Communication Model

This model treats communication as a strategic process designed to influence and align. It emphasizes message planning, audience targeting, and performance monitoring. In project contexts, structured communication mirrors this approach by identifying stakeholder groups, tailoring messages, and maintaining engagement through deliberate and sustained strategies.

These models collectively provide theoretical justification for structuring communication around clarity, coding systems, and intentional message design. While other models may offer valuable interpersonal insights, the selected models are retained for their strong alignment with the operational dimensions of communication within project settings.

2.3 Linking Classical Models with Communication Standards in Project Management (PMBOK)

Although classical communication models offer foundational insights into how information flows, the project environment necessitates a more structured and operational perspective. The PMBOK (Project Management Body of Knowledge) provides a globally recognized framework for communication standards in project management. Rather than considering communication as a single event, the PMBOK treats it as a set of integrated processes that ensure effective information flow, stakeholder alignment, and project performance. This approach is consistent with the concept of structured communication as defined in this thesis.[1]

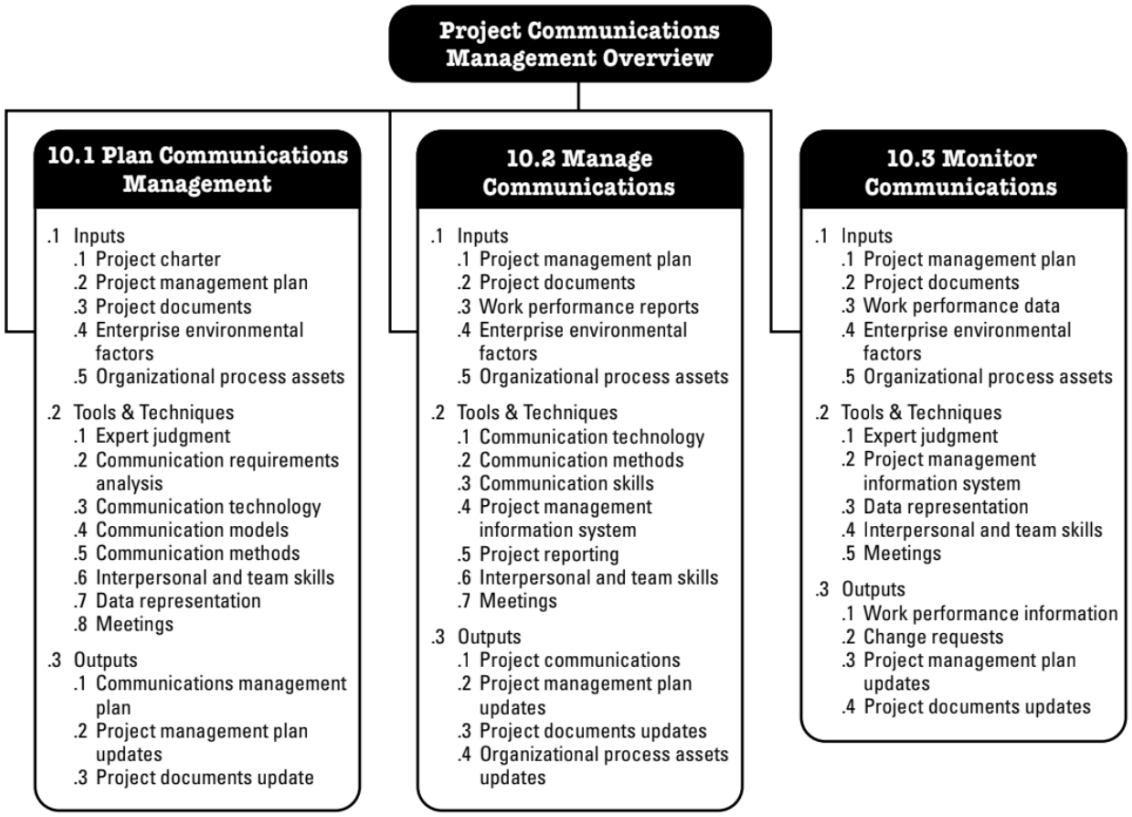
The following section draws upon PMBOK principles to explore how structured communication contributes to project success.

[1] Hernandez Ladino, Ruth Mirella (2014). *The Management of Communication in Project Management: Models and Tools* **(**translated from French**).** Master's thesis in Project Management**,** University of Quebec in Montreal

The PMBOK organizes project management into distinct but interconnected dimensions, each of which must be effectively managed. Communication, in this context, plays a central role in bridging people and information. All project participants must be aware of how communication can impact the project's life cycle, either positively or negatively.

The PMBOK framework structures communication through three interrelated processes. The figure below provides a standardized overview of these communication components.

Figure 2: Project communication overview , PMBOK 6thED



Appropriate communication within a project is a crucial factor in managing stakeholder expectations. When stakeholders are not kept adequately informed, discrepancies in expectations or unanticipated issues can arise. Frequently, conflicts within a project stem not from the underlying issues themselves, but from the surprise or lack of preparedness caused by communication failures.

Project communication typically includes reporting on project status from team members to the project manager, and from the project manager to the sponsor and stakeholders. Review meetings

and progress reports are essential venues for sharing such information. Projects involving broad-scale change or complexity require more sophisticated communication methods, often outlined in a comprehensive communication management plan.[1]

Figure 3: simplified flow diagram, PMBOK® Guide (6th Edition), Chapter 10

Communication management encompasses the processes necessary to ensure the timely and appropriate generation, distribution, storage, and eventual disposition of project information. Informal, day-to-day communication must also be recognized and managed, as it plays a significant role across all project processes.

Communication in projects is of strategic importance. How a message is transmitted matters greatly. Any noise introduced during communication can distort its meaning. Factors such as cultural differences, geographical distance, and the technological means used to transmit messages must be carefully considered.

To ensure effective communication in a project, several aspects must be evaluated:

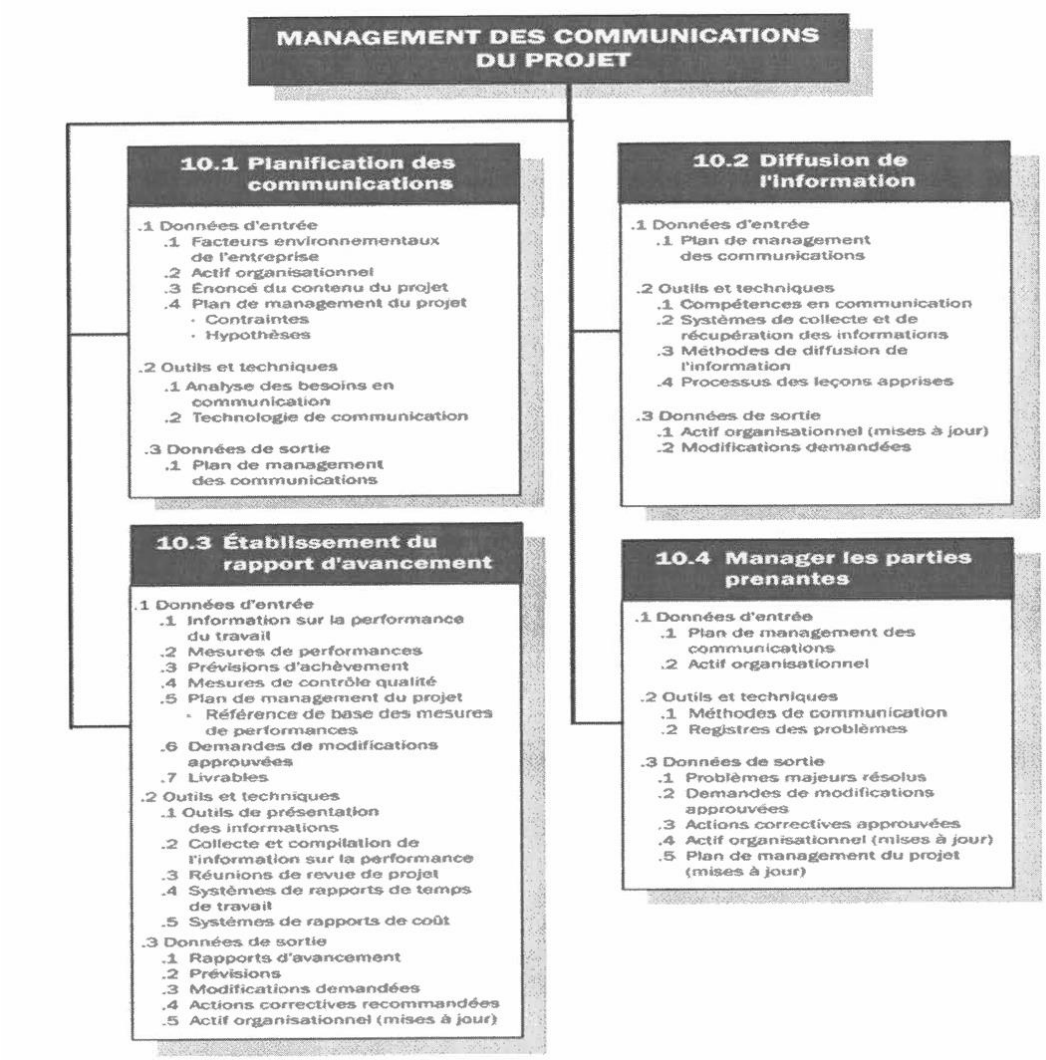
- The roles and responsibilities of stakeholders and the organizations involved;
- The disciplines and departments engaged in the project;
- The geographical dispersion and mobility of participants;
- The requirement for external communication, such as with the media.

Communication is also vital in maintaining organizational dynamism and avoiding stagnation. Proper communication can mitigate stress, alleviate uncertainty, and discourage counterproductive behaviours.[2]

[1]Hernandez Ladino, Ruth Mirella (2014). *The Management of Communication in Project Management: Models and Tools* (translated from French**).** Master's thesis in Project Management, University of Quebec in Montreal

[2] idem

Figure 4 : Project Communications Management Framework, PMBOK® Guide (6th Edition), Chapter 10.



The key processes of communication management are:

- Communication planning: Determining the communication and information needs of stakeholders;
- Information distribution: Delivering the right information, at the right time, to the right person;
- Progress reporting: Ensuring project progress is consistently and transparently documented;
- Stakeholder management: Resolving issues and maintaining engagement through effective communication methods, such as face-to-face meetings and issue tracking logs.

Project managers must spend a significant amount of time communicating with the project team, stakeholders the client, and the sponsor.

Communication management includes key knowledge areas, such as:

- Sender-receiver models with emphasis on feedback and barriers;
- Choice of communication medium, depending on context and purpose;
- Writing style, including voice, structure, and vocabulary;
- Presentation techniques, encompassing both verbal and visual strategies;
- Meeting facilitation techniques, such as agenda preparation and conflict management.

For successful communication management, it is essential to define:

- Who needs the information;
- The most appropriate medium for communication;
- The most suitable person to deliver the message.

Stakeholders rely on various mechanisms meetings, written reports, and other formats to exchange information. Technological factors such as urgency, resource availability, project duration, and the working environment also influence communication choices.[1]

Face-to-face meetings remain the most effective method for addressing critical issues and maintaining stakeholder engagement. In any communication, the sender is responsible for ensuring clarity and completeness, while the receiver must confirm understanding.

Communication within projects spans multiple dimensions:

- Oral and written forms;
- Listening practices;
- Internal and external communication;
- Formal and informal exchanges;
- Vertical (hierarchical) and horizontal (peer-to-peer) communication.

[1] Project Management Institute , PMBOK , (2017), op.cit.

3 Adapting Structured Communication to Project Methodologies

Structured communication determines how information circulates within a project, ensuring alignment, coordination, and transparency. Its implementation depends on the methodology in use. This section explores how structured communication integrates into traditional, agile, and hybrid project approaches, as well as the personalization of communication within these structures.

3.1 Frameworks vs. Methodologies

Frameworks offer overarching principles for organizing work, while methodologies provide detailed, prescriptive approaches for executing those principles. Structured communication plays a distinct role in each. Traditional methodologies such as Waterfall or PRINCE2 [1]emphasize hierarchy and formal reporting, whereas Agile methodologies prioritize dynamic interaction and feedback loops. Understanding these differences is vital for integrating communication strategies. [2]

3.2 Integration of Structured Communication Across Methodologies

Structured communication enhances project success through clarity, accountability, and information flow. However, the form it takes varies significantly depending on the project methodology.

3.2.1 Traditional Methodologies

Traditional models rely on formality, predictability, and documentation. Structured communication is central to their execution:

Waterfall: Organized in linear phases, this model emphasizes upfront planning and extensive documentation. Formal milestone reviews and sign-offs structure communication between phases. Within each phase, informal communication may occur, but transitions are governed by structured deliverables.[3]

PRINCE2: This process-oriented methodology mandates clear roles and structured reporting. Regular communication through Highlight Reports, End Stage Reports, and Exception Reports ensures alignment. Structured escalation paths further reinforce accountability.

[1] AXELOS (2017) ,op.cit.
[2] Beck Kent et al. (2001), “Manifesto for Agile Software Development”, https://agilemanifesto.org,
[3] Royce Winston W. (1970), “Managing the Development of Large Software Systems”, Proceedings of IEEE WESCON.

SDLC: Like Waterfall, the Systems Development Life Cycle includes well-defined documentation requirements at each phase. Structured communication checkpoints like requirement validations, design approvals, and test reporting promote clarity and coordination among developers, analysts, and testers.

These models prioritize predictability and control, making structured communication essential to maintain order and alignment.

3.2.2 Agile Methodologies

Agile emphasizes adaptability, collaboration, and rapid iteration. While less formal, it still employs structured communication mechanisms tailored to its core values:

Scrum: Structured events (Sprint Planning, Daily Scrum, Sprint Review, and Retrospective) offer rhythm and transparency. Defined roles such as Product Owner and Scrum Master facilitate targeted communication. These time-boxed events ensure feedback is continuous and communication remains aligned with priorities.[1]

Kanban: Structured communication is visual. The Kanban board makes work visible, while WIP limits and performance metrics (like cycle time) create feedback loops. While Kanban lacks formal ceremonies, reviewing the board regularly provides structured checkpoints.

SAFe (Scaled Agile Framework): Designed for large organizations, SAFe introduces formal planning and feedback mechanisms such as PI Planning, System Demos, and Inspect & Adapt workshops. Defined roles like Release Train Engineer (RTE) ensure coordination across multiple teams.

Agile frameworks reinterpret structured communication to serve flexibility without sacrificing clarity.

3.2.3 Hybrid Methodologies

Hybrid models blend the predictability of traditional methods with the adaptability of Agile. Structured communication becomes the glue between the two.

PMBOK (Project Management Body of Knowledge): Although not a methodology, PMBOK offers structured guidance on communication through tools like the Communication Management

[1] Schwaber Ken, Sutherland Jeff (2020), The Scrum Guide , Scrum.org, https://scrumguides.org

Plan and Stakeholder Engagement Plan. These tools help bridge formal and informal communication styles in hybrid contexts.

AgilePM: AgilePM builds structured communication into Agile environments. Defined roles (e.g., Business Sponsor, Business Visionary) and structured workshops ensure consistent engagement. Timeboxing supports a cadence for regular updates and decision-making.

General Hybrid Approaches: These environments mix structured governance (status reports, phase gates) with agile practices (stand-ups, retrospectives). The challenge lies in defining when to use formal communication versus informal updates. Clear communication hierarchies and documentation policies are key to integration.

Hybrid models require deliberate planning of communication strategies to prevent misalignment and fragmentation.

3.2.4 Personalizing Structured Communication

Effective project communication must consider not only methodology but also stakeholder needs. Personalization within structured frameworks ensures relevance, engagement, and trust. This integration involves adapting content, delivery format, and interaction modes to stakeholder preferences.

Theoretical Underpinnings

McQuail's Mass Communication Theory : Emphasizes audience adaptation based on intellectual and emotional engagement. In projects, this means tailoring structured messages to match stakeholder interests and expectations.[1]

Craig's Constitutive Communication Theory : Suggests that communication shapes social reality. Personalized communication, embedded in structured frameworks, acknowledges diverse perspectives and fosters shared understanding.[2]

PMBOK 7th Edition : Highlights the importance of stakeholder engagement, stewardship, and contextualized communication. While less process-driven than previous editions, it reinforces the need to adapt messages while maintaining structure.[3]

[1] Denis McQuail (2010), McQuail's Mass Communication Theory , 6th ed., SAGE Publications.
[2] Craig Robert T. (1999), "Communication Theory as a Field", Communication Theory , vol. 9, no. 2.
[3]PMBOK 7th Edition (PMI, 2021),op.cit.

Conclusion

Structured communication is not a rigid constraint but a flexible scaffold that supports alignment and efficiency across diverse project methodologies. In traditional methods, it provides control. In Agile, it facilitates iteration. In hybrid models, it connects different worlds. Personalized communication enriches this framework by addressing human factors, fostering engagement, and enhancing project outcomes. The successful integration of structured and personalized communication depends on thoughtful planning, awareness of stakeholder needs, and alignment with methodological principles.

Structured communication, when adapted appropriately, becomes the backbone of collaborative, transparent, and results-driven project execution regardless of methodology.

Section 3: the impact of structured communication on project success

Introduction

The previous sections established the foundations of structured communication and project success. Section 1: Theoretical Foundations and Conceptual Framework of Structured Communication , Section 2: Project Management and Project Success . This section now shifts from theory to impact, examining how structured communication influences project success. The following analysis will demonstrate its role in shaping success factors, explore strategies for strengthening its application, and address potential challenges, positioning structured communication as a critical component of project management.

1 the impact of structured communication on key success factors

Building upon the theoretical foundations established in the previous sections, this analysis examines how certain elements of structured communication directly influence key success factors in project management , drawing upon empirical studies and industry case studies.

1.1 Stakeholder Engagement & Strategic Alignment

Structured communication is directly linked to stakeholder engagement and strategic alignment. When communication is structured, it ensures that information is conveyed in a clear and organized manner, minimizing misunderstandings and ensuring that stakeholders remain informed about project progress and challenges. This alignment of expectations between stakeholders leads to better decision-making, as everyone involved is on the same page about project goals, timelines, and deliverables.[1]

Several studies have shown that well-organized communication strategies foster greater engagement from stakeholders. For example, Yang, J et al.[2] found that when project managers implemented regular, structured updates and feedback loops, stakeholders were more likely to contribute their expertise and support, increasing overall project performance. Additionally,

[1] Bourne Lynda (2015), Stakeholder Relationship Management, Gower Publishing, Farnham.

[2] Yang Jian, Shen Geoffrey Q., Ho Michael, Drew David S., Chan Albert (2011), "Exploring critical success factors for stakeholder management in construction projects", Journal of Civil Engineering and Management, 17(2), **vol. 17, n°2, pp. 157–167.**

strategic alignment achieved through consistent, structured communication ensures that all efforts are directed toward the overarching goals of the project. According to Brian J. Galli projects that maintained clear communication pathways from the start demonstrated better alignment of objectives between the team and external stakeholders, leading to smoother execution and a higher likelihood of success.

The impact of structured communication is also visible in projects where miscommunication led to delays or misaligned goals. Bourn Lynda reported that projects with poorly structured communication systems experienced significant setbacks in stakeholder involvement and alignment, which ultimately affected the project's success rate.

1.2 Risk Management & Decision-Making

Structured communication is key to improving risk management and decision-making in projects. It ensures clear, consistent, and timely information, helping stakeholders stay aligned and make informed choices that improve outcomes.

Standardized communication channels are fundamental. Arvai et al. explained that predefined methods like email, video conferencing, and project platforms ensure uniform information flow, which minimizes confusion and supports informed decisions, especially during critical project phases.[1]

Equally important are communication protocols. Arvai emphasized that clear rules for structuring and archiving information such as mandatory report templates and escalation workflows ensure that critical data reaches the right people, improving risk mitigation and responsiveness.

Defined roles and accountability also enhance structured communication. Kikkawa found that clearly outlined responsibilities reduce overlap and confusion, leading to more efficient decision-making and fewer communication-related errors.[2]

[1] Arvai Joseph L., Gregory Robin, McDaniels Timothy L. (2001), “Testing a structured decision approach: Value-focused thinking for deliberative risk communication”, Risk Analysis, **vol. 21, n°6, pp. 1065–1076.**
[2] Kikkawa Takashi (2012), “Risk Communication: A Brief Review”, Annals of Oncology, 23, **vol. 23, Supplement 11, pp. 80-95.**

The frequency and timing of updates matter as well. Koch et al. showed that regular updates aligned with milestones enhance engagement and improve decision-making, particularly in high-stakes environments like healthcare.[1]

Transparency fosters trust and collective problem-solving. Vaughan highlighted that open communication about progress and setbacks allows diverse insights to inform decisions and strengthens risk management[2]

1.3 Clarity in roles, responsibilities, and accountability

Structured communication has a profound impact on clarifying roles, responsibilities, and accountability. First, standardized communication channels help reduce misunderstandings. when everyone receives the same information, it promotes a clear understanding of roles and responsibilities, thus enhancing accountability.

Second, defined roles and accountability are crucial. By using structured models like RACI (Responsible, Accountable, Consulted, Informed), roles and responsibilities are clearly delineated. This framework reduces ambiguity and minimizes overlaps in tasks. Sajid et al. have shown that when roles are clearly defined through structured communication, project success improves, as it eliminates confusion and gaps in responsibilities.[3]

Third, regular communication about the frequency and timing of updates helps ensure that all stakeholders are well-informed. note that by setting up regular meetings or status updates, stakeholders stay in the loop, which improves accountability and reduces the risk of misunderstandings or scope creep.

Furthermore, stakeholder engagement and transparency are facilitated by structured communication strategies, such as clear documentation and frequent briefings. Sajid point out that these practices ensure stakeholders are consistently engaged and aware of their roles. Transparency in communication also strengthens accountability, as everyone knows what is expected of them. Documentation and knowledge sharing also play an important role in clarifying responsibilities.

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[1] Koch Hermann et al. (2019), "Adaptive risk response in large-scale infrastructure projects", Risk Management Journal, **vol. 21, n°1, pp. 1–20.**

[2] Vaughan Elaine (1995), "The significance of socioeconomic and ethnic diversity for the risk communication process", Risk Analysis, 15(2), vol. **15, n°2, pp. 169–180.**

[3] • Sajid Mohammad et al. (2022), "Impact of clear role definitions on project success: A communication perspective", International Journal of Project Management Studies, **vol. 5, n°1, pp. 45–60.**

Foster [1]emphasizes that keeping communication documented (via emails, reports, etc.) helps maintain clarity and makes tasks traceable. It also helps ensure that everyone has access to the same information, further aligning team members on their roles and duties.

1.4 Information Flow and Knowledge Management in Project

Structured communication is essential in optimizing information flow and knowledge management within projects, as it helps streamline the exchange of critical data and insights. By providing clear, standardized protocols, structured communication reduces ambiguity, ensures consistent messaging, and minimizes the risk of information silos. According to the PMBOK, establishing formal communication processes improves stakeholder alignment and enhances collaboration, both of which are fundamental for the successful execution of projects . [2]

Structured communication helps ensure that the right information reaches the right people at the right time, which is especially important in complex, multi-stakeholder projects. It also aids in knowledge management by facilitating the capture and dissemination of valuable insights. Argote and Ingram explain that knowledge management systems (KMS), which rely on structured communication, make it easier for teams to document lessons learned, share expertise, and integrate new knowledge into project processes. This is crucial in preventing knowledge loss, particularly when team members change or when moving through different phases of the project lifecycle.[3]

Moreover, Dainty et al. [4]show that formal communication protocols significantly reduce delays in construction projects by improving the clarity of task ownership and roles, which enhances overall efficiency. Similarly, Müller et al. (2020) found that structured communication through regular updates and feedback loops minimizes inefficiencies in project workflows, ensuring that teams stay on track and are aligned with project goals.

In conclusion, structured communication optimizes both information flow and knowledge management, contributing to informed decision-making, enhanced collaboration, and improved project success.

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[1] Foster Daniel (2012), “Documentation's role in clarity and accountability”, Journal of Organizational Communication, **vol. 16, n°1, pp. 22–35.**

[2] Project Management Institute , PMBOK , (2017), op.cit.

[3] Argote Linda, Ingram Paul (2000), “Knowledge transfer: A basis for competitive advantage in firms”, Annual Review of Psychology, **vol. 82, n°1, pp. 150–169.**

[4] **Dainty A. R. J., Moore D. R., Murray M. (2006),** *Communication in Construction: Theory and Practice*, **Taylor & Francis, London.**

1.5 change management and adaptability

Standardized communication channels ensure that everyone in the project is on the same page. As demonstrated in a study by Galli , structured communication allows project managers to keep track of progress and provide necessary updates, facilitating smoother transitions during change processes. Without clear channels, change efforts often falter due to misunderstandings or misaligned expectations.[1]

Defined communication protocols, which specify how information should be shared, play a crucial role in minimizing confusion and resistance. dainty suggests that clearly articulated protocols for communicating during a change initiative help in gaining buy-in from stakeholders and reduce the resistance often encountered in large organizational shifts.

Transparency in roles and responsibilities is crucial in change management. Research by galli emphasizes that when roles and accountability are clearly defined, employees feel more engaged and are more likely to support the change process, thus increasing adaptability and project success.

The timing and regularity of communication are essential in managing change effectively. Troppa highlights that timely updates help maintain momentum and minimize resistance. Scheduled communication intervals ensure that stakeholders have ample opportunity to adjust to change, which improves their overall receptivity and adaptability.

Active involvement of stakeholders in the communication process is vital for fostering engagement and collaboration. As shown in the study by galli , projects that prioritize stakeholder involvement through transparent and consistent communication have higher success rates. Knowledge sharing also empowers teams to adapt quickly and efficiently during change.

In global projects, understanding and addressing cultural differences in communication styles is critical. He discusses how cultural sensitivity and flexibility in communication enhance adaptability, enabling project teams from diverse backgrounds to work together seamlessly, even during significant change initiatives.

1.6 conflict resolution and issue tracking in project success

Structured communication elements, such as standardized communication channels and defined roles and accountability, directly influence conflict resolution and issue tracking by providing clear

[1] Galli Brian J. (2020), “Impact of structured communication on project change management”, International Journal of Project Management, 38(4), vol, **38, n°4, pp. 243–256.**

pathways for managing disputes and monitoring progress. For instance, in the Kigali Innovation City (KIC) Project, the use of regular communication channels and conflict coaching significantly enhanced the project's performance . Effective communication facilitated the identification and resolution of conflicts, leading to higher performance.

Standardized communication protocols are also key. Dai-zhong [1]highlights that well-defined communication practices within project teams prevent misunderstandings that could escalate into conflicts. These protocols ensure that all parties involved are aware of the project's goals and expectations, which mitigates potential disputes. Furthermore, a study by Kubana Francis, Kimemia Wanjiku emphasized the importance of structured negotiation techniques in resolving conflicts, ensuring that all team members engage in productive dialogues rather than escalating issues.[2]

Additionally, stakeholder engagement and transparency are essential in conflict resolution and issue tracking. Marten et al. [3] found that in open-source software projects, structured communication within issue tracking systems allowed for clearer identification of project issues and better collaboration in resolving them. By systematically documenting issues and maintaining transparent communication, teams can track problems efficiently, reducing the likelihood of unresolved conflicts hindering project progress.

1.7 Team Performance and Productivity in Project Success

Structured communication elements significantly enhance team performance and productivity by providing clarity, reducing misunderstandings, and fostering collaboration. First, standardized communication channels ensure that information flows seamlessly between all team members, which helps in maintaining coordination. This is supported by a study by Mennecke and Bradley which showed that teams with clearly defined roles and communication structures performed significantly better in terms of both productivity and satisfaction.[4]

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[1] Dai-zhong Li (2012), "Communication protocols preventing conflict escalation", Journal of Engineering and Management, 24(2), vol**. 24, n°2, pp. 45–58.**

[2] Kubana Francis, Kimemia Wanjiku (2025), "Structured communication improving conflict resolution", International Journal of Conflict Management, 36(1), vol. **36, n°1, pp. 75–89.**

[3] Merten Klaus, Hülsbusch Ulrike, Köhler Benjamin (2015), "Issue tracking and structured communication in projects", European Journal of Project Operations, 29(3), vol. **29, n°3, pp. 210–225.**

[4] Mennecke Brian E., Bradley John H. (1997), "Communication structures boosting team performance", Journal of Business Communication, 34(3), **vol. 34, n°3, pp. 67–82.**

Defined roles and accountability are another critical component of structured communication that impacts team performance. When roles are clearly outlined, team members know their responsibilities, which reduces confusion and enhances focus. This is particularly important in the context of multidisciplinary teams, where coordination across different areas of expertise is essential. Aleksandar also emphasize that network engagement and institutional support mechanisms are crucial for improving team productivity, highlighting the importance of structured communication.[1]

Moreover, the frequency and timing of communication are essential. Effective communication requires timely updates, which help teams to address issues as they arise and avoid delays noted that regular, face-to-face meetings in the oil and gas industry significantly improved team coordination, thereby increasing productivity. Similarly, structured communication protocols allow for clear documentation, ensuring that decisions and progress are accurately recorded, which supports better future planning.[2]

Having explored the impact of structured communication on key project success factors, the next section focuses on effective strategies for strengthening communication within projects.

2 Strategies for Strengthening Communication in Project Management

Following the recognition of the pivotal role structured communication plays in project success, it becomes essential to explore targeted strategies that can enhance the efficiency, clarity and also the frequency of information exchange among stakeholders.

This section outlines key strategies across these interrelated dimensions, offering practical approaches supported by academic research.

One foundational strategy is the development of a tailored communication plan. By clearly defining what information must be shared, with whom, when, and through which medium, project managers can reduce ambiguity and align communication efforts with stakeholder expectations.

[1] Milićević Aleksandar, Tomašević Vladimir, Isaković Olivera (2014), "Communication's impact on motivation and performance", Management Science Journal, 19(4), vol. **19, n°4, pp. 99–113**

[2] Gaghman Mohamed (2020), "Structured communication increasing productivity in projects", Journal of Agile Project Delivery, 12(2), vol.

As Müller and Jugdev [1] explain, technical teams often benefit from granular data shared via collaborative platforms, while executives prefer concise, visual summaries. To complement this, the centralization of communication through digital collaboration tools such as Microsoft Teams or Slack significantly streamlines project dialogue. real-time updates and reduced email clutter enable faster issue resolution and improve team cohesion. Additionally, the segmentation of communication channels by audience ensures that each stakeholder group receives the right level of detail detailed logs for engineers, dashboards for decision-makers thus minimizing overload and enhancing comprehension.

Ensuring consistency in how messages are conveyed is equally critical. The enforcement of standardized document templates for reports, meeting minutes, or change requests helps reduce the likelihood of miscommunication by ensuring that all essential information is consistently captured and presented. Muller et al found that standardized formats led to fewer errors and smoother project execution. In parallel, the formalization of escalation paths addresses delays caused by unclear hierarchies. Zwikael and Smyrk[2] recommend structured escalation protocols that clarify who should act in response to specific issues, thus expediting decision-making and improving deadline adherence. Complementing this is the scheduling of cadenced updates, such as daily stand-ups or weekly briefings. Regular touchpoints allow for early risk identification and foster accountability across teams.

Clear communication also depends on role clarity. The assignment of dedicated communication roles, such as a client liaison, ensures that responsibility for conveying critical information is clearly designated. Padalkar and Gopinath [3]showed that this significantly improves coordination in cross-functional environments.

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[1] Müller Ralf, Jugdev Kamila (2012), "Critical success factors in projects: Pinto, Slevin, and Prescott – the elucidation of project success", *International Journal of Managing Projects in Business*, vol. 5, n°4. **pp. 757–775.**

[2] Zwikael Ofer, Smyrk Jonathan (2018), *Project governance: A practical guide to effective project decision making*, Springer, Cham.

[3] Padalkar Mihir, Gopinath Sushil (2016), "Six decades of project management research: Thematic trends and future opportunities", *International Journal of Project Management*, vol. 34, n°7,**pp. 1305–1321.**

Another valuable tool is the implementation of a RACI matrix (Responsible, Accountable, Consulted, Informed), which outlines the communication responsibilities of each team member. He also argues, such tools reduce the frequency of redundant meetings and empower stakeholders to engage more effectively. To support these roles, role-specific communication training is also recommended. Rather than offering generic workshops, tailored training such as simplifying technical jargon for non-specialist audiences or teaching leaders conflict resolution ensures that individuals communicate with precision and purpose.

Timing is a vital component in communication effectiveness. The development of a structured communication calendar ensures a predictable rhythm that aligns with project phases and stakeholder needs. Pinto and Slevin [1]both emphasize that this approach reduces uncertainty and fosters trust. It is equally beneficial to align communication with project milestones, ensuring that stakeholders are informed precisely when critical decisions, deliverables, or changes occur. Thye also noted that this alignment mitigates project drift and enhances focus. Furthermore, the automation of routine updates through digital tools enables consistent messaging while freeing project leaders to concentrate on strategic oversight.

Modern project environments demand flexibility. The diversification of communication modalities mixing synchronous methods like video calls with asynchronous tools such as emails or shared documents accommodates different working styles, especially in geographically distributed teams. According to Zwikael and Meredith [2], such tailoring reduces the risk of misunderstanding and aligns communication with decision-making needs. To maintain relevance over time, teams must also regularly review and adjust communication methods, allowing for continuous improvement and resilience in volatile project environments.

Transparency enhances trust and collaboration. One effective approach is the provision of open access to key project information, ensuring that stakeholders can consult relevant documents without gatekeeping. Research by Müller and Jugdev [3]shows that such openness correlates strongly with stakeholder satisfaction. The visualization of complex data, through graphs, dashboards, or infographics, aids in simplifying information and accelerates comprehension

[1] Pinto Jeffrey K., Slevin Dennis P. (1988), "Critical Success Factors in Effective Project Implementation", *Project Management Journal*, vol. 19, n°3. **pp. 67–75.**

[2] Zwikael Ofer, Smyrk Jonathan (2018),op.cit.
[3] Müller Ralf, Jugdev Kamila (2012),op.cit.

especially under time pressure. Crawford and Pollack [1]underline the importance of visuals in facilitating informed decisions. Finally, establishing open feedback mechanisms encourages a culture of openness, allowing stakeholders to contribute insights and raise concerns constructively, which in turn supports iterative learning and better outcomes.

Equally important is robust documentation. The standardization of document templates and naming conventions not only improves clarity but also ensures that critical details are captured uniformly across teams. ISO 21500 [2] and both advocate this approach to minimize confusion and scope creep. The integration of documentation into each phase of the project lifecycle ensures traceability and preserves institutional knowledge. Kerzner [3]notes that this reduces post-implementation disputes. To avoid fragmentation, the adoption of centralized document management systems such as SharePoint is also essential.

Knowledge sharing strengthens team capacity and reduces redundancy. The establishment of Communities of Practice (CoPs) fosters informal knowledge exchange across projects. Wenger et al. observed that CoPs improve trust and encourage interdisciplinary collaboration when backed by leadership. Further, the integration of incentive-driven knowledge contribution frameworks, including KPIs or peer recognition, motivates team members to document and share their expertise. Alavi and Leidner [4]stress that tagging and case annotations allow professionals to navigate complex information landscapes with greater speed and accuracy.

Collectively, these strategies offer a comprehensive framework for optimizing communication in project management. By addressing both the structural and behavioural dimensions of communication, project teams can achieve higher efficiency, better stakeholder alignment, and more resilient project outcomes.

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[1] Crawford Lynn, Pollack Julien (2007), “How generic are project management knowledge and practice?”, *Project Management Journal*, vol. 38, n°1.

[2] International Organization for Standardization (2021), *ISO 21500: Project, programme and portfolio management – Context and concepts*, ISO, Genève.

[3] Kerzner Harold (2017),op.cit.

[4] Alavi Maryam, Leidner Dorothy E. (2001), “Review: Knowledge management and knowledge management systems: Conceptual foundations and research issues”, *MIS Quarterly*, vol. 25, n°1. **pp. 107–136.**

3 Limitations, and Future Perspectives of Structured Communication in Project Management

3.1 Limitations of Structured Communication

Structured communication frameworks are foundational for ensuring consistency and accountability in project management, yet their rigidity can undermine adaptability in dynamic environments. Organizations that adhere too strictly to prescriptive communication protocols often experience delays in responding to emerging risks. For example, software development teams following rigid phase-gate methodologies frequently struggle to integrate client feedback received in later stages. [1]Similarly, in infrastructure projects, inflexibility in communication frameworks has led to costly rework and significant budget overruns when feedback could not be incorporated in time.[2]

This tension between structure and flexibility is especially pronounced in industries that require rapid iteration. In healthcare IT projects, strict communication hierarchies have delayed critical updates during system implementations, prolonging project timelines and regulatory approvals. These examples highlight the importance of adaptive communication frameworks ones that preserve documentation standards while allowing situational flexibility, such as using "just-in-time" communication channels during urgent issues.[3]

3.1.1 Barriers to Implementation

Cultural resistance remains a major obstacle to adopting structured communication systems. In many hierarchical organizations, mid-level managers may perceive formal communication protocols as threats to their autonomy, resulting in passive resistance. Implementation efforts often fail when cultural alignment is overlooked, and a substantial number of projects falter due to this disconnect.[4]

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[1] **Ford Robert, McCormack Kevin, Mason Roger (2017),** "Understanding project complexity through system dynamics modelling", *International Journal of Project Management,* **vol. 35, n°5, pp. 678–690.**

[2] Marian Bosch-Rekveldt, Yvonne Jongkind, Herman Mooi, "Exploring the influence of project complexity on project success", International Journal of Project Management , 38(2), 2020. **vol. 38, n°2, pp. 167–179.**

[3] **Lee Heejin, Panteli Niki, Büchner Tobias (2020),** "Understanding the tensions in virtual project teams: A dialectical perspective", *International Journal of Project Management,* **vol. 38, n°3, pp. 156–169.**

[4] **Škrinjar Rok, Štemberger Mojca I., Bosilj-Vukšić Vesna (2012),** "Adoption of business process orientation practices: Case study approach", *Business Systems Research*, **vol. 3, n°1, pp. 13–24.**

Another common barrier is the lack of adequate training. For instance, in construction projects involving collaborative tools like Building Information Modelling (BIM), subcontractors often misinterpret protocols due to insufficient upskilling, leading to design conflicts and project delays. These challenges underscore the importance of integrating change management into the adoption of structured communication frameworks.[1]

3.1.2 Sector-Specific Considerations

The effectiveness of structured communication varies significantly across sectors. In healthcare, the use of agile communication tools for managing patient records has, in some cases, led to breaches of privacy protocols and legal consequences. In contrast, the construction industry benefits from hybrid models that combine structured milestone reviews with more informal, real-time interactions to accommodate decentralized teams.

In the aerospace sector, communication rigidity is often a non-negotiable requirement due to the critical nature of safety and reliability. For example, past disasters have shown that strict hierarchies can suppress vital feedback from technical teams, demonstrating the high stakes of ineffective communication in high-risk environments.[2]

3.2 Future Perspectives

3.2.1 AI-Driven Communication Tools

Artificial intelligence has the potential to improve the flexibility of structured communication systems. Natural Language Processing (NLP) tools can now auto-generate risk logs and status reports, significantly reducing administrative burden. Machine learning models are also being used to identify communication bottlenecks and predict stakeholder disengagement, enabling proactive interventions.

3.2.2 Hybrid Agile-Traditional Models

A growing number of organizations are blending structured methodologies with agile practices to achieve a balance between predictability and adaptability. Key enablers include modular

[1] **Marnewick Carl, Pretorius Johann (2015),** "A competency framework for the business analyst in the digital age", *International Journal of Project Management*, **vol. 33, n°5, pp. 1016–1030.**

[2] Columbia Accident Investigation Board [CAIB], "Columbia Accident Investigation Report", 2003, consulted1 21 mars 2025, 18h30.

communication platforms that support both formal documentation and informal discussion creating an ecosystem that is responsive without losing traceability.[1]

3.2.3 Sustainability Integration

In sectors like renewable energy, structured communication is being used to track sustainability metrics such as carbon offsets. Dashboards and reporting tools are helping to improve stakeholder transparency and reduce opposition by embedding sustainability considerations directly into project communication strategies.[2]

3.2.4 Virtual Team Dynamics

The rise of global and remote teams necessitates communication tools that can bridge cultural and temporal divides. Asynchronous video updates, time zone-aware messaging, and selective use of video conferencing are helping to reduce misunderstandings and maintain team cohesion. However, over-reliance on text-based tools can lead to miscommunication and unresolved conflict, underscoring the need for a thoughtful mix of communication modalities.[3]

The challenges of rigid frameworks, cultural resistance, and sectoral differences point to the need for a more contextualized, human-cantered approach to communication. Three key recommendations include:

- Adopt Adaptive Governance Models: Use flexible tools that allow teams to set their own communication rhythms while maintaining core documentation standards.
- Invest in Cultural Change Management: Conduct organizational assessments to identify cultural barriers and tailor implementation strategies accordingly.
- Develop Sector-Specific AI Solutions: Customize communication tools using sector-specific language and compliance requirements, ensuring relevance and usability in specialized environments.

[1] Project Management Institute, "Organizational Enablers for Project Governance", Project Management Journal , 52(4), 2021.

[2] **Martens Maria L., Carvalho Marly M. (2017),** "Key factors of sustainability in project management context: A survey exploring the project managers' perspective", *International Journal of Project Management*, **vol. 35, n°6, pp. 1084–1102**.

[3] Heejin Lee, Niki Panteli, Tobias Büchner, Idem.

3.3 Project Failures: The Critical Role of Communication Breakdown

Effective communication stands as a fundamental pillar upon which successful projects are constructed. Conversely, the absence of inadequacy of communication has been repeatedly implicated in project failures across a multitude of industries. This report delves into a series of well-documented case studies and meta-analyses to provide a detailed examination of how communication breakdowns have served as a primary catalyst for project disasters, leading to significant delays, substantial cost overruns, and, in tragic instances, loss of life.

3.3.1 NASA Mars Climate Orbiter (1999)[1]

Field: Aerospace Engineering

The $327 million Mars Climate Orbiter was lost due to a simple yet critical communication error: a unit conversion mismatch between NASA (using metric units) and Lockheed Martin (using U.S. customary units). This mismatch caused the spacecraft to approach Mars at a dangerously low altitude. NASA's report cited poor communication channels to verify technical specifications, which led to the failure to detect the unit mismatch. The reliance on informal communication and dismissing concerns from navigators contributed to the disaster, emphasizing the need for standardized communication processes in complex projects.

3.3.2 Airbus A380 Production Delays (2006)[2]

Field: Aerospace Engineering

The Airbus A380 experienced a two-year delay and a €6 billion cost overrun, caused by communication failures between international teams. Engineers in Germany used outdated software, while teams in France and Spain used updated versions, leading to incompatible designs for the aircraft's wiring. Cultural and territorial barriers, along with a lack of standardized communication protocols, further complicated the project. The failure to address these issues resulted in costly rework and delays, illustrating how poor communication across geographically dispersed teams can disrupt project timelines.

[1] NASA Mars Climate Orbiter Mishap Investigation Board (2000), "Mars Climate Orbiter Mishap Investigation Board Phase I Report", consulted in 25 mars 2025, 19h00.

[2] Wilden Ralf, Gudergan Siegfried, Nielsen Bo B., Lings Ian (2017), "Communication failures in Airbus A380 program", International Journal of Project Management, 35(5), vol. **35, n°5, pp. 798–815.**

3.3.3 NHS National Programme for IT (UK, 2002–2011)[1]

Field: Healthcare IT

The NHS National Programme for IT was a £10 billion initiative aimed at modernizing the UK's healthcare system but ultimately failed. The project suffered from poor communication, particularly the exclusion of frontline clinicians from the decision-making process. The IT systems developed did not align with the needs and workflows of healthcare professionals, resulting in user resistance. The "one-size-fits-all" approach lacked flexibility and failed to account for the diverse needs of different healthcare settings. This highlights the importance of involving end-users and communicating effectively throughout the NHS project.

[1] Greenhalgh Trisha et al. (2010), "The NHS National Programme for IT: a case study of communication failure in large healthcare IT projects", BMJ, **vol. 341, pp. 744–745.**

Conclusion

The theoretical exploration in this chapter has established a vital foundation for understanding how structured communication operates as a strategic enabler in project environments. Beyond methods and models, it has become clear that project success increasingly depends on how intentionally communication is designed, implemented, and adapted. Structured communication is not simply an operational necessity it is a transformative element that aligns teams, mitigates risks, and sustains clarity across complex workflows.

This framework now sets the stage for empirical investigation. The following chapter will move beyond theory to examine how these concepts manifest in practice, specifically within the context of a real-world construction project. Through this lens, we will evaluate whether the theoretical promises of structured communication hold true under actual project conditions

CHAPTER TWO : EMPIRICAL STUDY - INVESTIGATING THE IMPACT OF STRUCTURED COMMUNICATION ON PROJECT SUCCESS

CHAPTER TWO : EMPIRICAL STUDY - INVESTIGATING THE IMPACT OF STRUCTURED COMMUNICATION ON PROJECT SUCCESS

Introduction :

Communication has been identified as a key aspect in project management literature for as long as project management has existed as a field. And despite being so clearly important, numerous projects still suffer from failures or inefficiencies due to ineffective communication management. This empirical chapter supplements earlier theoretical contributions by narrowing its focus to formal communication a collection of formalised and standardized set practices intended to govern information flow within a project.

This study looks at how formal communication processes including formal channels, assigned roles, transparency tools, timing, record-keeping, and adaptation by stakeholders influence project success in various Key Success Factors (KSFs). The study seeks to establish evidence that projects using formal communication approaches achieve more clarity, cooperation, and coordination of results than do projects using informal and unmanaged approaches in complex settings such as construction and infrastructure projects.

How do formal communication processes affect project success and how do their major components interact with crucial factors for project success in actual project settings? To answer this query, the research examines how the existence or lack of formal communication makes contributions to differences in outcome among seven established Key Success Factors (KSFs). This is especially pertinent in an Algerian context, in which electronic communication methods (e.g., email, phone calls, messaging applications) abound but formal structures are missing resulting in breakdowns, fuzzy responsibilities, and delayed decision making.

Firstly, we introduce the firm contracted to undertake the project COSIDER and identify the particular construction project that forms the subject matter of our empirical study.

Section 1: company and project overview

1 Company Profile: COSIDER TP[1]

To provide context for the project under study, it is essential to introduce the company responsible for its execution. COSIDER is one of the largest public groups in Algeria operating in the Building, Public Works, and Hydraulics (BTPH) sector. the group has grown into a diversified group with integrated operations and a strong presence at the national level.

COSIDER was established on January 1, 1979, as a joint venture between Algeria's National Steel Company (SNS) and the Danish firm Christiani & Nielsen. In 1982, SNS acquired full ownership, transforming COSIDER into a wholly owned subsidiary. Subsequently, in 1989, as part of nationwide economic reforms, the company was restructured into a Joint Stock Company (SPA), which remains its current organizational form.

The company's headquarters is located at Rue des Frères Bouadou, Bir Mourad Raïs, Algiers, Algeria.

- **Organizational Structure and Areas of Operation**
- Today, COSIDER functions through ten specialized subsidiaries, each focusing on a distinct area within the broader construction and infrastructure ecosystem. This organizational model enables the group to undertake and manage complex, multidisciplinary projects across Algeria. The main subsidiaries are:
    1. COSIDER Public Work : Construction of roads, highways, railways, and other transport infrastructure.
    2. COSIDER Pipelines: Specializes in the installation of water, gas, and other utility networks.
    3. COSIDER Construction: Focuses on residential, commercial, and industrial building projects.
    4. COSIDER Civil Structures :Design and construction of bridges, viaducts, tunnels, and complex structures.
    5. COSIDER Quarries : Extraction of raw materials for construction.

[1] Cosider-groupe.dz. (n.d.). *Presentation OF groupe Cosider*, à partir de https://www.cosider-groupe.dz/fr/

6. COSIDER Real Estate Development Land development and promotion of residential and commercial projects.
7. COSIDER Alrem :Maintenance and rehabilitation of existing infrastructure.
8. COSIDER Engineering : Technical studies, engineering services, and project management.
9. COSIDER Geotechnical : Soil testing, geotechnical analysis, and related services.
10. COSIDER Agrico : Development of agricultural projects and rural infrastructure.

COSIDER's operations span a wide array of sectors within the BTPH industry, including:[1] Infrastructure, Hydraulics, Housing, Industrial and Social Buildings, and Civil Engineering.

It is widely recognized as Algeria's national leader in the BTPH sector. This reputation has been built over decades of sustained engagement in large-scale strategic initiatives and is supported by a workforce of more than 28,500 employees.

Notable achievements :

Among COSIDER's most distinguished accomplishments are its contributions to projects of national significance. The company was responsible for constructing several segments of the East-West Highway, notably the stretch between Khemis Miliana and Oued Fodda. It also played a central role in the Algiers Metro project, carrying out the structural work on Line 1. In the hydraulic sector, COSIDER led the construction of the Tichy-Haf Dam, a major infrastructure endeavour in the Béjaïa region. Furthermore, it oversaw the In Salah–Tamanrasset Water Transfer project, a 700-kilometre hydraulic system that ranks among the largest in Algeria.

Financial Performance:

In 2019, COSIDER recorded revenues of approximately 209 billion Algerian dinars. The COVID-19 pandemic, however, caused a contraction in economic activity, resulting in an estimated revenue decline of 18 to 19% in 2020, bringing the total to between 170 and 175 billion dinars. Despite this downturn, the company has preserved its strategic role in national development and continues to play a key part in the realization of public infrastructure projects.

[1] Le Courrier d'Algérie. (2020, 10 août). *COSIDER : Une perte de 25 % du chiffre d'affaires*., à partir de https://lecourrier-dalgerie.com/cosider-une-perte-de-25-du-chiffre-daffaires/

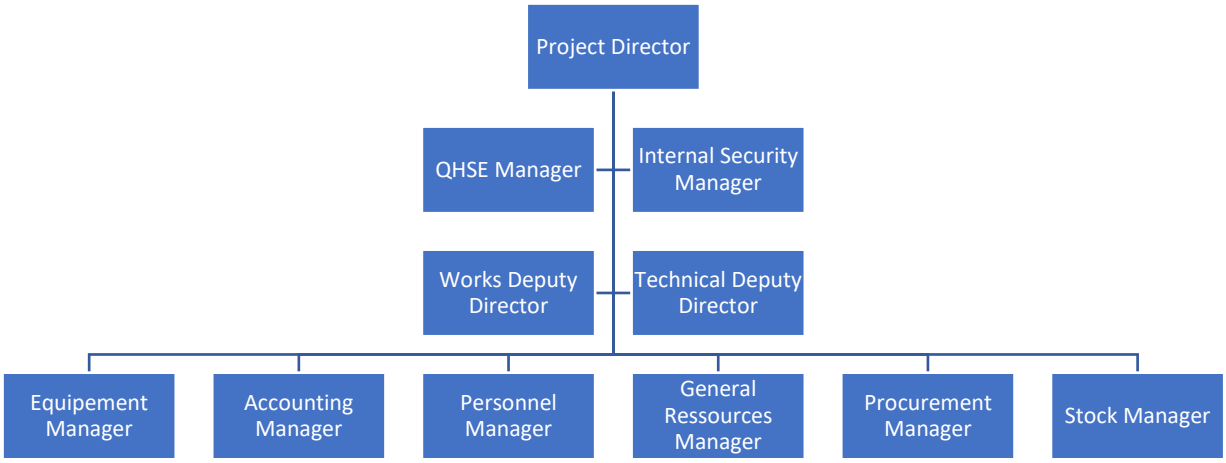
This internship was carried out within COSIDER Travaux Publics, a leading subsidiary of the COSIDER Group. This entity specializes in large-scale infrastructure works, including road construction, maritime engineering, and major earthworks. Renowned for its critical contributions to national development programs, COSIDER Travaux Publics was entrusted with the implementation of a strategic port reinforcement project. The following section provides the historical and operational background of that project, detailing its context, origins, and core objectives.

2 Project Background: History and Objectives

The M47 quay reinforcement project was launched in response to a critical structural failure at the Port of Algiers, specifically following the partial collapse of Quay 18. This incident underscored several underlying vulnerabilities that had accumulated over time. First, the port's infrastructure was significantly aged, relying on engineering standards that were no longer adequate for modern maritime operations. Second, an accidental collision during a docking manoeuvre exposed existing weaknesses. Third, the original quay design failed to align with contemporary maritime construction principles. Finally, prolonged neglect and insufficient maintenance had led to gradual but severe degradation of the structure.

Given that Quays 18, 19, 20, and 21 are physically connected in an “L”-shaped configuration, the scope of intervention was broadened to include the reinforcement of all four quays as a single, integrated system.

Figure 5: The organizational chart of PROJECT M47



Source : internal document

- **Major Project Stages**

The execution of the project followed a sequence of key phases:

- **Site Installation** : This involved establishing the preliminary groundwork, securing the area through fencing, and organizing logistical components for operational readiness.
- **Technical Studies** : Due to the urgent nature of the intervention, rapid assessments were conducted under pressing deadlines to determine the most viable reinforcement strategies.
- **Equipment Mobilization** : Specialized construction equipment and materials were transported and deployed to the site in a coordinated effort.

- **Constraints and Challenges**

Given its emergency classification, the project encountered several significant challenges that complicated implementation:

- **Immature preliminary studies**: Early technical evaluations lacked depth and long-term planning, which hindered effective strategy formulation.
- **Lack of baseline data**: The absence of detailed historical and structural records limited the accuracy and precision of proposed engineering solutions.

- **Tight timeframes**: Strict deadlines restricted the ability to integrate updated maritime safety and construction regulations.
- **Unclear client requirements**: Communication inefficiencies with the client created uncertainty regarding expectations and deliverables, hindering alignment between stakeholders.

- **Structural Work and Technical Advances**

A key structural enhancement was the elevation of the *terre-plein* the container yard surface which plays a crucial role in supporting heavy container loads and ensuring operational safety. The elevation was increased from 1.5 meters to 1.8 meters, aligning with the updated coastal engineering standards set at 0.1 GA (Geographical Altitude**)**.

This adjustment not only stabilized the platform but also improved drainage and resilience against tidal or climatic fluctuations, enhancing the overall functionality of the port.

The table below presents notable improvements observed before and after the intervention :

Table 1: improvements comparison table

Element	**Before**	**After**
Length of rehabilitated quays	880 linear meters	910 linear meters
Surface area of *terre-plein*	4.5 hectares	5.5 hectares
Storage capacity (containers)	600 units	2,000 units
Storage density (containers/ha)	150 units/hectare	400 units/hectare

Source : document interne

These enhancements effectively more than tripled the storage density and significantly increased the overall operational capacity and structural integrity of the container yard.

Alongside structural reinforcements, the project integrated advanced maritime equipment to elevate both safety and operational efficiency. The outdated fendering systems were replaced with new-generation marine fenders, designed to absorb kinetic energy during docking, thereby reducing structural stress on the quay walls. In addition, modern bollards were installed to ensure safer and more secure mooring of vessels. The infrastructure was further supplemented with

enhanced safety systems, including updated signalling, lighting, and emergency protocols, to support uninterrupted port activity and compliance with international maritime logistics standards.

- **Stakeholders and Project Roles**

The success of the M47 project was made possible through the collaboration of several key stakeholders:

- **EPAL (Enterprise Portuaire d'Alger)** : Project owner and primary client responsible for oversight and funding.
- **LEM (Laboratoire d'Études Maritimes)** : Conducted all technical assessments and feasibility studies related to marine and structural dynamics.
- **MEDITRAM**: a specialized underwater engineering firm tasked with executing diving inspections and implementing submerged reinforcement measures.

Section 2 : Methodology

This subsection is dedicated to presenting the research methodology chosen to best address our research problem and to confirm or refute our hypotheses. We will also present the objectives of our research, the chosen approach, the data collection tools, and the methods used for data analysis.

1 Research Objective

The primary research objective is to test how structured communication affects project success. The study aims to explore the application or absence of structured communication mechanisms in real-world project settings and understand their impact on critical dimensions of project success.

2 Choice of Research Method

A qualitative and exploratory research design was chosen due to limited access to a broad sample of projects and sponsors, which made a quantitative approach impractical. More importantly, qualitative methods allowed for a context-rich exploration of communication behaviours and organizational practices that cannot be captured through surveys or numerical data alone. The study follows an exploratory rather than evaluative logic, observing existing practices rather than testing predefined solutions.

3 Definition of Qualitative Approach

To clarify the nature of the research approach adopted in this study, it is essential to define qualitative research and its relevance to the research objectives.

Definition of Qualitative Study

"*Qualitative research is an approach that allows for an in-depth, empirical exploration of complex phenomena by capturing rich, contextualized data through non-numerical means.*

It enables the study of behaviours, experiences, and organizational practices that cannot be adequately quantified or measured through surveys or statistical tools."[1]

[1] CHABANI (S) et OUACHERINE (H) ,Guide to Research Methodology in Social Sciences, 1st Edition, Taleb Publishing., 2013, p.77, translated by student

4 Data Collection Methods

4.1 Semi-Structured Interviews

Definition

"*Semi-structured interviews are a qualitative data collection method characterized by the use of a flexible interview guide that allows the interviewer to explore themes in depth while permitting respondents to express their views openly*"[1]

Primary data was collected through semi-structured, face-to-face interviews using a guide informed by theoretical models of structured communication and project success factors. Interviews covered seven communication elements and seven Key Success Factors (KSFs), encouraging respondents to provide detailed, example-rich insights. Verbal consent was obtained, and interviews were not recorded at the request of participants; detailed notes were taken during and immediately after interviews. Supporting materials such as templates and reports were also collected primarily in paper format.

5 Sampling Strategy

A purposive sampling strategy targeted key operational and technical actors directly involved in communication-relevant roles within the project structure.

Participants were selected based on organizational charts and their involvement in documentation, coordination, reporting, and decision-making. Due to access constraints, the final sample included the Personnel/HR Manager, QHSE Manager, Procurement Manager, Deputy Technical Director, Accounting Manager, Stock Manager, and Deputy Works Director.

6 Data Analysis Methods

6.1 Deductive Thematic Analysis

The study employed a deductive thematic analysis grounded in a pre-established theoretical grid. The analytical framework linked empirical evidence from interviews to structured communication practices by cross-referencing each observed communication behaviour (sub-code) with the seven KSFs. Responses were segmented into thematic units and manually coded according to three criteria:

[1] Idem., P. 79-81.

- The KSF related to the content
- The corresponding structured communication element (from field indicators)
- The maturity level of the observed practice, based on defined evaluative criteria

6.2 Development of the Codebook

Definition of Deductive Coding and Codebook Approach

Deductive coding is a qualitative data analysis technique where coding categories and themes are predetermined based on existing theories or conceptual frameworks. Researchers apply this structured coding scheme to the data, allowing for focused analysis that tests or explores how empirical evidence aligns with theoretical constructs. The codebook, developed from these predefined categories, guides consistent application of codes across the dataset[1]

In this study, the axes of the codebook are the seven Key Success Factors (KSFs) identified in the theoretical framework. Each KSF serves as a main category guiding the analysis:

- Stakeholder engagement and strategic alignment
- Risk management and decision making
- Clarity in roles, responsibility, and accountability
- Information flow and knowledge management
- Change management and adaptability
- Conflict resolution and issue tracking
- Team performance and productivity

Subcodes were derived deductively from the ten Structured Communication Elements (e.g., documentation, communication tools, escalation procedures, feedback loops). These elements were used to code observed practices, expressions, or tools that either supported or hindered each success factor in the interviews.

While the communication elements were predefined from theory, the exact subcodes were adjusted to match field data, reflecting specific terms, formats, and routines mentioned by interviewees. For instance, under “Documentation,” subcodes included *daily reports*, *written orders*, or *oral confirmations*.

[1] Oliveira, G. (2023). Developing a codebook for qualitative data analysis: Insights from a study on learning transfer between university and the workplace. *International Journal of Research & Method in Education*, *46*(3), 300-312.

This structure enabled a consistent, layered coding process where each success factor (axis) could be analysed based on the presence or absence of communication sub-elements. The full list of subcodes and how they were applied is provided in Annex .

A detailed codebook and mapping system guided the coding process. Sub-codes such as "formal channels" or "standardized formats" were linked to broader elements like Documentation and Communication Protocols. This ensured consistent, transparent classification of data across the dataset.

7 Evaluation of Hypotheses and Research Questions

Four overarching hypotheses cover all seven KSFs and seven structured communication elements. Each hypothesis encompasses multiple variable combinations to ensure comprehensive thematic coverage across the KSF analyses. For each KSF, hypotheses are confirmed, partially confirmed, or not confirmed based on coded data and maturity evaluations. Hypothesis validation is cumulative rather than isolated per KSF.

Additionally, each KSF section addresses relevant research sub-questions through bullet-point insights derived from maturity distribution and interview content.

8 Annexed Mapping Tables

Two mapping tables support transparency and traceability:

- **Table 1:** Empirical Mapping of Structured Communication Practices Across All KSFs, listing sub-codes, corresponding interviewees, and direct quotes that justify assigned codes.
- **Table 2:** Mapping of Empirical Sub-Codes to Structured Communication Elements per KSF, linking observed sub-codes to seven theoretical communication elements such as Standardized Channels, Documentation, and Transparency.

These tables form the empirical backbone of the analysis, aligning field observations with theoretical constructs.

9 Communication Maturity Rating

Each sub-code was evaluated using a three-level maturity scale based on observable criteria:

Table 2: maturity scale definitions

Maturity Level	Definition
Strong	The behaviour is formal, documented, repeated, and systematized within institutional workflows.
Moderate / Partial	The behaviour is present but inconsistently applied or dependent on individuals rather than organizational rules.
Weak / None	The behaviour is absent or explicitly criticized as lacking.

Source : developed by the student

This standardization enables cross-comparative assessments of communication performance across different KSFs.

10 Quantification Phase and Maturity Mapping

Following coding, a quantitative synthesis evaluated frequency and distribution of structured communication practices across all KSFs. Occurrences of each structured communication element were counted and categorized by maturity level (Strong, Moderate/Partial, Weak/None). Each occurrence was classified based on interview quote content. This process enabled construction of a maturity map offering a synthetic view of how structured communication is embedded in project operations. Patterns of strength and deficiency across communication dimensions such as protocols, documentation, and roles were identified to objectively assess communication performance and highlight areas needing formalization.

11 Quantification Methodology

The quantification was conducted as follow

- **Element-Level Mapping**

  Each sub-code was linked to one or more structured communication elements (1 to 3 per row). Counts of occurrences were distributed as:

- X = number rated Strong
- Y = number rated Moderate
- Z = number rated Weak

Sum (X + Y + Z) represents total sub-codes mapped to that element. If a sub-code mapped to multiple elements, each was independently assessed from the same quote. This ensured accurate element-level maturity ratings and dataset consistency.

Example:

- A quote describing a formal validation process rated Strong mapped to Defined Protocols → +1 Strong.
- A quote describing irregular meeting follow-ups rated None mapped to Frequency and Timing → +1 None.

This transparent and reproducible framework aligns field data with theoretical constructs.

12 Methodological Approach for Each KSF-Level Analysis

For each Key Success Factor, a systematic coding and interpretation protocol ensures comparability while preserving qualitative data richness. Two analytical tools are used:

- Table 1 (Empirical Mapping of Structured Communication Practices Across All KSFs)
- Table 2 (Mapping of Empirical Sub-Codes to Structured Communication Elements per KSF)

Each KSF chapter includes:

- Preview of selected rows from both tables
- Summary table of communication element maturity levels
- Narrative interpretation of patterns and discrepancies
- Preliminary reflection on strategic versus reactive communication tendencies

This framework ensures transparency and critical insight.

13 Theory Comparison Method

Each KSF section concludes with a brief comparison of empirical observations to key literature. A small set of targeted observations (max five) identifies where field practices reflect, deviate from, or partially align with theoretical prescriptions on structured communication.

2.14 KSF-Level Synthesis Summary

Each KSF chapter closes with a synthesis that:

- Summarizes strongest communication practices observed
- Highlights weaknesses or inconsistencies
- States alignment with theoretical expectations
- Indicates if related hypotheses were confirmed or partially validated
- Reflects on practical limits such as persistence of informal practices despite formal structures

This structure provides coherence and bridges empirical detail with theoretical and practical implications.

Section 3 : Comprehensive Evaluation and Emerging Insights

1 Empirical Evaluation and Strategic Implications of Structured Communication in Projects

1.1 Presentation of Tools :

In this section, we present the analytical tools used to evaluate structured communication practices in relation to the seven Key Success Factors (KSFs). These tools include two primary codebooks developed during the analytical phase of the research.

To ensure clarity and avoid overcrowding the main text, the full coding tables and quote matrices have been integrated as annexed Excel files (see annex Excel attachment).

Table 3: a preview of the Mapping of Empirical Sub-Codes to Structured Communication Elements of the KSFs

Sub-code (Field Observation)	Structured Communication Element(s)
Formal Channels, Standardized Formats, Legal Documentation	Standardized Communication Channels, Documentation, Defined Communication Protocols

Source : developed by the student

Table 4: a preview Empirical Mapping of Structured Communication Practices across all

Sub-coding (Structured Communication Elements)	Interviewee	Quote / Justification
Formal Channels, Standardized Formats, Legal Documentation	Personnel Manager	*"Communication with external institutions such as Inspection du Travail, CNASS, and* Occupational medicine *is always formal and written, complying with legal protocols and using institutionally recognized formats."*

Source : developed by the student

2 presentation of Results

This section presents the quantitative findings derived from the empirical analysis of structured communication practices across all KSFs, summarizing the maturity levels for each communication element.

During the coding process, subcodes were systematically linked to the predefined structured communication elements. Each coded instance was then rated for maturity using a qualitative scale: Strong, Moderate, or Weak. These maturity assessments provide an interpretive layer to evaluate the degree of communication structuring observed in relation to each success factor.

- **Quantitative Summary of Communication Maturity**

The table below summarizes the maturity levels observed across structured communication elements for all KSFs:

a. KSF1 Stakeholder Engagement & Strategic Alignment

Table 5: Quantitative Synthesis of Structured Communication Elements of KSF 1

Communication Element	Strong	Moderate	Weak	Total Sub-codes
Clearly Defined Roles and Responsibilities	7	0	0	7
Standardized Communication Protocols	2	0	1	3
Documentation	5	1	0	6
Frequency and Timing of Exchanges	3	2	3	8
Standardized Communication Channels	2	2	1	5
Transparency	2	1	3	6

Source : developed by the student

A total of **23 unique sub-codes** were identified under this KSF , distributed across 6 structured communication elements.

However, since several sub-codes mapped to more than one communication element, the total number of coded instances (i.e., individual element-level applications) reached **35**

b. KSF2 Risk Management & Decision-Making

Table 6: Quantitative Synthesis of Structured Communication Elements of KSF 2

Communication Element	**Strong**	**Moderate**	**Weak**	**Total Sub-codes**
Frequency and Timing of Exchanges	3	2	3	8
Clearly Defined Roles and Responsibilities	7	0	0	7
Documentation	5	1	0	6
Transparency	0	3	3	6
Standardized Communication Channels	2	2	1	5
Defined Communication Protocols	1	1	1	3

Source : developed by the student

A total of **22 unique sub-codes** were identified under this KSF , distributed across 6 structured communication elements. However, since several sub-codes mapped to more than one communication element, the total number of coded instances (i.e., individual element-level applications) reached **35**

c. KSF3 Clearly Defined Roles and Responsibilities

Table 7: Quantitative Synthesis of Structured Communication Elements of KSF 3

Communication Element	Strong	Moderate	Weak	None	Total Sub-codes
Clearly Defined Roles and Responsibilities	14	3	1	0	18
Documentation	1	0	0	0	1
Transparency	1	1	0	0	2

Source : developed by the student

A total of **18 unique sub-codes** were identified under this KSF. However, since several sub-codes mapped to more than one communication element, the total number of coded instances (i.e., individual element-level applications) reached **21**.

d. KSF4 Information Flow and Knowledge Management

Table 8: Quantitative Synthesis of Structured Communication Elements of KSF 4

Communication Element	Strong	Moderate	Weak	None	Total Sub-codes
Documentation	12	0	4	0	16
Defined Communication Protocols	4	0	0	0	4
Frequency and Timing	5	0	0	0	5
Knowledge Sharing	1	0	1	0	2

Source : developed by the student

A total of **24 sub-codes** were identified for this KSF, distributed across 6 structured communication elements, the most prominent being Documentation.

The element “Documentation” was referenced in 16 coded instances, including 12 strong ones meaning the practice is clearly defined and applied in most cases but also 4 weak instances, which point to areas of improvement.

e. KSF5 Change Management and Adaptability

Table 9: Quantitative Synthesis of Structured Communication Elements of KSF 5

Communication Element	Strong	Moderate	Weak	None	Total Sub-codes
Frequency and Timing of Exchanges	6	5	2	0	13
Defined Communication Protocols	4	1	1	0	6
Standardized Communication Channels	3	2	1	0	6
Transparency	2	3	2	0	7
Documentation	2	1	0	0	3
Knowledge Sharing	1	1	0	0	2
Clearly Defined Roles and Responsibilities	2	0	0	0	2

Source : developed by the student

A total of 24 sub-codes were identified under this KSF, distributed across 7 structured communication elements. . However, since several sub-codes mapped to more than one communication element, the total number of coded instances (i.e., individual element-level applications) reached **3**9.

f. **KSF6 Conflict Resolution and Issue Tracking**

Table 10: Quantitative Synthesis of Structured Communication Elements of KSF 6

Communication Element	Strong	Moderate	Weak	Total Sub-codes
Documentation	4	2	2	8
Transparency	4	0	0	4
Defined Communication Protocols	2	2	0	4
Clearly Defined Roles and Responsibilities	2	1	0	3
Frequency and Timing	0	2	1	3

Source : developed by the student

A total of 20 sub-codes were identified under this KSF, distributed across 5 structured communication elements. . However, since several sub-codes mapped to more than one communication element, the total number of coded instances (i.e., individual element-level applications) reached **22 .**

g. KSF7 Team Performance and Productivity

Table 11: Quantitative Synthesis of Structured Communication Elements of KSF 7

Communication Element	Strong	Moderate	Weak	Total Sub-codes
Frequency and Timing of Exchanges	10	0	0	10
Clearly Defined Roles	4	0	0	4

Defined Communication Protocols	2	0	0	2
Documentation	1	0	0	1
Knowledge Sharing	2	0	0	2
Standardized Communication Channels	2	0	0	2
Transparency	3	0	0	3

Source : developed by the student

A total of 13 sub-codes were identified under this KSF, distributed across 7 structured communication elements. . However, since several sub-codes mapped to more than one communication element, the total number of coded instances (i.e., individual element-level applications) reached **25**.

3 Analysis and Interpretation of Results

Here, we interpret the results, providing a detailed analysis of each structured communication element within the KSFs, identifying strengths, weaknesses, and areas for improvement."

a. KSF1 :Stakeholder Engagement & Strategic Alignment

- **Clearly Defined Roles and Responsibilities**
- Clearly defined roles and responsibilities was a consistently strong practice, with all mentions rated as Strong. This suggests a robust and institutionalized role clarity, especially within HR and technical functions.

  "Task sheets clarify individual roles… clear role division reduces overlap and delays." (Technical deputy director)
- **Documentation**

  Documentation also showed high maturity. Interviewees repeatedly referenced formal tracking tools, official templates, and systematic archiving. A single Moderate rating reflects minor inconsistencies in documentation thoroughness.

  "All correspondence with institutions… is documented and follows formal, standardized formats." (Personnel Manager)

- **Standardized Communication Protocols**
- Standardized communication protocols presented mixed results. While two responses demonstrated formalized procedures, one was rated Weak, highlighting occasional ambiguity or non-adherence to established procedures.

  "Each institution imposes specific communication rules and templates. The HR department strictly adheres to these, ensuring procedural rigor." (Personnel Manager)
- **Frequency and Timing of Exchanges**
- Frequency and timing of exchanges was uneven. While structured weekly meetings and daily flows were observed, some interviewees reported misalignment, delays, or ad hoc exchanges indicating a fragmentation in temporal communication norms.

  "We prepare weekly reports and site logs, and hold coordination meetings every Sunday morning with project stakeholders." (Technical deputy director)
- **Standardized Communication Channels**
- Standardized communication channels were moderately mature. Some departments used institutional formats and centralized inboxes, while others relied on informal means like WhatsApp, especially in urgent cases.

  "Technical info is shared via a common email inbox… WhatsApp and oral communication for urgent updates." (Technical deputy director)
- **Transparency**

  Transparency emerged as a weakness. Though two Strong instances were recorded, several interviewees pointed to limited access to upstream data or a "pull-only" information culture, meaning that proactive disclosure was often lacking.

  "If you don't actively look for the information yourself, they won't provide it to you… difficult to obtain key information unless you push for it." (OHSE manager)

A review across interviewees highlights the following:

- **Strategic roles** such as *Personnel Manager*, *Accountant* highlighted institutional compliance, formal documentation, and legal validation indicating awareness and implementation of structured communication at higher decision levels.
- **Operational roles** naming *Works deputy director*, *Stock Manager*, *QHSE Manager* shared both strong practices like weekly coordination and weaknesses like unclear task responsibilities and missing reports, showing variability based on function and context.

Informal channels such as WhatsApp, oral communication were more present among technical managers, especially in time-sensitive scenarios, potentially undermining traceability.

b. KSF2 Risk Management & Decision-Making

- **Clearly Defined Roles and Responsibilities**

  Clearly Defined Roles and Responsibilities was consistently strong and well-implemented, supporting structured accountability in risk-related decisions.

  "QHSE manager is responsible for removing outdated procedures and distributing updates." (Personnel Manager)

- **Documentation**

  Documentation also showed high maturity, especially in formal reporting and archiving practices.

  *"All formal HR communications archived in dedicated folders, including signed receipts (*Acknowledgements of receipt*)." (Personnel Manager)*

- **Transparency**

  Transparency, by contrast, showed mixed maturity, with equal instances of Moderate and Weak practices, suggesting inconsistency in open and accessible communication. *"Informed of budget-affecting decisions via written communication, though no formal template." (Accounting manager*

- **Frequency and Timing of Exchanges**

  Frequency and Timing of Exchanges showed a scattered pattern, pointing to operational variability in how communication is timed and prioritized.

  "Approvals flow from HR Directorate to Labour Inspector*; timeframe implied but not explicit." (Personnel Manager)*

- **Standardized Communication Channels**

  Standardized Communication Channels were present but uneven in quality, with some strong use (e.g., emergency procedures) and some weak or misused practices (e.g., informal channels).

  "Informal routine for urgent decisions: direct call to project manager or WhatsApp group for quick info flow." (Technical deputy director)

- **Defined Communication Protocols**

  Defined Communication Protocols were the least referenced and had a fairly even distribution of maturity, reflecting either limited use or a lack of coherence.

"Escalation procedure ensures rapid, hierarchical decision-making via deputy director when needed." (Technical deputy director)

A review across interviewees highlights the following:

- **Operational roles** often referred to direct procedures such as escalation steps, urgent updates, and supplier follow-up calls.
- **Strategic roles** tended to emphasize overarching systems like review processes and committee structures.

Some practices such as transparency or the consistent use of formal protocols appeared more reactive than systematic, with references often tied to specific incidents or deadlines rather than general routines.

c. KSF3 Clearly Defined Roles and Responsibilities

- **Clearly Defined Roles and Responsibilities**
- The element Clearly Defined Roles and Responsibilities stands out for its consistent presence and high level of maturity. In most instances, roles were not only defined but reinforced through formal structures like job descriptions, approval hierarchies, and posted schedules. *"Everything is defined in our job description. If doubts arise, I consult the director for clarification." Procurement manager*
- **Documentation**

  Documentation, while only appearing once, was applied in a way that reflects a clear and deliberate process. This suggests that although less frequent, when documentation practices are used, they tend to be robust and well-integrated.
- *"Clear documents outlining financial responsibilities exist through job descriptions." Accountant*
- **Transparency**

  On the other hand, Transparency showed more variation. It was mentioned in two instances one strong, one moderate hinting at its perceived importance, but also revealing that it is not yet consistently embedded across all practices.
- *"Instructions usually clear; vague instructions complicate tasks, causing delays and inefficiency." OHSE manager*

The voices of interviewees also tell us something about how structured communication plays out on the ground:

- **Operational staff**, such as the works deputy director or the *Stock Manager*, often described very concrete, day-to-day mechanisms daily briefings, schedules, and clear assignment of roles.
- Meanwhile, **strategic and support functions**, like the *Personnel Manager* or the *QHSE Supervisor*, tended to reference more formal procedures such as how roles are validated, how documents are updated, or how escalation processes unfold.

d. KSF4 Information Flow and Knowledge Management

- **Documentation**

  Documentation is clearly central. It's used often and typically applied well, though its occasional weaknesses show that consistency is not guaranteed across all teams. *"All formal HR correspondence is archived in a dedicated folder, including* Acknowledgements of receipt*" (Personnel manager)*
- **Defined Communication Protocols**
- Defined Communication Protocols performed well, with all 4 instances classified as Strong suggesting formal procedures are followed when needed.
- *"Changes communicated via official letters from General Director per COSIDER protocol." (OHSE manager)*
- **Frequency and Timing**
- Frequency and Timing was also strong throughout, pointing to well-established routines. *"Delays or incidents are reported during site meetings and through minutes or shared in the WhatsApp group." (Technical deputy director)*
- **Knowledge Sharing**
- Knowledge Sharing, on the other hand, seems more fragile. It was present, but not systematic its inconsistent maturity suggests it's often left to individual initiative. *"No formal procedure for archiving lessons learned; reuse depends on individual initiative." (Technical deputy director)*
- **Transparency**

  Transparency was present in several quotes and sub-codes, often linked to traceability of communication with external and internal stakeholders.

- *"Correspondence with institutions such as CNASS... is documented and follows formal, standardized formats." (Personnel manager)*
- **Frequency and Timing of Exchanges**
- Frequency and Timing of Exchanges was mentioned only once, but implemented effectively.

  "Changes cascade from Head Office, to department heads, then teams." (Personnel manager)

Interviewee Pattern Observations

Across roles, we observe a difference in how structured communication is approached:

- **Operational interviewees** (e.g., stock managers, QHSE supervisors) often referred to incident logs, email groups, and Excel tracking sheets tools that serve immediate coordination needs.
- **Strategic roles** (such as HR and Direction Générale) emphasized archiving procedures, formal communication protocols, and compliance-driven documentation.

Interestingly, elements like transparency or knowledge retention appeared selectively often in response to problems rather than through routine use.

e. KSF5 Change Management and Adaptability

- **Frequency and Timing of Exchanges**
- This area reflects a generally strong communication rhythm, even if a few differences between teams can be felt.
- *"Regular work sessions with project managers occur." (Accounting manager)*
- **Defined Communication Protocols**
- There's a clear sense of structure here, with communication practices showing strong maturity overall.
- *"Changes are always announced through official meetings followed by notes de service posted on-site." (Personnel Manager)*
- **Standardized Communication Channels**
- Communication appears fairly solid, though some differences in how channels are used make it slightly uneven.

- *"Changes are communicated via WhatsApp group and sometimes by memos." (Technical deputy director)*
- **Transparency**

  This element shows a mixed picture visible in some areas, but often lacking the consistency needed for strong performance.
- *"Delayed communication causes costly rework and significant delays." (Technical deputy director)*
- **Documentation**

  Where documentation is practiced, it shows strong maturity and contributes positively to communication.

  "Updates sent via email or written notes/documents." (Accounting manager)
- **Knowledge Sharing**
- This remains a more fragile area, where communication is present but mostly informal and not consistently reinforced.

  "QHSE manager removes outdated documents and distributes updated ones. Historical archive exists." (Personnel Manager)

- **Clearly Defined Roles and Responsibilities**
- This is one of the stronger points, with communication roles clearly distributed and well understood.

  "QHSE manager, supervisors, DRH, PDG are all systematically engaged in communicating changes." (Personnel Manager)

Interviewee Pattern Observations

A review across interviewees highlights the following:

- **Operational roles** emphasized immediate impacts of poor timing or missed updates, especially via informal tools like WhatsApp.
- **Strategic and administrative roles** focused more on structured processes like approval flows and formal change protocols.

Practices such as role clarification and financial update procedures were limited to certain functions, reflecting varied application of formal tools depending on urgency and stakes

f. **KSF6 Conflict Resolution and Issue Tracking**

- **Documentation**

  Documentation was the most frequently referenced element, with mixed maturity some practices are well established, while others remain informal or inconsistent. *"WhatsApp logs and Excel files... document via purchase notebooks and contract repositories." (Procurement Resp.)*
- **Transparency**

  Transparency practices were highly mature across all mentions, suggesting strong clarity in processes such as disciplinary actions and appeals.
- *"All disciplinary sanctions are documented... a signed notification (*Signed notice of suspension*) is issued to the employee..." (Personnel Manager)*
- **Defined Communication Protocols**
- Defined Communication Protocols appeared moderately mature overall, with some formal mechanisms like "formal notice" in place.
- *"We use the formal notice process and terminate if necessary." (Procurement manager .)*
- **Clearly Defined Roles and Responsibilities**
- Clearly Defined Roles and Responsibilities were generally strong but occasionally unclear in technical mediation contexts.
- *"The Disciplinary Commission ... Personnel Department oversees... Supervisors contribute formal assessments..." (Personnel Manager)*
- **Frequency and Timing of Exchanges**
- Frequency and Timing was the least mature element, with some meetings in place but often informal or ad hoc.
- *"They hold work sessions to identify the problem and suggest solutions." (Accountant)*

Interviewee Pattern Observations

A review across interviewees highlights the following:

- **Operational staff** emphasized structured follow-up tools and issue-tracking systems.
- **Strategic or administrative roles** formal processes like disciplinary documentation and legal appeal rights.

In some cases, practices like coordination protocols or recurrence tracking appeared either absent or informally applied, reflecting variability based on role focus or department urgency.

g. KSF7 Team Performance and Productivity

- **Frequency and Timing of Exchanges**
- Frequency and Timing of Exchanges was consistently present and highly mature, with 10 strong instances. It was applied regularly with a structured approach, allowing for better coordination and clarity.
- *"Tasks are communicated through the daily briefing, accompanied by a daily work sheet given to the team leader."* (Technical deputy director)
- **Clearly Defined Roles and Responsibilities**
- Clearly Defined Roles and Responsibilities were also mentioned frequently, ensuring each team member understands their duties. This element was highly rated and suggests that role clarity is well-implemented.
- *"The job description (fiche de poste) outlines responsibilities and justifies each person's role."* (Accounting manager)
- **Documentation / Knowledge Sharing**
- While Documentation and Knowledge Sharing were less prevalent, they were still recognized as strong when implemented. Practices such as real-time tracking and documentation were noted.
- *"An Excel dashboard, updated in real time by the works supervisor, allows quick adjustment of resources..."* (Technical deputy director)
- **Defined Communication Protocols**
- Defined Communication Protocols were moderately mature, with some formal structures for error handling and approvals in place. These protocols ensured smooth communication and quick resolution of issues.
- *"When errors happen, we hold meetings to present problems and solutions; the director approves or provides alternatives."* (Procurement manager)
- **Standardized Communication Channels**
- Standardized Communication Channels showed good maturity, particularly with biweekly and monthly coordination across teams, improving overall communication efficiency.

  "Biweekly meetings within the technical team, monthly meetings across departments for global progress tracking." (Technical deputy director)

- **Transparency**

  Transparency was highly mature, with a clear process for addressing issues and errors. Missing meetings were highlighted as a major problem, showing the need for continuous clarity.
- *"Coordination weakens, and errors increase."* (Procurement manager)

Interviewee Pattern Observations

A review across interviewees highlights the following:

- **Operational roles** on concrete actions such as stand-up meetings, task clarification, and check-ins.
- **Strategic or supervisory roles** mentioned broader processes, including delegation procedures and interdepartmental coordination.

Practices like formal updates and standardized cross-team meetings were referenced mainly in contexts involving coordination across units or departments, suggesting their use is more situational than routine.

5. Synthesis and Discussion

In this section, we synthesize the findings from all KSFs, integrating them with theoretical perspectives to discuss broader implications and draw connections across the empirical data.

a. <u>KSF1 :Stakeholder Engagement & Strategic Alignment</u>

Preliminary Observations (Before Theory/Hypotheses)

These findings indicate that while some structured communication elements such as clearly defined roles and documentation are strongly embedded within this KSF, others like transparency and frequency of exchanges display inconsistencies.

This imbalance may reflect a dual culture: one side formal and compliance-driven (institutional roles), and the other reactive and informal (field-level practices). To enhance strategic alignment, a more systematic enforcement of transparent, proactive communication mechanisms is necessary across all levels.

Theory Comparison

The findings for KSF1 support several important ideas from project communication theories: The use of formal documentation tools and templates matches what Yang, J et al. suggests about the value of structured records for keeping information organized and accessible. However, the lack of transparency like needing to ask for updates instead of receiving them automatically suggests that structure is necessary but not sufficient for trust. The mix between formal tools (emails, templates) and informal ones (like WhatsApp) also shows that structure isn't always consistent, which weakens alignment as Yang, J et al. argue. Finally, the irregular timing of communication supports bourn Lynda's point that without predictable exchanges, coordination and alignment can break down.

b. KSF2 Risk Management & Decision-Making

Preliminary Observations (Before Theory/Hypotheses)

These findings indicate that certain structured communication elements such as clearly defined roles, documentation, and timing mechanisms are relatively well established under this KSF. However, others particularly transparency and standardized channels appear inconsistently applied or situationally activated.

This gap may reflect a reactive communication culture in risk management, where some practices emerge in response to problems rather than being embedded in proactive routines.

Theory Comparison

The findings for this KSF both align with and expand upon existing theories. Arvai emphasized the value of standardized communication methods. This aligns with our data showing multiple strong practices under Clearly Defined Roles and Standardized Channels. Kikkawa stressed the importance of defined responsibilities in reducing confusion. This is well supported by the consistent implementation of escalation chains and formal committee structures in our findings. Koch showed that regular updates improve engagement and decisions. Our data partially confirms this, with mixed maturity in the Frequency and Timing element. Vaughan highlighted transparency's role in collective decision-making. However, in our case, Transparency was weak or inconsistent, suggesting theory may not fully apply in this context. While documentation was strong, theory didn't specifically emphasize it in this domain

c. KSF3 Clearly Defined Roles and Responsibilities

Preliminary Observations (Before Theory/Hypotheses)

Taken together, the data points to a communication environment where role clarity and responsibility assignment are well-internalized, forming a solid backbone for operations. These practices seem to function reliably and are supported by both structure and habit.

However, other elements like transparency appear to surface more in moments of uncertainty or pressure. This may reflect a communication culture that, while structured,

still leans toward reactive measures rather than proactive, embedded routines especially in how information is shared and validated across different roles.

Theory Comparison

The findings from this Key Success Factor align with several key concepts in the literature on structured communication and project coordination. Sajid et al ’s emphasis on shared channels reducing ambiguity and boosting accountability is reflected in the clearly defined roles observed. Sajid et al.'s support for models like RACI is evident in the structured job responsibilities and escalation paths described. He links transparency to stakeholder engagement, the data shows this was unevenly applied. Foster’s view that documentation supports role clarity and traceability is confirmed by strong practices in documenting responsibilities and approvals. Fosters argument that structure reduces confusion in diverse teams is echoed in references to structured escalation. Overall, the results support theories related to roles and documentation but highlight inconsistencies in transparency and consistency.

d. KSF4 Information Flow and Knowledge Management

Preliminary Observations (Before Theory/Hypotheses)

From these findings, we can begin to observe the contours of a structured communication system that is strong in procedure, particularly around documentation and formal reporting. However, more dynamic or informal practices like lessons learned and collaborative knowledge sharing are still inconsistently embedded.

This suggests that under KSF4, communication tends to follow a compliance-first logic, where what is mandatory is well documented, while proactive and cross-functional practices still rely on personal initiative or situational urgency.

Theory Comparison

Let's now compare the field findings for KSF4 with theoretical ideas from key project management research: the PMBOK highlights that structured communication enhances collaboration and reduces information silos a claim confirmed by the strong presence of documentation and defined protocols in our data. Argote & Ingram stress that knowledge sharing depends on structured systems. However, in our findings, knowledge sharing remained weak, indicating that these systems are not consistently applied. Dainty et al. associate formal communication protocols with fewer delays. Here too, clear procedures and archiving systems support timely decision-making. dainty et al link regular updates and feedback loops with workflow efficiency, yet our interviews show that such practices vary significantly across teams. While theory assumes a systematic reuse of knowledge, our field data shows it often depends on individual initiative, not formal processes.

Summary: These results support some theoretical claims like structure improves flow and coordination but challenge others such as consistent transparency and knowledge reuse.

e. KSF5 Change Management and Adaptability

Preliminary Observations (Before Theory/Hypotheses)

These findings indicate that several structured communication elements particularly timing routines, protocol enforcement, and multi-channel communication are actively present and fairly embedded under this KSF. However, other aspects such as transparency and systematic feedback collection appear uneven or informal. This may reflect a reactive rather than strategically planned communication culture in handling change processes.

Theory Comparison

Galli emphasizes that structured communication channels help prevent disruption during change processes this aligns with the strong use of formal tools and timing routines observed in the data. Galli highlights the value of defined communication protocols for stakeholder buy-in, a point reflected in the clear procedural approvals and validated updates found in interviews. Bassi & Shinde argue that role clarity increases employee support during change; this is confirmed by mentions of systematically assigned responsibilities. Galli shows that timely communication reduces resistance this is echoed in feedback about the consequences of missed or delayed meetings. The PMBOK links knowledge sharing and engagement to successful adaptability. However, in the findings, such practices appeared less consistently applied. Summary: These

results support some theoretical claims but challenge others, especially regarding the uneven use of knowledge-sharing practices.

f. **KSF6 Conflict Resolution and Issue Tracking**

Preliminary Observations (Before Theory/Hypotheses)

These findings indicate that certain structured communication elements (e.g., documentation procedures, legal transparency, escalation steps) are well-developed under this KSF.

However, elements related to frequency and formal coordination remain inconsistently applied. This may reflect a more reactive approach to issue tracking rather than a proactive communication culture embedded across all teams.

Theory Comparison

The empirical findings align with several theoretical insights on how structured communication enhances conflict resolution and issue tracking: clear roles, protocols, and communication tools directly support conflict prevention and faster resolution. This is confirmed in our data by formalized reporting channels and defined escalation paths. Dai-zhong argues that standardized communication practices help avoid misunderstandings a claim supported here by the use of structured tracking systems and disciplinary documentation. Kubana et al ,show how structured negotiation techniques improve team interaction. Similarly, structured work sessions and technical mediation were observed in our field data. Merten et al. highlight how documentation systems in issue tracking improve collaboration. This matches our evidence showing how incident reports and formal records support follow-up and compliance.

Summary: These results support several theoretical claims but also reveal uneven application across roles and contexts.

g. KSF7 Team Performance and Productivity

Preliminary Observations (Before Theory/Hypotheses)

These findings indicate that several structured communication elements particularly timing and frequency of exchanges, defined roles, and transparency are firmly embedded within team operations.

However, certain elements such as standardized communication channels and knowledge sharing appear to be applied more selectively. This may reflect a culture where structured communication is strong in direct, day-to-day team settings, but less systematized at the interdepartmental level.

Theory Comparison

The empirical findings on KSF7 Team Performance and Productivity align with several established theoretical insights. Mennek suggested that communication is closely tied to project team success, which is reflected here through regular check-ins and clear meetings that helped teams stay aligned and productive. The emphasis on clearly defined roles and consistent instructions directly echoes Mennecke and Bradley's findings on how structured roles enhance performance. Mennek et al , highlighted the value of institutional support and role clarity, and the use of job descriptions and formal delegation procedures in this study reinforces that point. Milićević showed that frequent and well-timed communication improves productivity in technical industries a finding mirrored by the daily stand-ups and dashboard updates noted here. These results support most theoretical claims, though they raise questions about the consistency of communication beyond immediate teams.

GENERAL CONCLUSION

General conclusion

To begin this concluding chapter, the following section presents a comprehensive synthesis of the main empirical insights obtained for each of the seven Key Success Factors (KSFs). These summaries aim to capture how structured communication elements influenced each success factor within the context of the case study

- **KSFs Global Synthesis Summary**

KSF1 Stakeholder Engagement & Strategic Alignment

In KSF1, structured communication shows strong results for defined roles and documentation. These practices help align stakeholders and support project goals across both strategic and operational levels. But transparency and knowledge-sharing are not consistent. Some teams rely on informal communication and don't always share data proactively, which creates a gap

KSF2 Risk Management & Decision-Making

For KSF2, structured communication elements like Clearly Defined Roles, Defined Protocols, and Documentation were found to be consistently strong. These ensured that critical decisions were backed by clear responsibilities and formalized channels. However, weaknesses emerged in Transparency and in the Timing and Frequency of updates, both of which showed varied maturity. This suggests that while systems exist, they may not be fully reliable in time-sensitive situations.

The findings align well with theoretical expectations from Arvai, Kikkawa, and Koch regarding roles and structured communication, but raise questions about the practical implementation of transparency as discussed by Vaughan.

KSF3 Clearly Defined Roles and Responsibilities

The analysis of KSF3 shows that communication elements like defined roles, task distribution, and responsibility assignment are well-embedded in practice. These were supported by formal tools like job descriptions, approval systems, and scheduled meetings, which helped reinforce accountability across departments. Documentation also proved to be a strong point, with clear systems in place for tracking responsibilities and changes. However, transparency appeared less consistent. In some situations, it was present and valued, while in others it was more reactive triggered by specific events like audits or confusion.

These insights echo what the literature suggests: structure supports clarity, but informal habits can still influence communication in less predictable scenarios.

Even structured systems may still rely on informal communication when unexpected situations arise.

KSF4 Information Flow and Knowledge Management

For KSF4, the strongest structured communication practices were documentation, defined communication protocols, and communication frequency. These elements supported consistent information flow and allowed for traceability and coordination across teams. However, the weaker points lie in knowledge sharing and transparency, where practices vary and are often informal or left to individual discretion.

The findings align well with theory from PMI , Argote & Ingram , and Dainty et al, confirming the value of structured channels. But they also show that even with systems in place, knowledge reuse and full transparency are not automatic.

KF5 Change Management and Adaptability

This KSF highlighted frequency and timing of exchanges as the most widely used communication element, with relatively mature practices such as scheduled meetings and cascaded updates. Defined communication protocols and standardized channels were also present, although their use varied between formal and informal methods.

The weak points centered on transparency and knowledge sharing, which, although important in theory, were inconsistently observed. The theoretical models mostly aligned with these findings, especially those by Galli and Bassi & Shinde on structured updates and role clarity.

Out of the three hypotheses relevant to this KSF, two were confirmed, and one partially confirmed due to inconsistent alignment. Even structured systems may still rely on informal channels when urgency or ease of access is prioritized over protocol.

KSF6 Conflict Resolution and Issue Tracking

This KSF showed strong practices in documentation, transparency, and clearly defined roles. These elements were consistently applied through formal conflict channels, structured tracking tools, and legal communication procedures. However, communication frequency remained weak, with some meetings being ad hoc or informal. The findings match key theories especially on the role of structure in preventing and resolving disputes.

KSF7 Team Performance and Productivity

This section showed strong performance in communication elements such as frequency of exchanges, defined roles, and transparency. Practices like daily meetings, structured delegation, and task tracking were implemented with consistency and maturity.

However, the findings suggest that knowledge-sharing and documentation beyond real-time updates may be underdeveloped.

The results match well with theories emphasizing the link between structured communication and team productivity (Duclos & Cyphert, Mennecke & Bradley), though broader cross-functional learning (Rivera & Valdez) appears less established.

- **Hypotheses & Research Questions**

Based on the synthesis of findings, each hypothesis was evaluated in light of the empirical data. The results are outlined below, followed by a summary table indicating the degree of validation.

The analysis revealed that defined roles and formal communication protocols (H1) consistently contribute to role clarity, alignment, and effective collaboration. These structural elements were well-integrated into daily operations and decision-making across departments, confirming the centrality of clear role distribution and standardized communication formats in project success.

Frequent and transparent communication (H2) showed strong impact on conflict resolution and responsiveness in some areas (e.g., team performance, change management), but inconsistencies in timing and openness limited its full potential in others. While updates were often present, proactive sharing of critical information remained uneven.

The study also found that documentation and knowledge-sharing (H3) were essential for traceability and productivity; however, knowledge-sharing practices were frequently informal and not institutionalized. Even in cases where structured documentation systems were in place, organizational learning often depended on personal initiative rather than systematic routines.

Finally, structured communication as a whole (H4) was found to enhance adaptability in dynamic project environments. In KSF5, structured updates, defined responsibilities, and multi-channel communication improved responsiveness and decision-making under changing conditions.

Overall, the findings reinforce the notion that structured communication is not merely a supporting function it is a core enabler of strategic alignment, operational efficiency, and adaptive capacity in complex projects. However, the effectiveness of structured communication depends not only on

the existence of systems and tools, but also on their consistent and proactive application across all project levels.

Table 12: hypothesis Assessment Summary . Source : developed by the student

Hypothesis	Result	Explanation
H1: Defined roles, communication channels, and protocols contribute to stakeholder engagement, strategic alignment, and role clarity by creating a structured and predictable environment for collaboration.	**Confirmed**	Supported across multiple KSFs (1, 2, 3, 4, 6, 7). Strong formal practices in delegation, coordination, and documentation reinforced alignment at both strategic and operational levels.
H2: Frequent and transparent communication supports conflict resolution, informed decision-making, and risk management by ensuring continuous information flow and early identification of issues.	**Partially Confirmed**	Confirmed in KSFs 5 and 7; partially supported in KSFs 2, 4, and 6. Communication frequency was high, but transparency and consistency varied, especially in time-sensitive or informal scenarios.
H3: Documentation and knowledge-sharing mechanisms improve information flow, team productivity, and long-term alignment by preserving institutional memory and reducing redundancies.	**Partially Confirmed**	Confirmed in KSF6. Partial support in KSFs 1, 3, 4, and 7. Documentation was generally strong, but proactive knowledge-sharing was limited and often dependent on individual initiative.

H4: Integrated structured communication processes enhance adaptability, responsiveness, and success by enabling proactive coordination and faster responses to change.	**Confirmed (where applicable)**	Confirmed in KSF5. Other KSFs did not directly address adaptability. Where assessed, structured updates and clearly assigned roles were shown to improve responsiveness to change.

Research Sub-Questions:

In parallel, the research sub-questions and the central question of the study were addressed through both theoretical insights and empirical evidence. The answers are outlined as follows.

1. **How do standardized communication channels, defined protocols, and clear roles contribute to stakeholder engagement, role clarity, and strategic alignment?**
    - Standardized communication channels, clearly defined roles, and well-established protocols ensure that all stakeholders are aligned and informed. These elements create a framework that supports better decision-making and minimizes misunderstandings, directly contributing to strategic alignment and improved stakeholder engagement.
2. **How do communication frequency and transparency practices support conflict resolution, informed decision-making, and risk management?**
    - Regular communication and transparent practices play a crucial role in mitigating risks, resolving conflicts, and informing decision-making. Consistent updates ensure that all parties are aware of any challenges or issues, allowing for prompt resolution and minimizing delays.
3. **In what ways do documentation and knowledge-sharing mechanisms influence information flow, team productivity, and long-term alignment?**
    - Proper documentation and knowledge-sharing practices ensure that information is accessible and organized, facilitating smooth operations and improved team productivity. By sharing lessons learned and maintaining thorough records, teams can avoid repeating mistakes and align their strategies for long-term success.
4. **How do structured communication processes as a whole contribute to improving the adaptability, responsiveness, and success of complex construction projects?**

- The integration of structured communication processes in complex construction projects enhances adaptability by ensuring that changes are communicated quickly and effectively, thus supporting the project's responsiveness to unforeseen issues. The overall success of these projects is driven by the clarity, coordination, and efficiency fostered by structured communication practices.

Building upon the insights revealed through the four sub-questions, a clearer picture emerges one where structured communication is no longer just a theoretical asset but a practical necessity. As the pieces fall into place, the core answer to the main research question becomes unmistakably clear:

Answer to Main Research Question:

How do structured communication processes influence project success, and which specific elements contribute most to improving key success factors?

Structured communication processes significantly influence project success by creating a reliable framework that enhances clarity, coordination, and accountability. This study demonstrates that the systematic integration of seven structured communication elements has a measurable impact on achieving seven Key Success Factors (KSFs

Field data from the COSIDER case study shows that when these communication elements are implemented with high maturity, they directly improve decision-making, reduce delays, strengthen role clarity, and foster a culture of proactive problem-solving. For instance, Clearly Defined Roles and Documentation consistently supported alignment and conflict resolution, while Frequency and Timing of Exchanges and Standardized Channels enhanced team coordination and risk mitigation. However, elements such as Transparency and Knowledge Sharing were found to be inconsistently applied, indicating that while structure is essential, its effectiveness depends on consistent and cultural adoption across all project levels.

In summary, structured communication processes not only support but often determine the extent to which key success factors are achieved. The most influential elements are those that institutionalize clarity, ensure traceability, and promote timely and open information flows across stakeholders.

3. Practical Recommendations

Based on the findings of this study, several practical recommendations can be made to enhance the effectiveness of communication in construction projects.

First , it is crucial to strengthen transparency and knowledge sharing. Although documentation practices were robust, transparency remained a challenge, which hindered smooth decision-making and stakeholder engagement. To address this, proactive disclosure practices and comprehensive knowledge-sharing systems must be implemented across all teams. Additionally, communication protocols should be more consistent. While some areas demonstrated strong adherence to formal protocols, others showed inconsistencies. To improve coordination and responsiveness, these practices need to be institutionalized across all functions and departments, ensuring uniformity in their application. Lastly, embedding communication into the project culture is essential. While some departments still relied on informal communication practices, especially in urgent scenarios, a cultural shift toward formal communication structures is necessary. This shift must be actively supported by senior leadership to ensure that the full benefits of structured communication are realized across the organization.

5. Limitations and Avenues for Future Research

While this study provides valuable insights into the role of structured communication in project success, it is not without limitations. One key limitation is the lack of a centralized document base within the organization. As observed, accessing critical technical and operational documents often requires physically traveling to the site or the "direction" (the personnel and project director's service area), which is located 1 km away. This logistical challenge can lead to delays in accessing important information, creating inefficiencies in communication and decision-making. The absence of a digital or centralized document management system poses a significant barrier to seamless communication, further emphasizing the need for improved technological infrastructure in managing and sharing project documentation.

Additionally, the study’s findings are based on a single case study within a specific company, which may limit the generalizability of the results. Future research could explore a broader range of organizations, especially those with more advanced technological solutions for communication and document management, to assess the broader applicability of the findings.

Future studies could also investigate the impact of technology, such as cloud-based platforms, on improving the centralization of documents and enhancing communication flow. Furthermore,

research could explore how these solutions can be tailored to the specific needs of the construction industry to overcome logistical challenges and improve project efficiency.

5. Final Reflection

This research has examined the impact of structured communication on project success, with a focus on complex construction projects in Algeria. The empirical findings demonstrate that when structured communication practices such as standardized channels, defined protocols, and clearly assigned roles are effectively implemented, they significantly contribute to the achievement of key success factors (KSFs). These include improved stakeholder engagement, enhanced risk management, and better coordination.

At the same time, the study reveals enduring challenges within Algerian organizations, where formal communication processes are often underdeveloped or inconsistently applied. Although structured tools and procedures are present in some areas, they are frequently undermined by informal, ad hoc practices that reduce their effectiveness in guiding project execution.

The findings confirm the critical importance of structured communication in improving project outcomes. However, they also make clear that formalization alone is not sufficient. To fully realize the benefits of structured communication, organizations must adopt a holistic approach one that promotes proactive, consistent, and transparent communication practices throughout the project lifecycle. Such an approach not only enhances operational efficiency but also fosters collaboration, accountability, and ultimately, sustainable project success.

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ANNEX

Annex :

The interview guide organized by themes (the 7 key success factors)

1. **Stakeholder Engagement & Strategic Alignment**
2. **Personnel Manager**

Q1: Do you use standardized procedures when dealing with external stakeholders like unions, employee committees, or government bodies?
A1: Yes. Communication with external institutions such as *Inspection du Travail*, *CNASS*, and Occupational medicine is always formal and written, complying with legal protocols and using institutionally recognized formats.

Q2: Is communication with external bodies transparent and traceable?
A2: Yes. All correspondence with institutions such as *CNASS*, *AENM*, and *la Occupational medicine* is documented and follows formal, standardized formats.

Q3: Are external institutional stakeholders actively involved in HR processes?
A3: Yes. The organization maintains formal, written communication with external bodies such as:

- *AENM* for recruitment compliance,
- *CNASS* and *CACOBAT* for social and sector-specific matters,
- *Occupational medicine* for medical evaluations.

Q4: Are communications with external parties governed by strict formats?
A4: Yes. Each institution imposes specific communication rules and templates. The HR department strictly adheres to these, ensuring procedural rigor.

Q5: Is the role of internal stakeholders in change implementation clearly defined?
A5: Yes. Internal roles such as the QHSE Manager, Supervisors, DRH, and PDG are all engaged systematically in implementing and communicating changes.
Legal signatures required for HR policy changes mandatory signatures from the HR Director and Labour Inspector for procedural changes demonstrate formal alignment with legal stakeholders.

3. Works Deputy Director

Q1: Do you follow a structured format or schedule (e.g., report, weekly meeting) to inform management or the Deputy Technical Director about the progress of the site?
If yes: Could you specify which tool or type of meeting you use? How often are these held?
A1: To inform partners at the company level, we prepare weekly reports and site logs, and hold coordination meetings every Sunday morning with the participation of project stakeholders. We use work schedules and weekly progress tables for monitoring.

Q2: How do you ensure that on-site execution remains well aligned with the expectations or plans discussed in meetings?
Do you follow a monitoring protocol or use specific supports (e.g., meeting minutes, tracking tables)?
A2: Execution is monitored through Excel sheets for daily and weekly schedules and site reports. This allows verifying the alignment between planning and the work done.
In the absence of these tools, we have already observed conflicts or misunderstandings between services (works, technical team, subcontractors).
The weekly meeting helped anticipate scheduling conflicts with subcontractors (e.g., the underwater works company).

4. Procurement Manager

Q1: Do you regularly receive clear information on needs before placing an order?
A1: Not always. Sometimes I don't receive the requests or necessary information on time, because other departments might be dealing with emergencies and don’t define their needs in time.

Q2: If not, what problems did that cause in the project?
A2: Delays or ordering the wrong quantities. For instance, a department requested grilles and manhole covers. The official document specifying the exact quantity arrived late, and in the absence of accurate figures, I ordered 100 units instead of the required 20–30. This caused a

significant discrepancy and forced us to go back and adjust the documentation to correct the over-ordering.

Q3: Do you use any tools or criteria (KPIs, meetings, forms) to ensure that purchases align with technical, time, and budget objectives?
A3: Yes. Quality control is handled by the stock manager, who checks both quality and quantity against the order. If there's a quantity issue, we adjust it. If there's a quality issue, we issue a *PV de conformité* (non-compliance report), and either replace the goods or reject them.

Q4: Have you ever ordered an item that was not appropriate or unnecessary due to a lack of clarity?
A4: No. That doesn't happen because we request samples or references before placing an order. For major items, we consult the lab to test for conformity before approval. Only after validation do we proceed with the purchase. If something is not acceptable, we negotiate adjustments with the supplier or find another one.

5. **Accounting Manager**

Q1: Are you informed in time by other departments when there are budget changes?
A1: Yes, the personnel manager usually receives the information on time and forwards it to the headquarters. If that doesn't happen, it causes delays that affect the entire project. However, such situations are rare.

Q2: How do you ensure your financial reports are aligned with project objectives?
A2: We organize work sessions (*séances de travail*) to keep financial reporting aligned with project goals.

Q3: Has lack of information ever distorted a report or complicated decision-making?
A3: No, they haven't experienced a case where missing information led to an inaccurate report.

6. **Technical Deputy Director**

Q1: Do you have meetings or documents that help you stay coordinated with other teams?
A1: Coordination is ensured through preparatory meetings that define tasks and

responsibilities, documented in a Meeting Summary. Task sheets clarify individual roles. Informal communication, often initiated by the deputy director, supports focused information sharing. The organization relies on clear role division to reduce overlap and delays.

Q2: How do you share technical information to avoid misunderstandings?
A2: Technical information is shared through a common email inbox called "technical services," accessible to all team members. Messages are manually signed. WhatsApp and oral communication are used for urgent updates.

QHSE manager

Q: Do you regularly receive clear information about QHSE requirements as the project progresses? What happens when that's not the case?
A: If you don't actively look for the information yourself, they won't provide it to you. The people responsible for disseminating information rarely share it proactively. It's difficult to obtain key information unless you push for it. The consequence is that it indirectly impacts the project.

Example:
We worked on a batch of concrete (béton), finished it, and later during testing, the results came out as non-compliant. Initially, they had told us everything was compliant, but due to the lack of proper documentation and communication, we couldn't prove it. When the auditors came, they labelled our work as non-compliant, which damages the company's image especially since we're ISO 9001 certified. That kind of reputation damage is serious.

We receive information from two sources:

- **Internal**: From other construction sites (chantiers).
- **External**: Mainly from CTTP (the technical control body).

Q: How do you ensure your QHSE actions are aligned with the project's priorities and deadlines?
A: Through regular inspections, but above all: safety comes before anything else. We can tolerate project delays, but we cannot tolerate risks to human life. One death could stop the project and operations for over 5,000 days that's about 16 years of shutdown.

Q: Do you have an example where lack of clarity led to a delay or non-compliance?
A: Yes, it happens often. For example, the delegated work service didn't send us the test reports (rapports des essais), so we couldn't proceed with the work. Normally, the workers perform test samples (essais), send them to CTTP for analysis, and then wait for a compliance report. If the result is non-compliant, we must redo the work. But we can't proceed without that report.

Another example: we poured concrete (bétonnage), and for core testing (carottage), we had to wait seven days. The results came back non-compliant. Now we must wait seven more days before we can repeat the test. However, unrealistic deadlines set by the Ministry ignore these compliance times.

For instance, concrete blocks require 28 days to cure before they can be used. If they're moved prematurely, internal cracks appear.

Stock manager :

Q: What channels do you use to transmit stock information? Are they organized according to a schedule, or do they function on an as-needed basis?
A:
We mainly use meetings, emails, and WhatsApp to transmit stock-related information. However, these exchanges happen as needed, without a fixed schedule. Since we are not a production company, there is no rigid organization of communication; it remains flexible and adapted to field urgencies.

Q: Have you ever observed an error or loss related to using an unsuitable or unstructured communication channel? What were the consequences for the project?
A:
No, to date, we have not encountered any specific problem or negative consequence resulting from the use of an inappropriate communication channel.

Coordination with Procurement:
Exchanges are made through Supply Requests (DA). Coordination problems that impact deadlines mostly concern technical and works departments. My role does not directly impact project deadlines.

Coordination with Accounting:

A complete file is submitted for each invoice: delivery slip, reception report, stock summary sheets, goods entry slip, and purchase order (if applicable). This file is essential for the accountant to pay suppliers. If this file is not submitted, it may block deliveries and cause conflicts.

7. Risk Management & Decision-Making

8. Personnel Manager

Q1: In serious HR issues (e.g., *faute grave*), is the escalation responsibility defined?
A1: Yes. Such issues are escalated to the *Direction Générale*, showing that decision-making authority is well-structured.

Q2: Are responsibilities defined for reviewing, approving, and implementing changes?
A2: Yes. Changes are reviewed by the HR Directorate and require approval/signatures from both the *DRH* (HR Director) and the *Labour Inspector*. For project-specific changes, only internal leaders (*DRH*, *PDG*) are involved.

Q3: Is there a clearly assigned role for disseminating updated documents?
A3: Yes. The *QHSE* manager is responsible for removing outdated procedures and ensuring the updated ones are distributed and understood by staff.

Q4: Are procedural approvals done within specific timeframes?
A4: Yes (implicitly). The process of approval flows from the HR Directorate to the *Labour Inspector* before changes are enacted. This formal pathway implies responsiveness, though no fixed timeframe is mentioned.

Q5: Are HR communications and decisions systematically documented?
A5: Yes. All formal HR correspondence is archived in a dedicated folder, including signed *accusés de réception*. This includes all letters since the start of the project, showing a robust archival system.

Q6: Are internal records maintained for serious HR issues?
A6: Yes. In cases such as *faute grave*, issues are documented and escalated to the *Direction*

Générale. The Personnel Department also processes complaint questionnaires and supervisor feedback, which are formally archived.

Q7: Classification of Misconduct and Sanctions
A7: Infractions are classified by severity with corresponding sanctions (warning, suspension, committee deliberation), which shows risk mitigation through structured disciplinary measures.

Q8: Existence of a Disciplinary Committee (*Commission Disciplinaire*)
A8: A formal committee is convened for serious violations. This represents a structured decision-making body for conflict and risk management.

9. Deputy Works Director

10. **Q3:** Do you have a structured method (e.g., incident report, crisis meeting) to quickly report delays or risks on the site?
A3: Yes. To report delays or unexpected events (e.g., postponed or interrupted concrete pouring), we hold crisis meetings if necessary.

Q4: When an urgent decision is needed, is there a predefined channel or routine to coordinate with other stakeholders (department heads, management, etc.)?
A4: Yes. In case of emergency, we have an informal routine: direct call to the project manager, or we use the "works" WhatsApp group to speed up information flow.

Q5: What happens when information does not circulate on time? What have been the consequences on the site?
A5: A delay in communication regarding equipment breakdowns caused a two-day shutdown on the site. The issue was later resolved after the equipment services were informed.

11. **Procurement Manager**

Q1: Do you have a defined method for reporting supplier delays or issues?
A1: Yes. We usually follow up by phone. For significant contracts, everything is documented. We follow legal clauses (e.g., Article 20), and if delays or breaches occur, we issue a *mise en*

demeure (formal warning). After two such warnings, we terminate the contract and seek a new supplier.

Q2: What happens when this system is not used properly?
A2: The supplier feels free to act as they wish, which compromises the project's reliability and timing.

Q3: Are you informed in time when project priorities change?
A3: Yes. Since procurement is central to the site, I'm informed quickly either orally by the director or through written notices. If this flow is disrupted, the entire site would be affected.

Q4: Do you have an example where late information caused problems?
A4: Yes. As mentioned earlier, delays in communicating specific quantities led to over-ordering and documentation issues.

12. **Accounting Manager :**

Q1: How are you informed of decisions that might affect the budget?
A1: Through written communication usually a letter with a subject title (*objet*). There's no formal template for the document.

Q2: What happens when you're not informed on time?
A2: If the information isn't shared, the necessary changes cannot be applied in time, which can cause problems.

13. **Deputy Technical Director**

Q1: Do you receive useful information in time to manage technical risks?
A1: Yes. Risk-related information is transmitted quickly and on time, using multiple channels: phone, direct field exchanges, or emails. The chosen channel depends on the urgency level, allowing for an appropriate response based on the risk's criticality.

Q2: When a technical issue arises, how do you communicate it so decisions can be made quickly?
A2: An escalation procedure is in place: when a technical problem occurs, it is first addressed by the person directly concerned. If they cannot resolve it, the issue is escalated to the deputy director, who plays a central role in coordination and decision-making. This ensures rapid and hierarchical decision-making.

QHSE manager

Q: Do you have a defined channel for quickly reporting incidents or risks?
A: Yes. We use multiple communication tools: phone calls, WhatsApp, emails. There's also an on-site safety officer (animateur) in charge of incident follow-up. If something happens, everyone knows their role and who to inform within the chain of command supervisors, engineers, safety agents. We have a full team on-site to ensure no one gets hurt or left uninformed.

We follow a specific **Emergency Response Plan (Plan de Situation d'Urgence)**. A summarized version is displayed on-site so everyone knows what to do. If the designated animateur isn't nearby when an incident occurs, any safety agent can go to the security post (poste de garde) to report it.

So far, we've never failed to respond in time. But if that ever happens, it could delay evacuation, increase risk, and force us to deploy the intervention team.

Q: Are you informed on time when an activity change could impact safety or the environment?
A: Yes, always from both the technical and works departments.

But: There was one case on-site (not within QHSE) where workers were operating without updated utility network plans electric, potable water, and wastewater. A site manager wanted to investigate further, dug into the ground, and accidentally cut a cable. It was a medium-voltage line, and it caused a fire. Thankfully, no one was injured. But this happened because they proceeded without waiting for updated plans, even though they knew it was necessary.

14. 3. Clarity in Roles, Responsibilities, and Accountability

15. **Personnel Manager**

Q1. Are there clearly defined roles in conflict resolution?

A1. Yes. The *Commission Disciplinaire* is activated for conflict resolution. It includes a president and designated members. The Personnel Department oversees the complaint intake and procedural flow, while supervisors contribute formal assessments. Responsibilities are clearly distributed.

Q2. Are responsibilities defined for reviewing, approving, and implementing changes?

A2. Yes. Changes are reviewed by the HR Directorate and require approval/signatures from both the DRH (HR Director) and the *Labour Inspector*. For project-specific changes, only internal leaders (DRH, PDG) are involved.

Q3. Is there a clearly assigned role for disseminating updated documents?

A3. Yes. The QHSE manager is responsible for removing outdated procedures and ensuring the updated ones are distributed and understood by staff.

Q4. In serious HR issues (e.g., *faute grave*), is the escalation responsibility defined?

A4. Yes. Such issues are escalated to the *Direction Générale*, showing that decision-making authority is well-structured.

Q5. Is the role of internal stakeholders in change implementation clearly defined?

A5. Yes. Internal roles such as the QHSE manager, supervisors, DRH, and PDG are all engaged systematically in implementing and communicating changes.

Additional Note – Role of QHSE in Change Implementation:

The QHSE manager's responsibility for removing outdated procedures and ensuring new ones are disseminated clarifies operational roles.

16. **Deputy Technical Director**

Q5. Do you have a clear system (e.g., schedule, daily briefing) to distribute tasks among different teams?

If yes: How is it communicated and updated?

A5. Tasks are distributed through a daily briefing at 8:00 AM on site. A schedule posted in the engineers' office is updated if necessary.

Q6. When a problem arises, are roles clear enough for everyone to know who should intervene?

Do you have supports that define responsibilities (e.g., RACI sheet, written instructions)?

A6. Roles are clear thanks to a responsibility sheet and the organizational chart of the works department established by management.

17. **Procurement Manager**

Q1. Do you clearly know who validates your purchases and to whom you report?

A1. Yes. Everything is defined in our job description (*fiche de poste*). The process flows smoothly thanks to our experience.

Q2. Have you ever had doubts about this? What was the impact?

A2. No, but if I do have a doubt, I consult the director directly for clarification.

Q3. Are the instructions you receive about your responsibilities clear?

A3. Yes, they are always clear. If there is a misunderstanding, I ask the director.

Q4. What happens when instructions are unclear or contradictory?

A4. This is rare, but in such cases, I seek clarification before proceeding.

18. **Accounting manager :**

Q1. Do you have clear documents outlining financial responsibilities?

A1. Yes, through a job description document (*fiche de poste*).

Q2. What changes when everyone understands their roles or doesn't?

A2. When roles are well understood, everything runs smoothly. If not, it can lead to issues.

Q3. Are responsibilities formalized across departments for budget validation/follow-up?

A3. Yes, responsibilities are shared. When changes happen, they're communicated by the responsible person (*le responsable*) to the personnel manager, who passes them to service heads, then to employees.

Q4. Have you experienced poor coordination? What were the consequences?

A4. No, there's strong collaboration and coordination among departments.

19. **Deputy Technical Director**

Q1. Is it clear who does what in the technical team?

A1. Role clarity is ensured through job descriptions, complemented by adjustments made in meetings based on project scope changes. Some one-off tasks may be temporarily reassigned, which requires regular communication but remains well-managed thanks to the team's experience.

Q2. How do you make sure there's no confusion between roles?

A2. Beyond job descriptions, roles are adjusted as needed, and information flows orally, by phone, WhatsApp, or email depending on the situation. The respondent emphasizes that information is only shared when it has been validated and is reliable, to prevent any confusion or misunderstanding.

QHSE manager :

Q: Are roles and responsibilities clear in terms of safety, quality, and environment? Have you ever been in a situation where they weren't clear?

A: There are job description sheets (fiches de poste), especially at headquarters. However, when new or unexpected tasks arise, it's not always clear who should handle them. This is common across all projects even the most organized ones.

When we encounter such situations, we escalate the issue and request directives from the project directors.

Q: Are the instructions you receive clear on your responsibilities during an alert or audit?

A: Usually yes, but when they are vague, it complicates our tasks and those of others. It leads to delays, confusion, and inefficiency.

Stock manager :

Q: In the event of a shortage, error, or missing item, how do you know who is responsible for it? Is it always clear?

A:

In general, responsibilities are well defined. When there's an issue, the person who made the initial request is responsible for following up. In case of non-compliance, the quality manager is contacted to draft a non-compliance report. The stock manager, as well as technical or works managers, are also involved.

Q: Have you ever lost time or experienced misunderstandings due to unclear responsibilities? What were the concrete consequences on site?

A:

This usually happens more in relation to quarries (material suppliers like aggregates), and not directly on the site. For example, if a crusher breaks down and the ordered riprap (e.g., type 15) is not delivered, this can lead to a stock shortage. In such cases, another quarry is contacted via the procurement department. If there is no contract with this quarry, we go through the DAST service (subcontracting and contracts) to regularize the situation. This leads to delays, but the process is well-structured.

20. 4. Information Flow and Knowledge Management in Project

21. Personnel Manager

Q1. Are HR documents regularly updated and shared?

A1. Yes. The QHSE manager is responsible for removing outdated documents and distributing updated ones. There is also a historical archive (folder) of all formal communications since the beginning of the project.

Q2. Are HR communications and decisions systematically documented?

A2. Yes. All formal HR correspondence is archived in a dedicated folder, including signed *accusés de réception*. This includes all letters since the start of the project, showing a robust archival system.

Q3. Are procedural documents standardized and structured?

A3. Yes. Documentation follows ISO-style formatting with consistent sections: domain of application, responsibilities, references, definitions, content, revision history, archiving, dissemination methods, and templates.

Q4. Are older documents actively removed when procedures are updated?

A4. Yes. The QHSE supervisor is tasked with eliminating obsolete documents and distributing revised ones across the site.

Q5. Are internal records maintained for serious HR issues?

A5. Yes. In cases such as *faute grave*, issues are documented and escalated to the Direction Générale. The Personnel Department also processes complaint questionnaires and supervisor feedback, which are formally archived.

Q6. Is communication with external bodies transparent and traceable?

A6. Yes. All correspondence with institutions such as CNASS, AENM, and *la Occupational medicine* is documented and follows formal, standardized formats.

Q7. How are changes cascaded internally?

A7. Through a structured cascade: from the Head Office, down to department heads or supervisors, then to their respective teams. This ensures timely and orderly dissemination of updates.

Q8. When changes occur, are they communicated via formal tools (e.g., service notes, official announcements)?

A8. Yes. Changes are always announced through official meetings followed by *notes de service* posted on-site, ensuring a formal and uniform transmission of information.

22. **Works deputy director**

Q1. How do you ensure that all team members are informed of delays, blockages, or changes?

A1. Delays or incidents are reported during site meetings and through minutes or shared in the "works" WhatsApp group.

Q2. Are incidents or problems encountered documented in a standardized way to capitalize on experience?

If yes: Where is this information stored and who has access to it?

A2. Yes, incidents are documented in a site logbook accessible to management. These records are archived to ensure feedback.

Q3. Has the documentation of incidents ever helped correct a recurring problem?

A3. Yes, such documentation has helped identify and address recurring issues.

Q4. Do you participate in structured feedback sessions (Lessons Learned) or incident reports to improve future management?

How often are these feedback sessions conducted and shared?

A4. Internal lessons learned (*REX*) are organized at the end of each phase (e.g., consolidation, reinforcement). They are shared with other ongoing port projects (e.g., Port of Oran).

23. **Procurement Responsible**

Q1. Do you have a shared system to track supplier information?

A1. Yes. It's called Contract and procurement follow-up with suppliers. We distinguish between local purchases (using purchase orders) and formal contracts. Tracking is done via an Excel directory.

Q2. What happens when this system is not up to date or poorly used?

A2. You risk budget overruns or quantity mismanagement. For example, a 20-million contract might end up costing 50 million if not tracked properly, without justification.

Q3. When there is a change in needs or materials, how is this communicated to you?

A3. Usually through work meetings (*Sciences du Travail*), emails, or even WhatsApp

messages. WhatsApp is especially useful for quick communication and preserving documentation via voice memos or messages.

Q4. Have you experienced a case where this change was not properly communicated?
A4. Yes, late documentation led to excessive ordering, which created traceability and justification issues.

24. **Accounting manager :**

Q1. Is there a centralized place to store/share financial info?
A1. No, there's no centralized digital system (no "réseau"). Documents are stored in physical filing cabinets and archives (*armoire/boîte d'archives*), or on her personal computer.

Q2. What are the issues when this space isn't updated or used properly?
A2. If the PC is damaged, the information could be lost there's no backup or shared access for others in the project.

Q3. How do you communicate recurring issues or changes within your team?
A3. Through emails or documents. Because the team is small and used to working closely, information tends to circulate easily. In the past, they used a shared network (*réseau*), but now the responsible person must send changes manually.

Q4. Is the exchange smooth? Any example of poor communication worsening a problem?
A4. Information flows well within the team due to proximity. No explicit case of poor communication was reported.

25. Technical deputy director

Q1. Do you have a simple way to ensure reports or updates are accessible to everyone?
A1. Yes, the shared email inbox and the WhatsApp application are the preferred tools for sharing technical reports and updates. These methods allow for rapid, accessible, and collective information dissemination.

Q2. How do you share lessons learned from technical issues?

A2. Lessons learned from incidents are generally communicated through the same information escalation process. However, there is no formal procedure for archiving or capitalizing on lessons learned. Some messages are saved in the shared inbox, and their reuse depends on individual initiative.

QHSE MANAGER :

Q: Do you have a shared system for tracking incidents, audits, or non-compliance issues? What happens when this system is outdated or poorly filled in?

A: Yes, we follow predefined formats and procedures. For example, in the event of an incident, we open standard documents such as:

- **Incident Investigation Report (Rapport d'Enquête)**
- **Cause Tree (Arbre des Causes)**
- **Corrective Action Sheet (Fiche Corrective)**
- **Action Plan (Plan d'Action)**
- **Analysis Sheet (Fiche d'Analyse)**

If these documents are not updated properly, it creates blind spots in risk tracking and causes poor coordination, delays, and regulatory issues.

Q: How is information communicated when there is a change in procedure or standard? Have you ever not been informed or informed too late?

A: If there's a change, the General Director sends an official letter with instructions on how to integrate the new measure. This is part of the COSIDER company's official protocol. So, it's usually well structured.

26. **5. Change Management and Adaptability**

27. **Personnel Manager**

Q1: When changes occur, are they communicated via formal tools (e.g., service notes, official announcements)?

A1: Yes. Changes are always announced through official meetings followed by *notes de service* posted on-site, ensuring a formal and uniform transmission of information.

Q2: Is there a regular or event-triggered schedule for communicating changes?

A2: Yes. Changes are communicated as they arise, typically in response to organizational needs, not on a fixed schedule. This shows adaptive timing based on urgency or importance.

Q3: How are changes cascaded internally?

A3: Through a structured cascade: from the Head Office, down to department heads or supervisors, then to their respective teams. This ensures timely and orderly dissemination of updates.

Q4: Are procedural approvals done within specific timeframes?

A4: Yes (implicitly). The process of approval flows from the HR Directorate to the *Labour Inspector* before changes are enacted. This formal pathway implies responsiveness, though no fixed timeframe is mentioned.

Q5: Are HR documents regularly updated and shared?

A5: Yes. The QHSE manager is responsible for removing outdated documents and distributing updated ones. There is also a historical archive (folder) of all formal communications since the beginning of the project.

Q6: Is the role of internal stakeholders in change implementation clearly defined?

A6: Yes. Internal roles such as the QHSE manager, supervisors, DRH, and PDG are all engaged systematically in implementing and communicating changes.

28. **The works deputy director**

Q1: When plans or schedules change, do you follow a defined procedure to inform the teams?

What channel is used (quick meeting, memo, group message)? Is it always the same?

A1: Changes are communicated via a WhatsApp group and sometimes by memos issued by management.

Q2: How are feedback or difficulties related to these changes reported up the hierarchy?

Is there a dedicated document or meeting for this purpose?

When a change is not communicated on time, what concretely happens on site?

A2: Difficulties are discussed during weekly meetings.

• When plan changes are not communicated on time, the work requires costly rework and significant delays.

Procurement manager :

Q1: How do you communicate supplier or method changes to the team?

A1: Primarily through work meetings. Sometimes via email or WhatsApp. Everyone is informed during these sessions.

Q2: What happens when this is poorly communicated?

A2: Delays, confusion, or duplicated efforts can occur if departments are not updated.

Q3: Is there a protocol/tool (standard email, change form) to notify other departments of delivery or supplier changes?

A3: Yes, but often communication is handled informally through WhatsApp due to its speed and ease. It provides traceability and replaces the slower process of formal emails.

Q4: What happens when these notifications don't happen? Any examples?

A4: It causes misalignment and delays. For example, if a supplier change isn't communicated, the team might continue planning based on outdated info.

29. **Accounting manager**

Q1: How do you inform your team about updates in financial procedures?

A1: Through email or written notes/documents.

Q2: What happens when communication is unclear or forgotten?

A2: It creates serious issues. If the change isn't communicated, it's not implemented, causing delays.

Q3: Do you regularly meet with project managers to adjust budgets?
A3: Yes, through regular work sessions.

Q4: What happens when these meetings don’t take place?
A4: It leads to total disorganization ("anarchy"). Delays spread to other departments due to communication gaps.

Technical deputy director :

Q1: When there are changes in plans or specifications, how do you keep the team informed?
A1: Changes are communicated only once they have been validated. Dissemination is done by phone, orally, WhatsApp, or email. The respondent stresses the importance of verifying the information before sharing to ensure reliability and avoid any misinterpretation.

Q2: If you need to adjust something, how do you inform other departments?
A2: Technical adjustments are communicated through all available means: oral, phone, and written. Interactions are particularly frequent with the labour team, requiring clear and responsive communication.

QHSE manager :

Q: When a new QHSE measure is decided, how do you ensure it’s understood and applied by the teams? What happens when communication is poor?
A: Through official instructions and training sessions. But if the message is not communicated clearly or fast enough, people on the ground misunderstand the procedures, which can lead to serious errors, like unsafe work conditions or environmental violations.

Example: The case with the underground cable was an example of a poorly integrated change.

Stock manager :

Q: How are you informed of schedule or priority changes? Have you ever observed a logistical blockage due to poor communication?

A:

Changes come from technical or works departments, sometimes from the director, via email. Yes, blockages do occur when a change is poorly communicated, but these situations mainly involve the technical and works departments.

Q: Is there a protocol for reporting a delivery incident or supplier error?

A:

Yes. In the event of non-compliance, a report is drafted by the quality manager, in collaboration with the stock manager and the relevant person. This document is then sent to the supplier to request an improvement or replacement. In case of loss, it is simply justified by the stock department, without necessarily assigning blame to a specific individual

30. 6. Conflict Resolution and Issue Tracking in Project Success

31. Personnel Manager

Q1: Are there standardized channels or protocols to report and escalate conflicts (e.g., complaint forms, official HR contacts)?

A1: Yes. Conflicts are reported through the Service Personnel using a formalized process, starting with a questionnaire sent to the concerned employee (*l'intéressé*). A supervisor's opinion is also formally collected. This ensures consistency and traceability in conflict handling.

Q2: Are there clearly defined roles in conflict resolution?

A2: Yes. The Commission Disciplinaire is activated for conflict resolution. It includes a president and designated members. The Personnel Department oversees the complaint intake and procedural flow, while supervisors contribute formal assessments. Responsibilities are clearly distributed.

Q3: Are employees transparently informed about disciplinary actions?

A3: Yes. All disciplinary sanctions are documented. For suspensions, a signed notification (*mise à pied signed*) is issued to the employee, ensuring clarity.

Q4: Are legal rights (like appeal options) clearly communicated?

A4: Yes. Employees are explicitly informed of their right to appeal to the Inspection du Travail. This reflects legal transparency and procedural fairness.

Q5: Are internal records maintained for serious HR issues?

A5: Yes. In cases such as *faute grave*, issues are documented and escalated to the Direction Générale. The Personnel Department also processes complaint questionnaires and supervisor feedback, which are formally archived.

Q6: In serious HR issues (e.g., *faute grave*), is the escalation responsibility defined?

A6: Yes. Such issues are escalated to the Direction Générale, showing that decision-making authority is well-structured.

32. **Technical deputy director**

Q7: In case of disagreement between teams (schedule, priority), do you have a standard method to manage these situations?

Do you use specific meetings or written procedures?

A7: In case of conflicts between teams, meetings are organized by the deputy works director to redefine priorities and tasks.

Q8: Do you have a formal reporting system for safety or coordination problems?

Is it a paper register, digital tool, etc.? Who is responsible for monitoring it?

A8: HSE reports are kept for each incident, either recorded by the site HSE manager, with follow-up on corrective actions.

33. **Procurement manager**

Q9: How do you report and track supplier issues?

A9: We call them or document issues in contracts. For serious problems, we use the *mise en demeure* process and terminate if necessary.

Q10: What happens when this follow-up is poorly executed?

A10: It empowers suppliers to act freely, creating chaos and weakening our negotiation power.

Q11: Do you have tools to keep a record of such problems?

A11: Yes, including WhatsApp logs and Excel files. We also document via purchase notebooks and contract repositories.

Q12: When the tracking is clear and shared, has it helped avoid conflict or duplication?

A12: Absolutely. Good documentation helps us avoid mistakes, disputes, and redundant efforts.

34. **accounting manager**

Q13: When there are inconsistencies in figures, how do you address them?

A13: They hold work sessions to identify the problem and suggest solutions. These issues often occur with the stock service and the accounting service when there are invoice (*facture*) discrepancies.

Q14: Have you experienced delays in problem resolution due to communication gaps?

A14: Yes, delays happen when there's a lack of communication, especially regarding invoices or stock issues.

Q15: Do you document issues for future reference?

A15: No, they don't write them down. Everything is retained in memory.

Q16: Has this tracking helped avoid repeated issues?

A16: They learn from mistakes informally, but without written records, it's harder to ensure lessons are transferred.

35. **technical deputy director**

Q17: When there's a technical disagreement, how do you handle it with other teams or companies?

A17: If the disagreement is within the technical team, the technical director mediates after hearing both sides. However, if the conflict involves another department, it is referred to the Human Resources department, which handles mediation.

Q18: Do you have a way to track technical issues until they're resolved?

A18: Yes, a structured tracking table is used. It includes several columns: nature of the problem, level of importance (minor, moderate, critical), origin, resolution deadline, and actual resolution date. This tool provides complete traceability until the issue is resolved.

QHSE manager :

Q: When an incident occurs, how do you track the resolution process? What happens if this follow-up is missing or poorly shared?

A: We track incidents using a dedicated structure and standardized documents mentioned earlier. If the follow-up isn't properly done or communicated, it causes gaps in accountability and can lead to repeated incidents.

When the process is well structured, it helps us be more efficient in daily tasks, improves compliance, and increases team confidence

36. **7. Team Performance and Productivity in Project Success**

37. **Personnel Manager**

No answer

Works deputy director

Q14: How are daily tasks communicated to teams at the start of each day?

Do you use a briefing, a daily task sheet, or a site meeting?

A14: Tasks are communicated through the daily briefing, accompanied by a daily work sheet given to the team leader. Adjustments are made according to sea conditions, weather, and priorities.

Q15: Do you have a mechanism to track progress in real time and adjust resources or priorities if needed?

Is it a dashboard, coordination meeting, or something else?

A15: An Excel dashboard, updated in real time by the works supervisor, allows quick adjustment of resources, especially in case of delays in concrete operations.

38. **Procurement manager**

Q16: How do you ensure task clarity during distribution?

A16: Daily stand-ups. We give clear instructions and adjust depending on the team's capabilities. Some team members need regular follow-up.

Q17: Have you faced issues from miscommunication or poor task distribution?

A17: Yes, many times. Some people don't follow instructions due to the lack of a guiding framework, leading to errors. When this happens, we hold meetings where we must present the problem and a proposed solution. The director then either approves it or provides an alternative.

Q18: Do you have regular meetings with your team?

A18: Yes, it's essential for coordination and quality control.

Q19: What's the impact when these meetings don't happen?

A19: Coordination weakens, and errors increase.

39. **accounting manager**

Q20: How do you ensure everyone knows what to do during financial closings?
A20: The job description (*fiche de poste*) outlines responsibilities and justifies each person's role.

Q21: Do you notice a difference when instructions are clear and well-communicated?
(Not directly answered.)

Q22: Do you hold regular check-ins to avoid missing deadlines?
A22: Yes, they hold regular work sessions (*séances de travail*) with the responsible person.

Q23: What happens when these sessions aren't held?
A23: Total disorganization. Delays affect the entire chain of departments. For example:

- If the Procurement team doesn't send invoices, Accounting can't generate charges.
- Without those charges, Project Works (*Travaux*) can't evaluate their realizations.
- The Procurement team isn't on-site, so they rely on receiving timely demands they can't improvise purchases.

40. **technical deputy director**

Q24: How do you ensure that technical instructions are well understood on the field?
A24: The supervisor organizes daily field meetings (stand-up meetings) to explain instructions. These meetings ensure that the execution team understands and follows the directives.

Q25: Do you have moments to coordinate progress with other teams?
A25: Yes, biweekly meetings are held within the technical team. Additionally, monthly meetings bring together various departments to ensure global progress tracking of the site and to identify coordination or friction points.

QHSE manager :

Q: When you have to delegate QHSE actions (audits, awareness, etc.), how do you ensure everyone knows what to do? Have there been issues from poor delegation or misunderstandings?

A: We follow official COSIDER procedures. When changes occur, the General Director sends formal letters outlining what modifications to make and how to implement them.

Q: Do you have regular meetings with other QHSE leaders or site managers? What happens if these don't happen?

A: Yes, we have regular check-ins. If those meetings don't happen, needs from the site may not be addressed properly, which leads to confusion and misaligned priorities.

Stock manager :

Q: Has good coordination between departments helped improve your efficiency?

A:

Yes, absolutely. For example:

Q: Has communication ever saved you?

A:

Yes, when there was a risk of a stockout of 1m12 rebar, the information was communicated early. We were able to anticipate the order and avoid any impact on the site. This clearly shows that proactive communication improves performance.

41. Conclusive Questions

42. Works

Q26: Have you ever encountered problems (delays, conflicts, misunderstandings) due to lack of structured communication?

Can you describe a concrete case and its consequences?

A26: Yes, a misunderstanding during the operation to place gravel-cement layers related to earthworks (procedure not communicated on time) caused a 3-day delay.

Q27: Can you give an example where regular and structured communication helped avoid a problem or improve performance?

What tool or method did you use in that case?

What was the direct impact of communication (or its absence) on productivity, quality, or deadlines?

A27: During a concrete pouring operation at sea, daily coordination with the diving team and a weather schedule allowed anticipating tide and weather conditions and optimizing pouring

times.

Impact: This avoided production stoppage and enabled production gain.

43. Procurement :

Q28: What difficulties have you encountered when communication was vague or absent?

A28: Over-ordering, untraceable budget overruns, and supplier misunderstandings. But we generally manage to avoid major damage.

Q29: How has clear communication helped avoid delays or mistakes?

A29: It allows us to act quickly, correct problems, and ensure all departments are aligned. It's the key to staying within scope and budget.

Q30: Can you recall a moment when good or bad communication changed the project's course?

A30: Yes. A nearly lost contract was saved thanks to strong communication and leveraging our relationships with suppliers. Without clear dialogue, we would have lost the opportunity.

44. accounting manager

Q31: What difficulties did you face when structured communication was lacking?

A31: Delays, disorganization, failure to implement changes, and lack of accessible archives.

Q32: How has regular communication helped avoid errors or delays?

A32: It keeps everyone aligned and reduces missteps.

Q33: Have you noticed better project outcomes when communication was structured? What aspects helped the most (documents, meetings, channels)?

A33: Yes, work sessions, written communication, and the *fiche de poste* are key contributors to better outcomes.

The codebook :

Example on the first KSF :

Table 1 : Mapping of Structured Communication practices across all KSFs

KSF 1 : stakeholder engagement and strategic alignment		
Sub-coding (Structured Communication Elements)	**Interviewee**	**Quote/Justification**
Formal Channels, Standardized Formats, Legal Documentation	**Personnel Manager**	"Communication with external institutions such as Inspection du Travail, CNASS, and Occupational medicine is always formal and written, complying with legal protocols and using institutionally recognized formats."
Standardized Formats, Documentation Practices	Personnel Manager	"All correspondence with institutions… is documented and follows formal, standardized formats."
Institutional Communication, Written Formats, Regulatory Alignment	Personnel Manager	"The organization maintains formal, written communication with AENM, CNASS, CACOBAT, and Occupational medicine for compliance and evaluations."
Standardized Templates, Compliance Procedures	Personnel Manager	"Each institution imposes specific communication rules and templates. The HR department strictly adheres to these, ensuring procedural rigor."

Stakeholder Engagement, Role-based Communication	Personnel Manager	"Internal roles such as QHSE manager, supervisors, DRH, and PDG are all engaged systematically in implementing and communicating changes."
Validation Procedures, Legal Communication, Hierarchical Approval	Personnel Manager	"Mandatory signatures from HR Director and Labour Inspector… demonstrate formal alignment with legal stakeholders."
Periodic Reporting, Coordination Meetings, Stakeholder Involvement	**Works deputy director**	"We prepare weekly reports and site logs, and hold coordination meetings every Sunday morning with project stakeholders."
Planning Tools, Progress Documentation	Works deputy director	"We use work schedules and weekly progress tables for monitoring."
Performance Tracking, Planning vs. Execution Comparison	Works deputy director	"Execution is monitored through Excel sheets and site reports… helps verify alignment between planning and execution."
Conflict Anticipation, Weekly Coordination, Subcontractor Engagement	Works deputy director	"Weekly meeting helped anticipate scheduling conflicts with subcontractors."
Communication Delays, Absence of Clear Requests, Lack of Upstream Coordination	**Procurement manager**	"Sometimes I don't receive the requests or necessary information on time... ordered 100 instead of 20–30 due to lack of clarity."
Quality Control Protocols, Documentation (PV de conformité), Cross-functional Interaction	Procurement manager	"Quality control is handled by the stock manager… we issue a PV de conformité if there's a quality issue."
Pre-order Verification, Lab Consultation, Conformity Testing	Procurement manager	"We request samples or references before placing an order… consult the lab to test for conformity."

Information Relay, Inter-departmental Flow	**Accountant**	"The personnel manager usually receives the information on time and forwards it to the headquarters."
Strategic Alignment Meetings, Collaborative Planning	Accountant	"We organize work sessions (séances de travail) to keep financial reporting aligned with project goals."
Preparatory Meetings, Task Clarification, Meeting Minutes	**Technical deputy director**	"Coordination is ensured through preparatory meetings that define tasks and responsibilities… documented in a Meeting Summary."
Task Breakdown, Role Definition	Technical deputy director	"Task sheets clarify individual roles… clear role division reduces overlap and delays."
Multi-channel Communication, Email Archiving, Informal Channels for Urgency	Technical deputy director	"Technical info is shared via a common email inbox... WhatsApp and oral communication for urgent updates."
Daily Information Flow, Functional Coordination	**Stock Manager**	"We receive the necessary information daily… have not experienced any issues in this regard."
Documentation Requirements, Risk of Operational Delays from Incomplete Communication	Stock Manager	"A complete file is submitted for each invoice… If not submitted, it may block deliveries and cause conflicts."
Absence of Proactive Communication, Lack of Transparency, Pull-Only Information Access	**Supervisor QHSE**	"If you don't actively look for the information yourself, they won't provide it to you… difficult to obtain key information unless you push for it."

Missing Documentation, Quality Risks, Communication Breakdown	Supervisor QHSE	"Lack of proper documentation and communication led to non-compliant results during concrete testing… damages company image."
Missing Reports, Inter-departmental Gaps, Work Delays	Supervisor QHSE	"Delegated service didn't send us test reports… we couldn't proceed with the work."
Poor Upstream Alignment, Deadline Miscommunication, External Stakeholder Disconnect	Supervisor QHSE	"We had to wait 7 more days to redo testing… unrealistic deadlines set by the Ministry ignore these compliance times."

Table 2 : Mapping of Empirical Sub-Codes to Structured Communication Elements per KSF

KSF 1: stakeholder engagement and strategic alignment	
Sub-code (Field Observation)	**Structured Communication Element(s)**
Formal Channels, Standardized Formats, Legal Documentation	**Standardized Communication Channels**, **Documentation**, **Defined Communication Protocols**
Standardized Formats, Documentation Practices	**Documentation**, **Standardized Communication Channels**
Institutional Communication, Written Formats, Regulatory Alignment	**Defined Communication Protocols**, **Documentation**
Standardized Templates, Compliance Procedures	**Defined Communication Protocols**, **Documentation**

Stakeholder Engagement, Role-based Communication	**Clearly Defined Roles and Responsibilities**, **Stakeholder Engagement**
Validation Procedures, Legal Communication, Hierarchical Approval	**Defined Communication Protocols**, **Clearly Defined Roles and Responsibilities**
Periodic Reporting, Coordination Meetings, Stakeholder Involvement	**Frequency and Timing of Exchanges**, **Stakeholder Engagement**
Planning Tools, Progress Documentation	**Documentation**, **Knowledge Sharing**
Performance Tracking, Planning vs. Execution Comparison	**Documentation**, **Knowledge Sharing**
Conflict Anticipation, Weekly Coordination, Subcontractor Engagement	**Frequency and Timing of Exchanges**, **Stakeholder Engagement**
Communication Delays, Absence of Clear Requests, Lack of Upstream Coordination	**Transparency**, **Frequency and Timing of Exchanges**
Quality Control Protocols, Documentation (PV de conformité), Cross-functional Interaction	**Documentation**, **Clearly Defined Roles and Responsibilities**
Pre-order Verification, Lab Consultation, Conformity Testing	**Knowledge Sharing**, **Defined Communication Protocols**
Information Relay, Inter-departmental Flow	**Standardized Communication Channels**, **Transparency**
Strategic Alignment Meetings, Collaborative Planning	**Stakeholder Engagement**, **Frequency and Timing of Exchanges**

Preparatory Meetings, Task Clarification, Meeting Minutes	**Clearly Defined Roles and Responsibilities**, **Documentation**
Task Breakdown, Role Definition	**Clearly Defined Roles and Responsibilities**
Multi-channel Communication, Email Archiving, Informal Channels for Urgency	**Standardized Communication Channels**, **Documentation**
Daily Information Flow, Functional Coordination	**Frequency and Timing of Exchanges**, **Standardized Communication Channels**
Documentation Requirements, Risk of Operational Delays from Incomplete Communication	**Documentation**, **Transparency**
Absence of Proactive Communication, Lack of Transparency, Pull-Only Information Access	**Transparency**, **Knowledge Sharing**
Missing Documentation, Quality Risks, Communication Breakdown	**Documentation**, **Transparency**
Missing Reports, Inter-departmental Gaps, Work Delays	**Documentation**, **Transparency**
Poor Upstream Alignment, Deadline Miscommunication, External Stakeholder Disconnect	**Transparency**, **Stakeholder Engagement**, **Defined Communication Protocols**

Table 3 : Quantitative Synthesis of Structured Communication Elements Across KSFs

quantification table for KSF1 (Stakeholder Engagement & Strategic Alignment)				
Communication Element	**Strong**	**Moderate**	**Weak**	**Total Sub-codes**
Clearly Defined Roles and Responsibilities	5	0	0	5

Clearly Defined Roles	2	0	0	2
Defined Communication Protocols	2	0	1	3
Documentation	5	1	0	6
Frequency and Timing of Exchanges	3	2	3	8
Standardized Communication Channels	2	2	1	5
Transparency	2	1	3	6

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