

Effective communication planning for high-performance civil engineering project teams

By

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DECLARATION

I, Jeanne Jacques Rossouw, declare that the entire body of work contained in this research assignment is my own, original work; that I am the sole author thereof (save to the extent explicitly otherwise stated), that reproduction and publication thereof by Nelson Mandela Metropolitan University will not infringe any third-party rights and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

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ABSTRACT

In the area of project management, it is well understood that effective communication processes impact positively on project performance. Despite this, project teams still struggle to develop effective communication plans that address their project communication needs. The evidence of this is that many project problems are attributed to poor communication. The literature addresses the needs and shortcomings of group communication and communication planning in general; but there is however, a scarcity of literature describing how to plan for the internal communication needs of high-performance civil engineering teams. With the limited literature available on the topic, this study seeks to validate how effective the current communication planning methods are at Aurecon in meeting the communication needs of its project teams.

This qualitative research project is a case study of communication planning within the project teams at Aurecon in Port Elizabeth. A semi-structured interview process was followed, addressing specific questions, without limiting the direction of the interviews. Project team members, working on high performance projects, were asked for their thoughts, feelings and suggestions about existing communication practices and project communication planning. Overall, it was found that the existing communication-planning practices at Aurecon did not have any beneficial effect on how team members communicate. It was concluded that project teams would benefit from improved communication-planning processes that are more inclusive of their specific communication needs.

Organisations working on high-performance projects will benefit directly from the research, which challenges these organisations to think more broadly about how they plan for communication at a project level. The research provides practical suggestions for improving the way that teams plan their communication processes; and it does so by focusing on the communication needs of the team members.

Recommendations are made to professional bodies, tertiary institutions, project organisations – and most importantly – to project team members themselves. The recommendations to project team members include taking ownership of communication practices, asserting their views, as well as making their needs known.

Keywords: Communication planning, Internal communications,

TABLE OF CONTENTS

1	CHAPTER 1: THE PROBLEM AND ITS SETTING	1
1.1	INTRODUCTION.....	1
1.2	Problem Statement	2
1.3	Main research question	2
1.4	Sub-Questions.....	2
1.5	Delimitations	2
1.6	Definition of terms	3
1.7	Objectives of the research	3
1.8	Research design and methodology summary	4
1.9	Importance of the Study	5
2	CHAPTER 2: THE LITERATURE REVIEW	7
2.1	Introduction.....	7
2.2	The purpose of communication in projects	7
2.3	Communication planning for projects	9
2.4	Communication tools	13
2.5	Factors affecting the quality of communication.....	16
2.6	Summary of the literature review	20
3	CHAPTER 3: THE RESEARCH METHODOLOGY	23
3.1	Research Design	23
3.1.1	Method.....	23
3.1.2	Sample.....	24
3.1.3	Framework for the structure and preparation of interviews	24
3.1.4	Interview administration	26
3.2	Ethical considerations	26
3.2.1	Plagiarism.....	26
3.2.2	Data integrity.....	27
3.2.3	Use and misuse of data	27
3.3	Treatment of the data	27

3.3.1	Validity and Reliability.....	28
3.4	Participant overview	29
4	CHAPTER 4: ANALYSIS OF THE DATA.....	31
4.1	What are the communication needs of high-performance project teams?	31
4.1.1	Communication-process needs	31
4.1.1.1	Sharing information.....	31
4.1.1.2	Resolving Issues.....	32
4.1.2	Communication environmental needs.....	33
4.1.2.1	Inclusion	33
4.1.2.2	Openness.....	34
4.1.2.3	Relationships	35
4.1.2.4	Efficiency	36
4.1.3	Resolution of sub-question 1	37
4.2	How do current communication planning methods address the communication needs in high-performance project teams?.....	37
4.2.1	The current communication-planning methods	37
4.2.1.1	Standard planning tools	37
4.2.1.2	A focus on communication deliverables	38
4.2.2	The current attitude towards planning.....	41
4.2.2.1	A low priority to planning.....	41
4.2.2.2	A lack of impact on project communication.....	42
4.2.2.3	External bias and exclusion	43
4.2.2.4	Cost constraints.....	44
4.2.3	Resolution of sub-question 2.....	45
4.3	What are the preferred communication tools for delivering the desired communication results between team members on high-performance project teams?	45
4.3.1	The preferred communication styles for the project teams.....	45
4.3.2	Meetings	47
4.3.3	Electronic tools	49
4.3.4	Electronic file sharing and storage	51
4.3.5	Resolution of sub-question 3.....	52
4.4	What factors affect the communication between team members in a high-performance project team?	54
4.4.1	Project Roles.....	54
4.4.2	A focus on costs	56
4.4.3	Gender, language and cultural differences	56
4.4.4	Personal factors	59
4.4.5	Trust and relationship	61
4.4.6	Resolution of sub-question 4.....	65
4.5	What changes to existing communication planning could improve project team performance?	65
4.5.1	Planning for internal communication needs	65
4.5.2	Planning for personal development.....	67

4.5.3	Documentation	68
4.5.4	Clarifying roles and responsibilities	68
4.5.5	Planning for socialization	71
4.5.6	Resolution to sub-question 5.....	72
5	CHAPTER 5: SUMMARY, CONCLUSION AND RECOMMENDATIONS.....	73
5.1	Research overview	73
5.2	Achievement of the objectives	73
5.2.1	Objective 1:	74
5.2.1.1	Communication-processes needs	74
5.2.1.2	Communication-environment needs	74
5.2.2	Objective 2:	74
5.2.2.1	Current communication-planning methods	75
5.2.2.2	Attitudes towards planning	75
5.2.3	Objective 3:	75
5.2.3.1	The preferred communication styles for the project teams	76
5.2.3.2	Meetings.....	76
5.2.3.3	Electronic tools.....	76
5.2.3.4	Electronic-file sharing and storage.....	76
5.2.4	Objective 4:	76
5.2.4.1	Project roles	77
5.2.4.2	A focus on cost	77
5.2.4.3	Gender, language and cultural differences	77
5.2.4.4	Personal factors.....	77
5.2.4.5	Trust and relationships.....	78
5.2.5	Objective 5:	78
5.2.5.1	Planning for internal communication needs	78
5.2.5.2	Planning for personal development	78
5.2.5.3	Documentation.....	78
5.2.5.4	Clarify roles and responsibilities.....	78
5.2.5.5	Planning for socialization.....	79
5.3	Limitations.....	79
5.4	General conclusions	79
5.5	Recommendations	79
5.6	Future research	81
6	REFERENCES.....	82
	APPENDIX A: INTERVIEW GUIDE	86

LIST OF TABLES

Table 1: Processes associated with project-communication planning 10

LIST OF FIGURES

Figure 1: Links between the literature review and research sub-questions 21

LIST OF ACRONYMS AND ABBREVIATIONS

CE: Civil Engineer

CIDB: Construction Industry Development Board

CP: Communication Plan

ICT: Information Communications Technology

PM: Project Manager

PMI: Project Management Institute

PMIS: Project Management Information System

PMBOK: Project Management Body of Knowledge

SMS: Short Message Service

1 CHAPTER 1: THE PROBLEM AND ITS SETTING

“The single biggest problem with communication is the illusion that it has taken place.” – George Bernard Shaw

1.1 INTRODUCTION

Aurecon is a civil engineering consulting firm that is continually striving to improve. As a leader in the civil engineering and project-management fields, the company recognises that project communication has a critical role to play in the outcomes of its endeavours. Some experts argue that most project problems are as a result of poor communication (Baker, 2007); and that, in most cases, project failures are the result of mistakes by all the parties in communicating their needs and desires (Frank Cervone, 2014: 74). It is thus accepted that effective communication has positive effects on multiple project-success factors (Scott-Young and Samson, 2008: 749); and Aurecon wishes to capitalize on this fact.

Project communication is broadly described as a method used to achieve the calculated and deliberate ends of a project (Ziek and Anderson, 2015: 789), as well as a way to share information, solve problems and build social bonds (Ammeter and Dukerich, 2015: 5). In order to be effective, project communication should deliver relevant project information that is clear, unambiguous and complete. This can only be achieved by communicating in a timely manner, generating the right information, and then, collecting, distributing and storing information (Ziek and Anderson, 2015: 792).

The effective sharing of information is critical to project success as it facilitates other processes, such as, achieving co-ordination and awareness (González-Ibáñez *et al.*, 2013: 1165), communicating ideas and suggestions (Henderson, 2004: 469), as well as promoting a fundamental understanding of the tasks and goals, which the team strives to attain (Ghobadi and Mathiassen, 2016: 95, Ramsing and Goodman, 2009: 346).

Project-communication planning is the process of determining the project-stakeholder information needs and defining a communication approach (PMI, 2008: 243). Aurecon attempts to ensure effective project communication through communication planning during the project-planning phase; since formal communication plans have been shown to facilitate the communication process (Carvalho, 2008: 1282). However, despite this planning, projects managed from the Port Elizabeth office have experienced difficulties that are attributed to weaknesses in the current communication processes.

Of particular concern has been a trend of communication failure in the office, whilst working on high-performance projects. This has led Aurecon to question the adequacy of its current

communication-planning methods and their effect on quality communication processes. An important question that arises is: Can effective communication be achieved through the existing communication-planning methods, or must Aurecon look at alternative strategies for improvement?

This research seeks to explore the answers to the questions posed.

1.2 Problem Statement

Communication failures in high-performance projects teams are causing concern amongst the Project Leaders at Aurecon. Project teams blame poor communication planning for the failures in communication, whilst working on high-performance projects. Research into the effect of existing communication planning on the quality of project-team communication is required.

1.3 Main research question

How effective are the current communication-planning methods at meeting the communication needs of high-performance project teams?

1.4 Sub-Questions

- 1.4.1** What are the communication needs of high-performance project teams?
- 1.4.2** How do current communication-planning methods address the communication needs in high-performance project teams?
- 1.4.3** What are the preferred communication tools for delivering the desired communication results in teams working on high-performance projects?
- 1.4.4** What factors affect the quality of communication between team members in high-performance project teams?
- 1.4.5** What changes to existing communication planning can improve project-team performance?

1.5 Delimitations

The study focuses on the projects and teams managed from the Port Elizabeth office of Aurecon, South Africa. The project leadership, the technical and managerial resources committed to these projects are included.

1.6 Definition of terms

Communication Planning – Planning that addresses all forms of communication – formal and informal, verbal and written (Nicholas and Steyn, 2012: 438), and a process of determining the project stakeholder-information needs and defining a communication approach (PMI, 2008: 243).

High-Performance Project – For the purposes of this study, high-performance projects will comprise those for which Aurecon has tendered, as opposed to the standard percentage-fee appointments based on cost estimates. These are projects with a combination of variables: Novelty of the solution; lack of project slack; past failures; unfamiliar resources; the severity of potential delays etc. (Rational Eyes, 2014).

Internal communication – All the forms of communication in the organization (Tkalac Verčič *et al.*, 2012: 225) that take place between the project's team members. Generally, this type of communication is "raw." It may involve a lot of back-and-forth discussion; as various plans or issues are worked out (Martinez, 2012).

1.7 Objectives of the research

The research seeks to determine the effectiveness of the existing communication planning methods at meeting the communication needs of high-performance project teams at Aurecon. In order to achieve the purpose of the research, five objectives have been set.

- 1.7.1 To identify the communication needs of Aurecon's high-performance teams.
- 1.7.2 To identify how current communication-planning methods address the communication needs of the teams.
- 1.7.3 To identify the preferred communication tools used by the teams.
- 1.7.4 To identify factors that influence the quality of communication between the team members.
- 1.7.5 To identify any possible changes to communication-planning practices that could improve the overall project team's performance.

1.8 Research design and methodology summary

1.8.1 Design

This study seeks to validate how effective the current communication planning methods are at Aurecon in meeting the communication needs of its project teams. This qualitative research project is a case study of communication planning within the project teams at Aurecon in Port Elizabeth. A semi-structured interview process was followed, addressing specific questions, without limiting the direction of the interviews. During the study 9 semi-structured interviews were conducted. The interviews highlighted a number of themes applicable to planning internal project communications.

1.8.2 Sampling

The participants for the interviews were selected from project staff at the Port Elizabeth office, who had worked on at least one high-performance project in the last 3 years. An initial list was developed; and the potential candidates were then further screened, based on the nature of their role within the project team. This ensured that a wider and more balanced perspective could be obtained – rather than if only one group within the team environment had been interviewed.

1.8.3 Instrument design and data collection

A semi-structured interview was developed and used as the data-gathering instrument. The interviewees were then contacted in person and the purpose of the interviews and the nature of the study were explained during these discussions. In total, nine staff members agreed to the interviews. Appointments were made for convenient times to meet and conduct the interviews. The interviews took between 60 and 90 minutes, and were all recorded using a Dictaphone.

1.8.4 The data analysis

The general recommendations from Creswell (2009: 171-181) for analysing interview data were followed. The audio files from the interviews were transcribed by the researcher. Six of the nine transcripts were analysed and coded by hand; while the remaining three documents were analysed and coded using ATLAS.ti software.

1.9 Importance of the Study

Government policies for the procurement of professional engineering services have changed the environment in which Civil Engineers work. In the past, professionals could be appointed for work according to the tariffs based on time-based fee scales and percentage-fee scales, relating to commonly encountered scopes of work (CIDB, 2007:2). This still holds true when dealing with private clients; but according to the Supply-Chain Management Regulations issued in terms of the *Municipal Finance Management Act*, Act 56 of 2003, professionals who wish to work for government bodies are required to submit competitive bids for the provision of their professional services, where,

- The value of the contract exceeds R 200 000 (VAT included); or
- The duration of the period of the contract exceeds one year.

The Construction Industry Development Board (CIDB) defends this process by saying that the process of procuring services in the construction industry needs to balance reasonable compensation with competitiveness (CIDB, 2007: 6). As a result of the legislation described above, and a trend from private clients towards a competitive-tender process, civil engineering consulting firms have had to adapt to these methods. Due to the competitive nature of the bid process, margins have been reduced; and teams find themselves operating in high-pressure environments, where there is little room for error (Van Eeden, personal communication 2013, December 3).

Within these environments, the flow of information is critical; as it is imperative that all the team members are communicating effectively to ensure high levels of project performance. Communication planning is thus an area of great significance to civil engineering project teams who want to remain competitive in this environment, where the quality of communication is strongly linked to project performance (Johns, 1995: 36, Zhang *et al.*, 2014: 14).

The benefits of effective communication practices include greater employee engagement and commitment, which in turn result in better employee retention and productivity. The net effect is superior financial performance through improved project performance (Yates, 2006: 71).

With much of the focus of communication planning being between external parties, little attention has been given to investigating the inter-personal communication of teams working on these high-performance projects, and how best to plan for them (Ramsing and Goodman, 2009: 350).

The study aims to improve the overall understanding of effective communication planning for high-performance projects. This has a direct influence on the project-management discipline, and specifically, in the field of communication management and planning.

This study will provide project-based organisations with a platform, from which to plan project communication in such a way that project delivery is improved through effective communication practices and the associated benefits.

2 CHAPTER 2: THE LITERATURE REVIEW

2.1 Introduction

This chapter provides a critical review of the available literature on project communication and communication planning for project teams. The chapter provides an analysis of what is already known about communication planning for project teams, while identifying the gaps and deficiencies in the existing literature. The chapter starts by addressing the purpose of communication within project teams – before addressing communication planning, communication tools; and it concludes by discussing factors that affect the quality of communication.

2.2 The purpose of communication in projects

Project communication is broadly described as a method used to achieve the calculated and deliberate ends of a project (Ziek and Anderson, 2015: 789), as well as a way to share information, solve problems and build social bonds (Ammeter and Dukerich, 2015: 5). Team leaders, thus, have the responsibility of communicating the desired goals and values of the team and of keeping the team members informed of the status of the project (Ammeter and Dukerich, 2015: 5). Project communication is consequently two-dimensional, based on social or task-based interaction (Gorse and Emmitt, 2007: 1197).

Project communication must, therefore, satisfy the task-based and socio-emotional requirements (Katz, 1982: 101).

In order to be effective, project communication should deliver relevant project information that is “clear, unambiguous and complete” (Ziek and Anderson, 2015: 788). This can only be achieved by communicating in a timely manner, generating the right information, and then collecting, distributing and storing information (Ziek and Anderson, 2015: 792). The effective sharing of information is critical to project success; as it facilitates other processes, such as, achieving co-ordination and awareness (González-Ibáñez *et al.*, 2013: 1165), communicating ideas and suggestions (Henderson, 2004: 469), and promoting a fundamental understanding of the tasks and goals towards which the team strives (Ghobadi and Mathiassen, 2016: 95, Ramsing and Goodman, 2009: 346).

According to Ziek and Anderson (2015: 788), most project leaders take a transmission approach to sharing information, focusing on the volume and speed of communication only. However, the transmission approach may not be appropriate, with Ziek and Anderson (2015: 798) arguing for a constitutive process, where collaborative sense-making is included as part of the communication process.

According to Gorse and Emmitt (2007: 1198), project communication is important for resolving conflict. This is because unresolved conflict has a direct negative effect on project performance – by impacting on the quality of communication between parties (Zhang *et al.*, 2014: 14). Dealing with conflict requires listening skills, the sharing of information, managing differences in interpretations and perception, and having non-verbal proficiency (Werner, 2014: 300). As a result, dealing with conflict is strongly linked to high levels of emotional intelligence (Kuehn, 2016: 33). Since not all team members possess these skills, the ability to manage conflict as a communication competency should be developed through training – if it is not already in place (Ziek and Anderson, 2015: 791).

Sharing information and resolving conflict were found to be import factors in high quality decision-making processes (Daim *et al.*, 2012: 204). Groups play an important role in the decision-making process; however, not all group members might want an opportunity to take part in the decision-making processes (Cunningham, 2014b: 335). This implies that a number of factors, such as communication skills and individual motivation could impact on the decision-making process and communication within the project team as a whole (Henderson, 2004: 470).

Understanding that communication affects decision-making can have significant benefits to managers responsible for managing meetings and achieving member engagement (Gorse and Emmitt, 2007: 1211).

A further purpose for communication in the project environment is that of building social bonds (Ammeter and Dukerich, 2015: 5). Teams are built on relationships (Potgieter, 2014: 117) and these relationships, or social bonds, are an important factor in assuring the quality and quantity of communication between team members and project performance (Kozlowski and Ilgen, 2006: 84). Furthermore, strong relationships have been shown to overcome the weaknesses of formal communication systems (Akgün *et al.*, 2015: 255). The constitutive communication process, as highlighted by Ziek and Anderson (2015: 792), plays an important role in shaping relationships by getting members involved and talking to each other.

2.3 Communication planning for projects

Project-communication management is recognised as a key project-management knowledge area by the Project Management Institute (PMI, 2008: 43). Part of the communication management process is communication planning, which can be defined as the process of “determining the project-stakeholder information needs and defining a communication approach” (PMI, 2008: 243). This section considers the various strategies, mechanisms and tools for communication planning in the project environment.

According to Yates (2006: 77), communication planning tends to occur reactively to communication needs, as opposed to occurring proactively – even though it was found that formal communication plans do facilitate the communication process (Carvalho, 2008: 1282). Project communication planning starts with identifying the needs of various parties and then focusing on the sharing of information, providing feedback and managing the stakeholders (Carvalho, 2008: 1281).

Communication planning is closely linked to stakeholder management. According to the PMI (2008: 261), stakeholder management is a process of communicating and working with the stakeholders to meet their needs, and resolving issues as they occur; and it includes:

- Managing stakeholder expectations and keeping them engaged.
- Anticipating and addressing concerns that might later become problematic.
- Resolving knowledge issues.

Stakeholder identification is an integral part of the planning process; and it becomes an input into the communication plan. Stakeholder analysis and expert judgement are used for identifying the stakeholders (PMI, 2008: 246). Organograms and contact lists are important tools in the stakeholder-identification process; and they can be used as part of the stakeholder-analysis process, where the individual stakeholder roles, departments, interests, expectations and influence can be identified (PMI, 2008: 248).

Ramsing and Goodman (2009, pg 350) found that formal project-communication planning usually only relates to external stakeholders in the short and long term, creating an imbalance; because it leaves out the core communication of project management, i.e. the internal communication. Within the project management discipline, there is thus a tendency to ignore the fact that team members are stakeholders. Not taking the views of team members into account may result in perceptual differences, which would negatively impact project performance (Ghobadi and Mathiassen, 2016: 97).

Planning should, therefore, include or allow for, the involvement of team members at an early stage, in order to avoid differences in perception, or limiting their knowledgeable contributions, resulting in them having a negative attitude towards the project (Burke, 2013: 323). Negative attitudes could cause a lack of commitment; and this is described as one of the dysfunctions of work groups (Lencioni, 2002), resulting in a lack of accountability and culminating in a failure to achieve results.

Apart from stakeholder identification, the project-planning process should address a number of other topics, as set out in the table below (Burke, 2013: 322-3):

Table 1: Processes associated with project-communication planning

Process	Description
Scope of communication.	Communicate sufficient information for the recipient to solve problems, make decisions and feel involved and part of the project.
Lines of communication	Communicate sufficient information for the recipient to solve problems, make decisions and feel involved and part of the project
Format and content	Agree on reporting format and content. Information should be presented in a way that is easy to understand, in order for the recipient to assimilate the information quickly and take the appropriate action
Method of communication	Agree on the most appropriate method with the stakeholders.
Timing	Discuss and agree on the frequency of communication, as well as the turnaround time for the responses. The plan should culminate in a schedule of key communication activities.
Document control	Outline the level of document control for information like specifications, drawings, instructions and scope changes.
Administration	Assign administrative responsibilities for information gathering, processing, transmitting, filing, storing and retrieval.
Resources	Outline the resources and budgets to set up and manage the communication system.

Adapted from Burke (2013)

Communication plans should culminate in a communication matrix, which can be circulated to all parties; and it should be supported by documentation that shows examples of good and bad documentation from previous projects (Nicholas and Steyn, 2012: 438). The communication matrix spells out who is responsible and who is involved in the various communication processes, as well as the “details about what, where, when and how” of each activity (Nicholas and Steyn, 2012: 438).

When planning, informal communication needs must be considered; since informal communication fulfils social and work needs; and it is often the preferred means of communication within teams (Nicholas and Steyn, 2012: 442). It is thus problematic that project managers tend to see informal communication planning as being unnecessary (Ramsing and Goodman, 2009: 348). Informal communication is strongly influenced by inter-personal relationships (Ziek and Anderson, 2015: 792); and it is characterised by its spontaneity and the voluntary basis, on which it occurs (Akgün *et al.*, 2015: 255).

It cannot be scheduled or forced, making it a challenge for formal communication planning (Nicholas and Steyn, 2012: 442). Nevertheless, strong relationships and informal communication practices have benefits, such as overcoming the weaknesses of formal systems (Akgün *et al.*, 2015: 255); and they are essential for any organization to perform well (Nicholas and Steyn, 2012: 442). Planners should, therefore, include strategies to capitalize on and develop informal communication as part of the entire communication plan.

The benefits of effective communication planning that include strategies for formal and informal communication are: better group participation and improved team performance (Daim *et al.*, 2012: 204, Ziek and Anderson, 2015: 791). In addition, effective communication planning facilitates communication (Carvalho, 2008: 1282), leading to improved relationships and trust, which in turn increase the likelihood of project success (Johns, 1995: 36, Kuehn, 2016: 80). From a business point of view, organisations which have good internal communication practices could have benefits, such as a higher market premium, higher shareholder returns, better employee engagement and lower employee turnover (Yates, 2006: 71).

Ultimately, effective internal communication is the result of well-structured and well-planned communication practices (Yates, 2006: 73-79). This is valuable information for project planners, who wish to improve project communication. According to Yates (2006: 73), a hierarchy of effective communication can be divided into three tiers: foundation; strategic; and behaviour – with the most significant strategies at the foundation level being to:

- Follow a formal process for communication;
- Use employee input;
- Integrate total rewards; and
- Leverage on communication technology.

Seven activities were proposed that could improve the effectiveness of communication (Yates, 2006: 78):

- Develop a documented-communication strategy focusing on deliverables and results;
- Conduct regular communication planning to maintain a proactive approach;
- Establish two-way communication for employee input into decisions;
- Provide tools and training for communication;
- Provide multiple communication tools;
- Measure the effectiveness of communication; and
- Identify and voice local requirements and secure buy-in amongst the local managers.

The work conducted by Yates (2006), described above, confirms the need for communication planning in project teams; and it also provides a model for planning.

In addition to the model described above, the agenda model, as proposed by Tukiainen (2001), was identified as being beneficial for project teams. The model identifies the information needed to plan and develop communication in working organisations (Cunningham, 2014a: 193); and it is useful when tailoring a plan aimed at satisfying the communication needs and subjective experiences of people in organisations.

The model focuses on four distinct dimensions (Tukiainen, 2001: 47-52):

- Dimension 1: The use of the communication system
- Dimension 2: Superior communication and ways of conduct
- Dimension 3: Horizontal face-to-face communication
- Dimension 4: Functioning of the communication process

In order to develop the best communication plan, each of the above-mentioned dimensions must be explored. The model provides two open-ended questions, the answers to which are analysed; and they then inform the planning process. These questions are:

- “What do you think is best about the communication in your own working community?”
- “What is the one thing that annoys you most in the communication in your own working community?”

The model gives an overall perspective on the management, structure and communication conduct of superiors and peers (Tukiainen, 2001: 51). This puts the planner in a strong position for creating an effective communication plan.

Communication planning, despite its benefits, also comes at a cost; as there is a relationship between the time spent on an activity and the overall cost of the activity (Nicholas and Steyn, 2012: 298). Project teams actively seek ways to reduce any unnecessary cost; and project organisations must, therefore, evaluate the cost/benefit ratio when compiling a detailed communication plan (Van Eeden, personal communication 2013, December 3).

Project leaders should note that not all communication planning needs to be formal or complicated; as frequently planning outputs are only valuable to those who created them (Johns, 1995: 35). When considering the amount of effort to be spent on planning, it must be remembered that project performance is strongly linked to the quality of the project communication (Johns, 1995: 36, Zhang *et al.*, 2014: 14). Project communication should, thus, be regarded as a quality issue; and quality is one of the traditional success criteria for projects, along with cost and time (Atkinson, 1999: 338).

The relationship between the three success criteria is such that a disproportionate focus on any one of these could negatively affect the others. In this regard, conformity costs for ensuring the quality of communication, such as training, planning and finding the time to do things right, must be weighed against those of reworking, scrapping, lost business, or liabilities (PMI, 2008: 195).

2.4 Communication tools

The quality of team communication is highly dependent on the communication acts of the individual team members, the use of their preferred communication media, and the access to easy-to-use tools (Otter and Emmitt, 2007: 409). There are many tools available to project teams; and, in general, the more tools used by the team, the more successful a team is likely to be (Ziek and Anderson, 2015: 791). This section considers the various tools available to project teams, taking into account their potential benefits and their shortcomings.

In the project environment, project team members may find themselves working in separate locations (remotely located) or together (collocated) with other team members (Lockwood, 2015: 126, Daim *et al.*, 2012: 200). Choosing appropriate communication tools is thus a significant consideration for project managers; as effective communication tools must cover both synchronous (real-time) and asynchronous (delayed) communication, where team members may be either remotely or collocated (Gorse and Emmitt, 2007: 1197).

Nicholas and Steyn (2012: 443) propose that project-management information systems (PMIS) be used as tools to enable both synchronous and asynchronous communication, defining them as “systems for collecting, organizing, sorting, processing, and disseminating information”. Practical examples of PMIS for project teams would include online or network

software and project websites (Nicholas and Steyn, 2012: 443). Electronic file-sharing and storage tools, such as shared folders on the company servers, or cloud-based storage, such as a Dropbox are a form of remotely accessible, asynchronous communication tools; and they may consequently be included as part of a Project-Management Information System (PMIS).

Examples of tools for asynchronous communication include written text, SMSs and emails. Synchronous communication tools include real-time, face-to-face communication methods, such as meetings or informal discussions (Otter and Emmitt, 2007: 411). Face-to-face communication tools were found to be the preferred tools, when team members were collocated (Ziek and Anderson, 2015: 791). These tools are useful for building common understanding (Otter and Emmitt, 2007: 416); since people communicate largely through body language and tone of voice (Daim et al., 2012: 203). Remote, real-time communication may be achieved through the use of telephones or information-communication technologies (ICT), such as video conferencing or instant messaging (Otter and Emmitt, 2007: 411).

Meetings, described above as synchronous, real-time communication tools, are a commonly used communication tool within project teams. Frequent meetings were shown to correlate well with project performance (Kuprenas, 2000: 10); and this was something that team members frequently requested (Nidhra *et al.*, 2012: 21).

Different meeting formats for project teams should be considered as part of the formal planning process. Nicholas and Steyn (2012: 440) have provided a list of the typical meetings used by project teams:

- Project Review meetings;
- Informal Reviews;
- Stand-Up meetings; and
- Formal review meetings.

Informal meetings, not included in the list above, tend to occur spontaneously, when team members are collocated. These types of meetings are used to share information, to solve technical problems, to update project status, as well as to provide a forum for social interaction (Ammeter and Dukerich, 2015: 5).

Outputs from meetings should include records of what has been communicated in the form of letters, memos or meeting minutes; and they should be tracked in some form of register. These methods should be specified in the communication plan (PMI, 2008: 261). Other important tools for recording information are issue logs to document and monitor the

resolution of issues, change logs to document changes during the project, as well as performance reports, which consolidate project progress, issues and changes (PMI, 2008: 263-267). The logs and reports can be used to create an action plan, which formalizes who will be responsible for attending to various matters arising from the meetings (Nicholas and Steyn, 2012: 440).

Meetings, as a communication tool, are however criticised, when there is a lack of skill from the team to manage them, inter-cultural communication breakdown, or a lack of trust (Lockwood, 2015: 134). Gorse and Emmitt (2007: 1197-1210) warn that “meetings tend to be dominated by task-oriented communication, manifesting in low levels of socio-emotional interaction, resulting in low levels of agreement. This could stem from group think, potentially resulting in a poor exchange of information”.

Email communication is another form of commonly used communication tool. Email communication was identified as having specific benefits, such as (Cunningham, 2014a: 203):

- Speed of use;
- Random access to messages or parts of messages;
- Fewer apparent status differences than in face-to-face communication; and
- Reduces selective attention bias.

An increased frequency of emails was, however, shown to diminish productivity (Patrashkova-Volzdoska et al., 2003: 263); and it can lead to misunderstandings, which erode team communication and productivity (Daim *et al.*, 2012: 204). Other disadvantages of email include (Cunningham, 2014a: 204):

- Information overload;
- Reduction of politeness and respect for others;
- Difficulty in the interpretation of the emotional meaning of messages;
- Lacking the warmth of human interaction;
- Time wastage from spam or junk mail; and
- Low levels of trust for, and difficulties in reaching agreement.

Instant-messaging tools are a form of communication that effectively covers synchronous (real-time) and asynchronous (delayed) communication, where team members may be either remote or collocated (Gorse and Emmitt, 2007: 1197). Instant-messaging tools are especially useful for remote, real-time communication (Otter and Emmitt, 2007: 411).

In choosing the correct communication tools, or methods, the following points were found to be worthy of consideration (Otter and Emmitt, 2007):

- The selection of communication methods should be dependent on the nature of the communication that needs to take place. In this regard, the individual needs of the team members must be considered.
- A distinction can be made between sharing information and other communication functions, such as reaching consensus, taking decisions or planning.
- The sharing of explicit information is best served by asynchronous tools, such as email or reports.
- Decision-making, planning and clarification are best served by synchronous communication methods.
- The misuse of various tools can cause communication performance to drop; and it is therefore useful for all team members to agree on the methods and tools up-front, and for the manager to plan and implement a framework for the use of various tools.

As there are numerous communication options for project teams, each with its uses and advantages, Thissen *et al.* (2007: 7) have provided the following recommendations to assist with selection:

- Allow teams to choose their own communication tools;
- Insist on frequent communication among all the members, including interactions, such as telephone, chat and web conferencing; and
- Provide shared file storage to facilitate team interaction.

2.5 Factors affecting the quality of communication

According to Stempfle and Badke-Schaub (2002: 493), even when communication tools are successfully implemented, the nature of the communication may still be inadequate. This section identifies those factors that have an impact on communication in project teams; and it considers strategies for how to manage them.

Communication is described as the effective transmission of information (Barker, 2010: 1), or, as the process, by which information is exchanged and understood by two or more people, usually with the intent to motivate or influence behaviour (Cunningham, 2014a: 188). The ability to communicate efficiently and effectively is one of the most important skills required by a project manager (Ziek and Anderson, 2015: 789). The communication process involves the following basic elements: a sender; a receiver; the message; a channel; coding/decoding and feedback (Carvalho, 2008: 1280).

The transmission model of communication, favoured by project managers (Ziek and Anderson, 2015: 788), starts with the information transmitted by the sender; and it then is received by the recipient (Barker, 2010: 2). This is, however, an over-simplified view; as before the message can be transmitted, the sender must first perceive a need to communicate, resulting in the sender having to encode a thought. In other words, the sender has to pay attention, understand and implement what is understood in context (Barker, 2010: 4). This encoding process requires a great deal of skill, which includes writing, speaking, reading, listening and reasoning skills (Cunningham, 2014a: 191).

Following this encoding process, a message is created; and it may be sent via a communication channel. The message could be written, verbal or non-verbal. Communication channels can be either formal or informal. Before the message is received, it must be decoded by the recipient (Cunningham, 2014a: 192). Decoding has been described as a type of active listening to messages, which refer to the process of “turning sensations into meaning or patterned codes” (Henderson, 2004: 470). This is a process that is heavily impacted by the receiver’s own skills, attitudes, knowledge and cultural background (Cunningham, 2014a: 192).

Communication failure can occur at any stage in the communication process. Barriers to communication may be referred to as noise. Barriers to communication are broadly categorised into either process barriers or personal obstacles. Personal barriers are affected by (Cunningham, 2014a: 206):

- Frames of reference;
- Semantics and language;
- Connotative meaning;
- Status differences;
- Assumptions;
- Selective listening and filtering;
- Trust;
- Listening skills;
- Passive listening;
- Gender differences;
- Cultural diversity; and
- Expectations.

Cultural differences may manifest in the way that different groups express themselves, or how they approach decision-making (Yasser and Rashad, 2013: 126). Traditional African

cultures, for example, are often described as patriarchal in nature, and being at odds with gender equality (Morrell *et al.*, 2012: 17). Ultimately, ineffective communication can result from diverging group dynamics, based on cultural barriers (Yasser and Rashad, 2013: 126).

Language barriers, such as the lack of fluency, make it difficult for people to express themselves in an understandable manner, affecting how others value their opinions (Brett *et al.*, 2006: 84-91). Explaining their point of view in their native language leads to extra problems; and people cannot share information unless they share a common language (Nidhra *et al.*, 2012: 15).

Apart from the barriers described above, the project environment comprises individuals with varying roles; and the nature of these roles may cause them to have perceptual differences in effective communication (Ghobadi and Mathiassen, 2016: 1, Kozlowski and Ilgen, 2006: 83). Project managers are required to communicate the desired goals and values of the team (Ammeter and Dukerich, 2015: 5), to use their communication skills to influence team members (Ziek and Anderson, 2015: 789), and to keep all the stakeholders informed (PMI, 2008: 243). This implies high levels of socio-emotional and task-based communication, in order to fulfil their responsibilities.

In contrast, project-team members become increasingly specialized in their particular problem areas and project assignments, resulting in greater role differentiation; and they thus have less overall interaction with the project group (Katz, 1982: 85). The majority of project communication at this level would consequently be task-oriented.

All of the above-mentioned topics are areas, where individuals or groups could work to improve through structured programs or personal development plans (Butorac, 2006: 5). Various strategies exist to overcome communication barriers and to improve interpersonal communication. The following seven steps to improve interpersonal communication have been provided (Barker, 2010: 35):

- Clarify the objectives;
- Structure one's thinking;
- Manage time;
- Find common ground;
- Move beyond argument;
- Summarize often; and
- Use visuals.

These steps should be supplemented with skills of enquiry, skills of persuasion, presentation skills, writing skills and networking (Barker, 2010, 81, 98, 120, 152).

Research conducted by Kuprenas (2000: 11) did, however, find that when considering communication strategies to improve project performance, there was a poor correlation between increased communication training and project-success factors. Project managers should thus also take into account other strategies, such as developing relationships and modifying behaviour (Barker, 2010: 25-31).

One function of project communication is that of building social bonds (Ammeter and Dukerich, 2015: 5); and project communication is, in turn, strongly influenced by interpersonal relationships (Ziek and Anderson, 2015: 792). This is because relationships stimulate high levels of socio-emotional interaction (relational), which are required to communicate effectively, to share task-based information and to build effective transactive-memory systems between the group members (Gorse and Emmitt, 2007: 1197-1210, Kozlowski and Ilgen, 2006: 85).

Transactive-memory systems are necessary; because individual project-team members may have unique knowledge that is not common to the team. By drawing on the collective knowledge of the team, performance can be improved (Kozlowski and Ilgen, 2006: 116). The strongest transactive systems are formed by groups that have trained together, and have close relationships (Kozlowski and Ilgen, 2006: 85, Gorse and Emmitt, 2007: 1210). There is, however, some evidence that teams with close, long-standing relationships may experience a drop in performance, due to increased isolation and reduced levels of communication over time (Katz, 1982: 84).

Trust is widely supported as an important requirement for performance in teams (Boies et al., 2015: 1080); and there is a strong relationship between trust and the sharing of information (Ghobadi and Mathiassen, 2016: 9). Trust affects conflict resolution and team integration (Akgün et al., 2015: 254). According to Lencioni (2002), an absence of trust in project teams can easily escalate into a fear of conflict, lack of commitment, avoidance of accountability; and it can culminate in a lack of attention to the results, with no accountability for actions that go against the interests of the team. Each of these dysfunctions grows from the previous dysfunction (Lencioni, 2002):

1. An absence of trust results in members not being open with each other about mistakes or weaknesses.
2. A fear of conflict results in a lack of unfiltered and open debate; and it leads to guarded discussions.

3. As members are not engaging in debate and sharing opinions, there can be a lack of commitment and buy-in related to the decisions made in team meetings.
4. A lack of commitment results in a lack of accountability, where those who do not buy into team decisions do not hold their peers accountable for any counterproductive behaviour.
5. Inattention to results is the outcome of the preceding dysfunctions.

In addressing these dysfunctions, it is necessary to first build trusting teams. The dynamics of a trusting team include mature admission of mistakes and weaknesses, the acceptance of feedback and advice, the appreciation of the skills and potential of others, focusing time and energy on work-related matters, apologising and accepting apologies, and taking advantage of opportunities to get to know the team better (Potgieter, 2014: 163).

The theme of emotional intelligence was linked to effective communication through the topic of project leadership (Kuehn, 2016: 82) (Kozlowski and Ilgen, 2006: 93). High levels of emotional intelligence manifest in transformational leadership, which focuses on inspirational motivation and intellectual stimulation (Boies et al., 2015: 1081). Individuals with high levels of emotional intelligence could “resolve conflict, deepen relationships, and remain calm and poised, when it matters most” (Kuehn, 2016: 82), thereby helping to “realign attitudes, [to] foster [a] tremendous work ethic and enforce collegiality and communication among members” (Ammeter and Dukerich, 2015: 5).

2.6 Summary of the literature review

Communication in high-performance project teams is of considerable interest; as most project problems are attributed to poor communication (Ramsing and Goodman, 2009: 345, Baker, 2007). Research into the effectiveness of communication methods in teams in the engineering environment is, however, limited (Otter and Emmitt, 2007: 417); and there is a particular lack of focus on internal communication in project teams (Ramsing and Goodman, 2009: 354, Cornelissen, 2004, van Riel, 1995, Argenti, 2003).

Project communication has been linked to a number of knowledge areas, such as leadership, teamwork and motivation (Kozlowski and Ilgen, 2006: 78). The combination of these areas leads to synergy within teams; and it is vital in achieving project success (Gorse and Emmitt, 2007: 1198).

The literature review addressed project communication in terms of the following areas:

- The purpose of communication in projects;
- Communication-planning methods;

- Communication tools; and
- Factors affecting the quality of communication.

These findings of the literature review link directly to each of the research sub-questions, as shown in Figure 1 below:

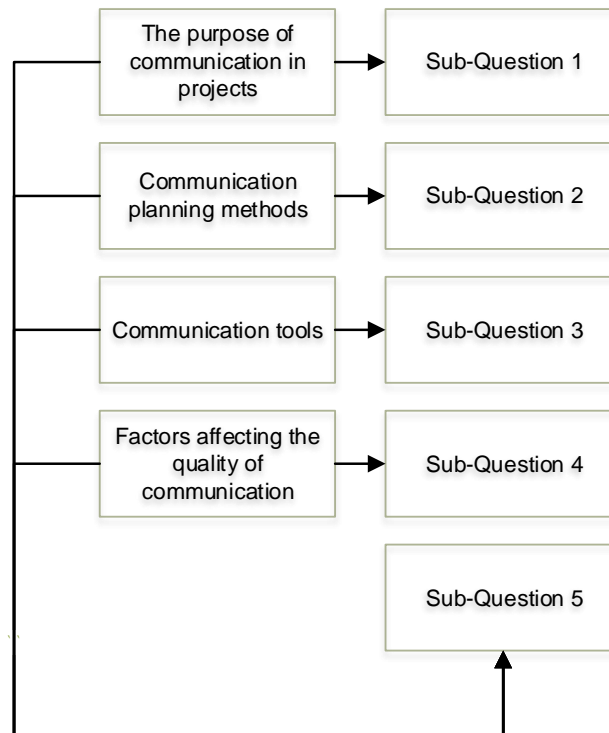


Figure 1: Links between the literature review and research sub-questions

The most significant findings of the literature review, as they pertain to the Sub-Questions, are listed below:

2.6.1 Sub-Question 1: What are the communication needs of high-performance project teams?

- Teams need to share information.
- Communication is used to resolve conflicts.
- Communication is important in decision-making processes.
- Communication is used to build social bonds.

2.6.2 Sub-Question 2: How do current communication planning methods address the communication needs in high-performance project teams?

- Planning starts with stakeholder identification and needs.
- Use organograms and contact lists.
- Plan for formal and informal communication.
- Communication is linked to stakeholder management.

- There are a number of processes to be addressed.
- Plans should culminate in a communication matrix/schedule.
- There are significant benefits to effective communication strategies.
- Teams should customise their plans to suit the team.
- Team members want to be included in planning.

2.6.3 Sub-Question 3: What are the preferred communication tools for delivering the desired communication results within teams working on high-performance projects?

- The selection of communication tools varies, according to need, location and preference.
- Teams should use PMIS for collecting, organizing, sorting, processing and disseminating information, e.g. websites and network software.
- Written text, SMSs and emails are suggested for asynchronous communication.
- Meetings and discussions are suggested for real-time, face-to-face communication.
- Telephone, instant messaging or video conferencing are suitable for remote, real-time communication.
- Various communication tools have advantages, as well as disadvantages.
- Teams should select their preferred communication tools.

2.6.4 Sub-Question 4: What factors affect the communication between team members on high-performance project teams?

- Communication is the transmission of information; but it relies on a number of personal skills to be effective.
- Transmission is easily interrupted by barriers (noise).
- It is possible to differentiate between process and personal barriers.
- Barriers can be overcome with training and specific intervention strategies.
- Emotional intelligence is an important factor for effective communication.
- Relationships are important for sharing task-based information.

2.6.5 Sub-Question 5: What changes to existing communication planning could improve project-team performance?

- Communication is affected by the socio-emotional relationships in project teams.
- Transactive memory systems rely on communication.
- Communication relies on relationships.
- Teams that stay together longer have better communication due to their relationships.
- Relationships are built on trust.
- Team performance is traced back to communication.
- Planning for internal communication needs can improve project performance.

3 CHAPTER 3: THE RESEARCH METHODOLOGY

This chapter presents the methods and approach involved in researching the effectiveness of the current communication planning at Aurecon. The aim of this chapter is to provide details on the research design, the sample chosen and the instrument used to collect the data. The chapter will also discuss the method of data analysis.

3.1 Research Design

3.1.1 Method

The research project attempted to understand the way that high-performance team members perceive project-communication planning; how they feel about communication methods; and how they would prefer to communicate. The focus of the study was thus to explore personal experience and feelings by communicating face-to-face with the team members.

The themes explored and the use of interviews to collect the data aligned with a qualitative approach to the research study. This approach is supported by Leedy and Ormrod (2005: 95), who explained that qualitative methods are appropriate, where the purpose of the research is to explore and interpret; and where the researcher will be searching for themes and categories, based on the words of the people involved.

The research sought to develop a deep understanding of the research questions; as they pertain to Aurecon. Considering the setting of the research study, a case-study framework was adopted to guide the research process. This type of research design is useful for “generating an understanding of and insight into a particular instance, by providing a thick, rich description of the case, and illuminating its relations to a broader context” (Rule and Vaughn, 2011: 7).

This research project made use of a semi-structured interview process, in order to collect the data. The semi structured interview type was selected to ensure that the sub-questions were addressed – without making the interviews too rigid. This method also allows researchers flexibility in the way the interviews are conducted, as opposed to structured approaches (Gibson and Brown, 2009).

An interview guide was developed from a list of questions designed to address the research sub-questions. The purpose of the interview guide was to provide a framework of open-ended questions, which would steer the direction of the interview and allow the interviewee to provide information on their own experiences and opinions. As such, the interview process was not rigid in nature; but allowed the conversation to develop naturally; and it used the interview guide for direction.

A digital voice recorder was used to capture the interview details. The data were then transcribed and verified by both the researcher and the interviewees.

3.1.2 Sample

The participants for the interviews were selected from project staff at the Port Elizabeth office, who had worked on at least one high-performance project in the last 3 years. An initial list was developed; and the potential candidates were then further screened, based on the nature of their role within the project team. This ensured that a wider and more balanced perspective could be obtained – rather than if only one group within the team environment had been interviewed. This methodology satisfies the recommendations made by Leedy (1997: 211) for the sample to be both logically defensible and faithfully representative of the group being studied. The roles were broken down into three main groups, namely: the project leadership; technical; and support roles. A final selection round then also identified those candidates with experience in multiple roles in the project team.

Eventually, 11 candidates were identified for the interviews. Of these candidates, nine were interviewed in face-to-face interviews.

3.1.3 Framework for the structure and preparation of interviews

The following recommendations, made by Leedy and Ormrod (2005: 147), were followed in the design of the research questions and the interview process.

- Certain questions were planned in advance, to meet the requirements of the data-collection process; and they were used to guide the conversation back onto the topic, if required.
- The researcher attempted to understand the way in which cultural differences might affect the project members' interpretation or response to the questions.
- All interviewees were selected on the basis of their involvement in project teams; and they were thus representative of the study group.
- The location for the interviews was chosen, to enable honest and confidential sharing of information in a comfortable setting.
- Permission to conduct the interviews was sought; once the nature and purpose of the study had been explained.
- The researcher attempted to create a level of rapport that would facilitate the interview process.
- The researcher tried to draw actual information from the interviewee through carefully phrased questions and prompts. The researcher did not attempt to influence the answers given.

- No attempt was made to draw conclusions on the interviewee's thoughts during the interview. The themes would be analysed only after the interview.
- All conversations were recorded and transcribed verbatim. The interviewees were able to verify the contents and accuracy of the transcriptions, prior to their inclusion in the study.
- Every attempt was made to remain objective and neutral during the interview. The interviewer kept his reactions to himself; so as not to influence the interviewee in any way.
- All the responses were treated as perceptions.

The purpose of the interview process was to collect the data, in order to answer the research sub-questions. Semi-structured interviews with common, open-ended questions allowed the interviewees to answer in whatever way they deemed appropriate, and to provide as much detail as they desired; whilst still addressing the research questions.

The questions for the interview guide were formulated from the literature review, which addressed each of the research sub-questions. In the interviews themselves, probing questions, based on the answers provided by the interviewees, were spontaneously introduced to obtain further data. These probing questions were then included, as part of the interview guide, as the interviews continued; and they were used as and when appropriate.

The draft-interview guide was piloted on the first three interviewees – with mixed results. A number of changes to the interview guide were made, subsequent to these initial few interviews, based on the feedback requested after the interviews, the duration of the interviews, and the quality and nature of the answers given. The following general changes made are listed below:

- Questions that were answered with yes or no answers were re-worded to make them open-ended; or they were omitted entirely;
- Repetitive or very similar questions were removed, in order to reduce the time of the interviews; and
- Questions that were poorly interpreted by the interviewees or were unclear, were re-phrased.

Although the structure of the interview guide and the main questions remained the same for the remainder of the interviews, small revisions were continuously made to the document, in order to improve the quality of the data received during the interviews. These included:

- Changing the sequence of questions to improve the flow of the interviews; and

- A focus on positive questions, before focusing on any negative questions, such as asking the interviewees about what they like, before asking them about what they do not like.

3.1.4 Interview administration

Before the interviews were conducted, the office manager was approached to gain permission to have the interviews with the project staff during working hours. An informal meeting was held to explain the purpose of the study and to address any concerns about confidentiality. This was an important step; as the office manager had changed since the start of the research project. Consent was given to conduct the interviews.

The potential interviewees were then contacted in person. The purpose of the interviews and the nature of the study were explained during these discussions. In total, nine staff members agreed to the interviews. Appointments were made in person and via email for convenient times to meet and conduct the interviews. The interviews were scheduled over a two-week period; and they took place at the Aurecon offices, using private meeting rooms that are part of the office layout.

The interviews all followed the same interview protocol.

- The researcher welcomed and thanked the participants for their participation in the study;
- The purpose and objectives of the study were explained;
- Issues around confidentiality were discussed and agreed upon;
- A digital Dictaphone was used to record the entire interview;
- The interview was conducted using the questions and prompts in the interview guide; and
- At the end of the interview, the participants were thanked for their participation; and then given the opportunity to provide feedback on the interview process.

After the interviews, the audio-recordings were transcribed into text documents, and sent to the participants via email for comment and approval, along with a message of thanks for participating in the study.

3.2 Ethical considerations

3.2.1 Plagiarism

The researcher employed every method at his disposal to avoid plagiarism. All sources were accurately referenced and/or acknowledged. The researcher did not intentionally claim work from other sources as his own.

3.2.2 Data integrity

The researcher strived to adhere to a strict code of conduct regarding the integrity of the data. To this end, no data were fabricated, manipulated or falsified. With the primary data being derived from the interviews, full and unmodified transcripts of the interviews were kept for future interrogation, if required. Considerable care was taken to present reliable and factual data.

3.2.3 Use and misuse of data

To satisfy ethical considerations on the manipulation of the data, all the findings and observations were reported.

It was possible that the data could impact, or be perceived to impact, on the interviewees status within the company. To mitigate any potential discrimination; all the names were removed from the study. The interviewees had an opportunity to vet the transcripts of the interviews and to give their consent for the use thereof, prior to their inclusion in the study.

3.3 Treatment of the data

Based on the general recommendations from Creswell (2009: 171-181) for analysing interview data,

- The audio interviews from the interviews were transcribed verbatim;
- The transcripts were organised and formatted for reading and making notes;
- The transcripts were read and re-read, whilst making notes; and
- The themes were developed, while coding the transcripts.

The interviews were recorded using an Olympus digital-voice recorder. The audio files were then converted from .wav files to .mp3 files – for use during the transcription process. This enabled the researcher to use a mobile device to play back the audio files, whilst typing up the transcription. By personally typing up the transcriptions, the researcher was able to develop a deeper feeling for the data – from an early stage in the process.

The transcripts were prepared using MS Word. The transcripts were formatted into double-line spacing; and a suitable margin was left for making notes, coding and developing the themes. Once prepared, the transcripts were emailed to the interviewees. The interviewees were invited to comment on the accuracy of the transcripts.

Six of the nine transcripts were analysed and coded by hand; while the remaining three documents were analysed and coded using ATLAS.ti software.

A codebook was developed and kept to ensure the consistency and the reliability of the coding process. Categories and themes were developed concurrently with the coding process. The coding process went through a number of iterations, which involved reading the text and recording general observations and impressions, as codes. Subsequent iterations of the coding process involved looking for specific values, preferences, processes, beliefs and actions described by the interviewees. The codes were analysed, grouped and sorted into 14 themes.

The 14 themes were further interrogated, in order to establish the patterns and connections between them. Once this process had been concluded; it was possible to provide a final interpretation of the data; as they pertained to the research questions.

3.3.1 Validity and Reliability

According to Brink (1993: 36), the validity and reliability of qualitative research can be affected by,

- The researcher;
- The interviewees;
- The situation or social context of the research; and
- The methods of data collection and analysis.

In order to overcome any potential problems in terms of the validity and reliability of the research, a number of strategies were employed.

A friendly and open relationship was developed with the interviewees, prior to commencing the interview process. This helped to ensure that the interviewees did not feel threatened; and that they would be open to share their views and opinions.

During the interview process, the interviewees were given an opportunity to comment on themes or ideas put forward during the previous interviews. This served as a form of “member checking” (Simon, 2011). The member checking did not significantly alter the interpretation of the data; but it did help to provide a context for some of the opinions given.

During the coding process, a codebook was developed; and the comments and observations relating to the codes were recorded. By documenting the coding process, there was an opportunity for reflection and verification, which improved the overall consistency of the process.

A draft-interview guide was piloted on the first three interviewees, in order to test the validity and the reliability of the interview guide. A number of changes to the interview guide were made, based on the feedback received from the interviewees.

3.4 Participant overview

Interviewee 1

Interviewee 1 is an established Project leader, with a strong project-management background, and more than 10 years of experience in project delivery.

Interviewee 2

Interviewee 2 is an established Project leader with a strong technical background, and more than 8 years of experience in project delivery.

Interviewee 3

Interviewee 3 is a well-respected technical expert, with growing leadership responsibilities. He has more than 6 years of experience in high-performance projects.

Interviewee 4

Interviewee 4 is a discipline specialist, with an increasingly dominant project-leadership role within her field, drawing on more than 5 years of project experience. The interviewee primarily provides a support role in high-performance civil engineering projects.

Interviewee 5

Interviewee 5 is an experienced project administrator, who has an abundance of project-support experience and a growing project leadership role in the project environment. He has more than 10 years of project-administration experience.

Interviewee 6

Interviewee 6 is a very capable technical-resource employee, working in the project management and contract-administration fields. She has more than 3 years of project experience, playing an active role in project delivery.

Interviewee 7

Interviewee 7 is a highly skilled technical-resource employee, who regularly functions in a project-support role. He has more than 20 years of experience in project delivery.

Interviewee 8

Interviewee 8 is a highly regarded technical-resource employee in the project team environment, with more than 5 years of project experience, focusing mainly on the technical aspect of project delivery. He has a growing project leadership responsibility; and he regularly contributes to the project-management function of the team.

Interviewee 9

Interviewee 9 is a technical-resource employee, who functions primarily in a project-support role, but also makes significant technical contributions. The interviewee has more than 15 years of project experience.

4 CHAPTER 4: ANALYSIS OF THE DATA

The previous chapter set out the methodology for the research project; and it introduced the participants of the interviews, as well as the interview guide. This chapter deals with the interpretation of the interview results, in order to address the research questions. The chapter addresses each of the sub-questions posed in Chapter One, by discussing the themes emerging from the coding process, as they relate to the questions. A summary of the relevant literature is then provided for each theme.

4.1 What are the communication needs of high-performance project teams?

In order to plan for project communication, the project-communication planners need to understand what communication is used for in their project teams. The questions posed in this part of the interview guide were aimed at exposing the explicit and implied communication needs of high-performance projects at Aurecon.

It is clear from the data that the communication needs of high-performance project teams can be separated into two categories. These two categories cover the “communication-process needs” and the “communication-environmental needs” of high-performance project teams.

4.1.1 Communication-process needs

This category deals with the day-to-day project communication processes used in project planning and delivery.

Two themes emerged in this category, namely:

- Sharing information; and
- Resolving issues.

The themes listed above are described in detail below.

4.1.1.1 Sharing information

The first theme in this category is the need to share information. The sharing of information is a broad theme; and it is inclusive of:

- Giving feedback on progress;
- Feedback on budgets;
- Communication about workload;
- Providing instructions;
- Dissemination of technical data; and
- Dissemination of non-technical information.

Providing feedback was a regular topic identified in the data. Teams value and require that the individual members keep track of their progress relative to the project deliverables and schedules. Feedback was seen as a means of keeping track of productivity, but also as a way of identifying potential problems or issues, as they arise. By providing prompt feedback, the teams could use the information to make adjustments to the project schedule, or make requests for further information, if required. In general, all the team members placed a high value on being informed; as this placed them in the strongest position to deliver.

Quotes from the interviews in support of the ideas discussed above are provided below.

“We use it mostly for determining progress and monitoring where we are in terms of progress in relation to the deadlines.” – (8)

“...to make sure, especially if it’s a big project with different sections involved, I think that’s quite important, to let them know where we’re at. That’s been a problem in the past, where they say that they don’t know they’re overspending on their budget.” – (5)

“...the main purpose of communication is to share information – that is what it is all about. And I would say, often to me it is basically – have what you require been done? Progress monitoring” – (1)

“What I require from the team; but it often doesn’t happen, I need to know the full details of what is happening” – (1)

The views expressed by the interviewees are supported by the authors below.

The sharing of information was identified as being critical to project success; because it facilitates other processes, such as achieving co-ordination and awareness (González-Ibáñez et al., 2013: 1165), communicating ideas and suggestions (Henderson, 2004: 469) and promoting a fundamental understanding of the tasks and goals towards which the team strives (Ghobadi and Mathiassen, 2016: 95, Ramsing and Goodman, 2009: 346). The communication process involves the following basic elements: a sender; a receiver; a message; a channel; coding/decoding; and feedback. Feedback is an important component in the communication process (Carvalho, 2008: 1280)

4.1.1.2 Resolving Issues

The interviewees declared that they regularly need to communicate with each other, in order to deal with and resolve both technical and non-technical issues. The project leaders saw this as a central part of their project role; and they stated that it took up most of their time.

Quotes from the interviews, in support of the ideas discussed above, are provided below.

“The most annoying thing is when people have a big issue; and they don’t state it. If there are problems, it’s best to get it out in the open, get it discussed and move on. Sometimes, people tend to sit on things too long – to their own detriment and to the project’s detriment.” – (3)

“So yes, communication, the sharing of information, but predominantly to solve issues, and going forward, to record progress.” – (1)

The views expressed by the interviewees are supported by the authors below.

Collaborative problem-solving has been identified as a key competency amongst work groups; and it is strongly linked to communication and conflict resolution (Kozlowski and Ilgen, 2006: 95). This is particularly important for group members, who find themselves in leadership positions, where problem-solving is a key leadership function (Kozlowski and Ilgen, 2006: 109).

4.1.2 Communication environmental needs

This category identifies the need for an environment, which is conducive to effective communication. The four themes that emerged in this category are:

- Inclusion;
- Openness;
- Relationships; and
- The efficiency of the communication processes.

The themes listed above are described in detail below.

4.1.2.1 Inclusion

The first theme in this category is that team members desire to communicate and want to be involved and included in the project. The team members considered themselves to be internal stakeholders, with legitimate communication needs. This can best be summarised as teams requiring an inclusive-communication environment.

Quotes from the interviews, in support of the ideas discussed above, are provided below.

“Yes, that brings me back to an earlier thing I said, where we are often excluded at the early stages; and that’s where that planning should take place. We should be included, and say: What do we need? Who needs what? Then that person knows. Because they don’t do it properly in the beginning, they have problems later.” – (7)

“They should involve everyone who’s in the project. From scratch, from the kick-off meeting everyone should be involved. They should let us know exactly what’s going on. Other than that I can’t say much.” – (9)

The views expressed by the interviewees are supported by the authors below.

Project communication planning is described as a process of determining the project-stakeholder information needs, and defining a communication approach (PMI, 2008: 243). Not taking the views of team members into account could result in perceptual differences, which would negatively impact the project performance (Ghobadi and Mathiassen, 2016: 2). Planning should, therefore, include or allow for the involvement of team members at an early stage, in order to avoid differences in perception and limiting of their knowledgeable contributions. This might result in them having a negative attitude towards the project (Burke, 2013: 323).

4.1.2.2 Openness

The second theme is that all communication needs to take place in a way that is open, unhindered, honest and transparent. The team members can only express themselves effectively in an environment that makes it possible to do so.

Quotes from the interviews, in support of the ideas discussed above, are provided below.

“Just that they communicate continuously. That’s often a problem that people don’t communicate. It doesn’t really matter what you say, just always be communicating on stuff, whatever it is. Only speaking every two weeks, and not realizing what has been happening. I find if people don’t communicate continuously, then there are always issues cropping up; and then some of those issues become more difficult to handle” – (5)

“So, it must be open, transparent, and frequent; and it must address what the requirements are. It mustn’t beat around the bush. Sometimes, people talk in circles to avoid the point. It needs to be direct and short.” – (2)

“I think there is this authority issue. Some people might, and I don’t blame the team members, there might be a person that demands authority, or portrays that sort of image; so, your team members feel scared. That’s the one issue.” – (2)

“What I like best is the openness of the team; generally, we need to be open and that is what we generally do” – (1)

The views expressed by the interviewees are supported by the authors below.

In order to be effective, project communication should deliver relevant project information that is “clear, unambiguous and complete” (Ziek and Anderson, 2015: 788). This can be achieved by communicating in a timely manner, generating the right information, and then collecting, distributing and storing information (Ziek and Anderson, 2015: 792).

Openness contributes positively to high levels of socio-emotional communication (Gorse and Emmitt, 2007), which is linked to transactive memory systems; and this is thus a predictor of project performance (Kozlowski and Ilgen, 2006: 85). Additionally, the theme is congruent with strategies to combat the dysfunctions of group work, which stem from a lack of trust and the absence of openness (Potgieter, 2014: 162-167).

4.1.2.3 Relationships

The third theme in this category is about an environment that is conducive to developing relationships. The data show that this is a key factor for communicating effectively in high-performance project environments. The interviewees together agreed that this was important to them.

Quotes from the interviews, in support of the ideas discussed above, are provided below.

“I like the open relationship between the boss and staff. It’s a very nice way of communicating for our team. It works well for our team. I think we have good relationships, we have a nice team, we work well together, and we communicate well. We get on well, which helps. I think everyone on this team gets on well; so that makes a huge difference. It makes work a lot better and nicer.” – (5)

“But, because I understand that person, we can communicate in a certain manner and we know exactly what is going on. We communicate differently with different people; because you understand them and trust them.” – (1)

“Yes, I think that that’s the biggest thing that I’ve noticed, that if you have a good relationship with the person, most of the time, communication is smooth” –(6)

The views expressed by the interviewees are supported by the authors below.

Teams are built on relationships (Potgieter, 2014: 117) (Ammeter and Dukerich, 2015: 5) and relationships are an important factor in assuring the quality and quantity of communication between team members (Kozlowski and Ilgen, 2006: 94). Strong relationships have been shown to overcome the weaknesses of formal communication systems (Akgün et al., 2015: 255).

4.1.2.4 Efficiency

The fourth theme deals with the characteristics of the communication processes. From the data it was identified that communication processes need to be efficient, and well managed. The interviewees had a preference for communication that is regular in nature, with a preference for informal systems, and for communication to be done in person. The data showed that imposed (not selected by the team) or rigid communication systems are perceived to hinder natural communication acts. As such, the teams require flexible processes that can adapt to their changing environments.

Quotes from the interviews, in support of the ideas discussed above, are provided below.

“In terms of communication I would say that it must be regular. They mustn’t hold back on something, if they are not sure. They must communicate regularly/frequently.” – (2)

“That’s often a problem that people don’t communicate. It doesn’t really matter what you say, just always be communicating on stuff, whatever it is. Not only speaking every two weeks and not realizing what has been happening. I find if people don’t communicate continuously, then there are always issues cropping up; and then some of those issues become more difficult to handle.” – (5)

“So, at the end of the day communication takes up half your day, instead of doing the actual deliverable work. So, I would prefer less communication that is more effective.” – (1)

“It will, if he is trying to force you to communicate in a specific way; but no, I can say ours is informal, I can turn around and say “Dirkie, I need this now, get on it. We make a plan.” – (7)

The views expressed by the interviewees are supported by the authors below.

Project communication planning should take into account the formal and informal communication needs within teams (Nicholas and Steyn, 2012: 438). This includes aspects, such as the format, method and timing of communication (Burke, 2013: 322). Team members should have a say in this planning process (Yates, 2006: 73). Ultimately, most project managers believe that the purpose of communication is to send clear, unambiguous and complete information (Ziek and Anderson, 2015: 788). The ability to communicate efficiently is one of the most important skills required by a project manager (Ziek and Anderson, 2015: 789).

4.1.3 Resolution of sub-question 1

The communication needs of project teams at Aurecon include specific processes, such as sharing information and solving problems in an environment that makes it possible to do so. Resolving conflict (Otter and Emmitt, 2007), taking decisions (Daim et al., 2012), and building relationships (Ammeter and Dukerich, 2015: 5) were not mentioned explicitly in the answers by the interviewees; but they were seen to be implicit, as implied needs. This is evident, when considering the stated environmental needs, which comprise an inclusive environment built on openness, relationships and efficient communication.

4.2 How do current communication planning methods address the communication needs in high-performance project teams?

This section of the interviews focused on the communication-planning methods used by the project teams. The questions in this part of the interview process sought to understand how the teams plan for communication – by looking at all the various issues around the planning process – from the methodology to the attitudes and the planning constraints.

This resulted in two distinct categories, each with a number of themes. The first category identified the current communication methods used. The second category addressed the current attitude towards communication planning.

4.2.1 The current communication-planning methods

In this section of the research, the interviewees were asked to describe the planning methods used by their project teams. Two themes eventually emerged from the questions on current communication-planning methods. These were:

- Standard planning tools; and
- A focus on communication deliverables.

The themes listed above are described in detail below.

4.2.1.1 Standard planning tools

Project planning at Aurecon is based on standard project plans. There are standard templates for large and small project plans.

The interviewees with leadership roles stated that they make use of the project plans to plan their projects. The communication section of the plan contains an organogram, contact details and a communication schedule. The planners used the organogram to identify and record the main project stakeholders. From the interview data, it is clear that the stakeholders are generally external to the organisation, with the focus being on the client's representatives and leadership structure. The organogram is also used to delineate the

project hierarchy and the communication lines. It was mentioned that the organogram is not always representative of the real role-players in the day-to-day running of the projects.

Quotes from the interviews, in support of the ideas discussed above, are provided below.

“Aurecon has a project plan. We have to compile the plan in terms of resources, budget, timelines, risks and communication schedules. Based on the size of the project, we will plan using a small project plan or a large project plan template, taking all aspects into account. We then record that and use that plan to monitor progress and the responsibilities for the project. That is an initial, upfront measure. – (2)

“Often, I would initiate it by getting the template right, have a kick-off meeting; then I would, depending on the type of project, knowing which people are involved and what they are capable of, I would ask someone to populate some of the areas and take it further and complete it. It starts off with a basic organogram – clients, project roles broken down; and each person would have to establish who is reporting to who and when. The basic structure is the reporting lines, what format of communication is applicable. Paper role not always followed; I have my own style, which I tend towards.” – (1)

The views expressed by the interviewees are supported by the authors below.

Organograms and contact lists are important tools in the stakeholder-identification process. This process is described as the process of identifying all the people in the organization impacted by the project, and then documenting the relevant information on their interests, involvement and impact on the project’s success (PMI, 2008: 246). These are viewed as inputs into the project-communication plan. Organograms can be used as part of the stakeholder-analysis process, where the individual stakeholder roles, departments, interests, expectations and influence can be identified (PMI, 2008: 248).

4.2.1.2 A focus on communication deliverables

The project-communication plan may provide details about project communication deliverables, such as contractual meetings and reports. The information is presented in the form of a schedule. The schedule does sometimes include internal communication, such as *ad hoc* team meetings; but this is the exception to the norm; and it is usually just a carry-over from the previous project templates.

There was no mention of the communication plan detailing the preferred communication processes, or the procedures for dealing with the distribution of information, decisions or

resolving conflicts. Many team members, even those with leadership roles, were completely unaware of formal communication plans.

A number of interviewees welcomed the idea of formalised, yet flexible, communication plans to meet their internal communication needs.

Quotes from the interviews, in support of the ideas discussed above, are provided below.

“So basically, we define a number of columns, they talk about meetings, the purpose of the meeting, what deliverables we will present at the meetings; and how frequently we will have them. There is no prescribed set of meetings. We have a kick-off meeting, internal discussions and site meetings. It is very broad. It doesn’t include the ad hoc meetings we would do among the team members in the office.” – (2)

“Do I believe that the current communication plans address the needs of interpersonal communication for project teams? I have to admit I don’t think they always do.” – (5)

“It’s one of those things, because everyone is so busy, you don’t plan for it. You know that you have got to deal with it, as it comes along, as you get to know the people. Sometimes, we assume that everyone knows that you have to manage communication; but I don’t think it gets planned. I should a bit more, maybe it should be put out there that these are the ways to do it, making a plan to see them, or going by their office. It might help; but then life happens; and you get side-tracked, which is the problem. In an industry where you spend time, time is cost. You don’t want to spend too much time on something you can’t bill someone for. Sadly enough.” – (5)

The views expressed by the interviewees are supported by the authors below.

Communication planning is the process of determining the project-stakeholder information needs and defining a communication approach (PMI, 2008: 243). Project plans should include a number of topics (Burke, 2013: 322-3), such as:

- The scope of communication;
- The lines of communication;
- The format and content of communication;
- The method of communication;
- The timing of communication;
- Document control;
- Administration; and

- Resources.

Project-communication plans should culminate in a communication matrix, which can be circulated to all the relevant parties (Nicholas and Steyn, 2012: 438). The communication plan and schedule should allow for both formal and informal communication (Nicholas and Steyn, 2012: 442).

4.2.2 The current attitude towards planning

The interviewees were asked about how the teams approach the planning process. Their answers highlighted the perceived attitudes towards communication planning by both the team members and the leaders. The answers revealed that project communication planning, although done as a compulsory step in the planning process, is not always taken seriously by project leaders or the project staff. This is despite acknowledging that it would be beneficial to the projects and to project communication.

Overall, four themes were identified regarding the current attitudes towards communication planning. They are:

- A low priority to planning;
- A lack of impact on project success;
- External bias; and
- Cost constraints.

The themes listed above are described in detail below.

4.2.2.1 A low priority to planning

Many project leaders feel that the communication plans have little value in the day-to-day running of projects; as they are not referred to after the planning has taken place. In addition, they felt that the nature of projects is such that whatever was planned is very likely to change, thereby making detailed planning a waste of time. The result is that team members do not want to participate in the planning; and they frequently chose to avoid it.

Quotes from the interviews, in support of the ideas discussed above, are provided below.

“I think you can try; you can try and plan for communication. Pretty much no one wants to do it. Everyone feels that what happens in project planning gets done beforehand and people, your name gets put down to work on a project. This is your budget; and these are your hours. It’s a big thing and it takes a day or two to do; and then it kind of gets parked, saved on the server; because it’s a check list item that has to be done; and no-one ever refers to it, or updates it, as we continue. You will find that what gets put into the project plan, very rarely, gets followed. Next minute different resources get used; and everything changes. People feel why should we do it, we are wasting our time. I suppose people should be updating it; but then they say they don’t have the time. The team doesn’t feel that it has any value.” – (8)

There are people who don’t actually want to sit down and talk about something. They have their own, you know, mindset of this is how it needs to be; and if you just talk

about it on the phone; there is no reason for us to sit down and analyse the situation and see, foresee things that might happen. There are people like that.” – (6)

The views expressed by the interviewees are not supported by the authors below.

Formal communication plans, although not frequent in practice, do facilitate the communication process (Carvalho, 2008: 1282). Planning should be inclusive, taking into account the views of the team members (Ghobadi and Mathiassen, 2016: 2). By excluding people from the communication-planning process, the team may start to suffer from a lack of commitment and buy-in. This is described as one of the dysfunctions of work groups (Lencioni, 2002), resulting in a lack of accountability, and culminating in a failure of attention to the results.

4.2.2.2 A lack of impact on project communication

The interviewees do not believe that the planning process currently has any effect on how the teams actually communicate; they do, however, believe that the quality of communication has a direct impact on the success of the project.

Quotes from the interviews, in support of the ideas discussed above are provided below.

“Probably not at this point. I’m not very aware of the communication plans. I don’t stick to a plan. The way I communicate is more of intrinsic intuition, of when and how to communicate. It’s not based on any prescribed plan.” – (3)

“Does the quality of communication between team members affect the results of a project? Yes” – (2)

“Yes, 100%, not even ten, fifteen, 100%. Communication, as I said in the beginning, is key.” – (6)

The views expressed by the interviewees are supported by the authors below.

It was found that the quality of communication does have a direct influence on project performance (Ziek and Anderson, 2015: 789, Henderson, 2004: 469); and that communication planning can facilitate communication processes in the team (Carvalho, 2008: 1282).

The view that communication impacts on project success is thus supported; but not that planning has no impact on the quality of communication.

4.2.2.3 External bias and exclusion

Project leaders and teams view communication planning as having an external bias, with no perceived benefits for the internal stakeholders. Internal stakeholders are excluded from the communication-planning process; because some leaders believe that the team members have no significant contribution to make to the communication-planning process. Team members do not believe that the planners or organisation consider their specific communication needs.

Quotes from the interviews, in support of the ideas discussed above, are provided below.

“This is something that can be improved. I’m all for proper communication on projects. I think it’s essential and vital to the project. The fact that I’m not aware of project-communication plans doesn’t bode well. I have been here long enough that I should be aware of these things and the fact that I’m not is poor. There is scope for improvement.” – (3)

“I do the planning by myself. If I need input from people in terms of design, like time frames, budget, I will liaise with those people, get their expert input – and use that in the project plan. There is a communication section that says how you are going to communicate with your team. It is a broad plan. You can define how you will communicate with your team and your client, be it via formal meetings, ad hoc meetings, letters, or whatever the case may be. The plan is informal; you basically define it as you go” – (2)

“They would not often know what they want, if you do ask, they generally highlight how it was done before. Sure, there are better ways, because people are different; and it’s not always easy to know what they want.” – (1)

The views expressed by the interviewees are supported by the authors below.

Project communication is seen to relate only to the external stakeholders in the short and long term, creating an imbalance; because it leaves out the core communication of project management, i.e. the internal communication (Ramsing and Goodman, 2009: 350). Many project managers find planning for internal communication to be superfluous – due to the dynamic nature thereof (Ramsing and Goodman, 2009: 350). In addition, it was found that most project managers do not believe that project communication is part of a constitutive dialogue, focusing rather on sending clear, unambiguous and complete information (Ziek and Anderson, 2015: 788).

4.2.2.4 Cost constraints

Many of the interviewees agreed that there is a need for internal project-communication planning; but they do not believe that it would be something that would be easy to implement, because of an excessive focus on limiting project costs.

Quotes from the interviews, in support of the ideas discussed above, are provided below.

“They should actually, they should be; but the first thing they will come and tell me is budget?! That’s all I hear lately at Aurecon. Budget, budget, we don’t have the budget for this, even if it’s not even part of anything to do with the budget, it’s the answer, budget. Ja, there are some things that we do need to include that would help us, help us run projects a lot better.” - (6)

“I think because of time constraints, as well as maybe putting other stuff as more important than that, I think I could or should, and I have often thought about it, and just haven’t done it too often – is to have formal team get-togethers; where you discuss what is happening, instead of just reacting. It comes to the stage of the project, or just getting it done in a shorter time; because you don’t want to spend time to get it done formally.” – (1)

“In an industry where you spend time, time is cost. You don’t want to spend too much time on something you can’t bill someone for. Sadly enough. But if you spend the time, and we have said it in meetings, spend the first eight hours planning better, you will end up saving down the line, making more money, having a happy client, or getting more work. We all know that; but it seem you forget about it, especially where you are cutting costs to win work and all that. You have such constrained budgets that you feel any additional thing is going to end up costing you more. Which is sad.” – (5)

The views expressed by the interviewees are supported by the authors below.

As many as 95% of project problems have been attributed to poor communication (Ramsing and Goodman, 2009: 345, Baker, 2007). Project communication essentially becomes a quality issue. In the quality movement, it is widely understood that quality items are only expensive once; and that the sooner a quality issue can be remedied, the more cost-effective it will be (Nicholas and Steyn, 2012: 326).

Improved internal communication, through better planning, has been linked to increased project performance (Frank Cervone, 2014: 74), and improving the final results (Yates, 2006:

77). Project teams do, however, have to balance the relationship between cost, quality and time (Atkinson, 1999: 338).

4.2.3 Resolution of sub-question 2

This section of the study addressed the question of how current communication-planning methods address the communication needs of project teams at Aurecon. This was achieved by investigating the methods used in planning, as well as the attitudes towards communication planning.

Aurecon was found to be using standard tools for planning, relying on templates, organograms and contact lists. The communication needs of team members seem to be overlooked; and communication plans seem to be externally focused.

Generally, the attitude towards planning was poor; and there is an over-emphasis on project costs at the expense of planning.

4.3 What are the preferred communication tools for delivering the desired communication results between team members on high-performance project teams?

In order to identify the preferred communication tools for the project environment, the interviewees were posed a series of questions regarding communication processes, such as sharing information, making decisions, and dealing with conflict. The answers to these questions highlighted how teams currently communicate around these topics; while at the same time, they identified how they would prefer communication to take place.

Overall, four themes were identified in this section of the research, namely:

- The preferred communication styles for project teams;
- Meetings;
- Electronic tools;
- Electronic file-sharing and storage; and
- Trust and relationships.

The themes listed above are described in detail below.

4.3.1 The preferred communication styles for the project teams

Informal, face-to-face meetings between individuals or groups are the most-used communication style within the team, and also the preferred style for communication. The interviewees agreed that the social dynamics within the team played an important role in this style of communication. The quality of relationships and strong social bonds were widely

regarded as strong issues within the teams; and this is what makes this style of communication possible.

Quotes from the interviews, in support of the ideas discussed above, are provided below.

“Within the team we would often just discuss it within the team, verbally, walk over to each other. If it is something small enough to sort out in a short time frame, if it is an emergency we would get together – sit around the table and discuss it. A lot is just talking to each other, if it is more a planning for a presentation or new work, or to discuss progress, then we would schedule a meeting over email and book a time to get together” – (1)

“The plan can be mentioned via email, but a person will just rock up to your desk and say something or link it with you; because you’re very personal with the person. You don’t need to make it so formal.”- (6)

“Barring a few exceptions here and there, I think we are all open and transparent. In our immediate team, I don’t think people are necessarily too scared to voice their opinions. There was a point in case earlier; but we challenge each other; we are open; we communicate regularly. We may not communicate efficiently, that’s the thing. We might not say to each other exactly what is required and by when. We have a light-hearted approach to communication; and there is nothing strict and fixed, you feel as if you are part of a family, if you want to call it that. I don’t know if that’s the right thing. – (2)

The views expressed by the interviewees are supported by the authors below.

Informal communication is a significant factor in project communication; and it should be actively planned for ((Nicholas and Steyn, 2012: 438). Furthermore, strong social bonds facilitate the sharing of information; and establishing transactive memory systems are important for project success (Gorse and Emmitt, 2007, Kozlowski and Ilgen, 2006: 85).

Face-to-face communication is perceived to be the most effective communication medium (Gorse and Emmitt, 2007: 1198). It is useful for avoiding misunderstandings; as people communicate largely through tone of voice and body language; and this is the most effective precursor to establishing good communication. (Daim et al., 2012: 203). Face-to-face communication methods are also responsible for the formation of transactive memory systems that are related to team performance and viability (Kozlowski and Ilgen, 2006: 85). However, when teams “engage in very high levels of face-face communication, project performance can be put in jeopardy” (Patrashkova-Volzdoska et al., 2003: 267).

4.3.2 Meetings

Many interviewees felt that regular and more formal meetings should be scheduled to discuss project matters in a forum, where issues could be raised, documented and acted upon. Some concern was raised that formal meetings without a clear agenda tend to drift off the topic and become ineffective. Meetings are also rushed, due to the time and cost implications, particularly when budget and programmes are tight. This is especially valid in the context of high-performance projects. It was suggested that formal meetings should be preceded by communication that allows the participants to be prepared and ready to engage. This would save time.

It was mentioned by one interviewee that the pressures of high-performance projects could cause members to forget to share critical information; because of the high number of demands placed on them. Alternatively, they might only share some of the information that they deemed the most critical – at the expense of the whole message. As such, meetings that have been planned, scheduled and budgeted for, could provide a significant platform for effective communication.

Informal meetings between groups and individuals were highly valued, as mentioned previously. None of the interviewees complained about time constraints with informal meetings. These interactions are not generally scheduled; and they depend on the relationships between members for their effectiveness.

Both formal and informal meetings shared a similar criticism in terms of documentation. The documentation of communication, i.e. the information shared, requests made, decisions taken, instructions given, or the resolution of conflict were seen as priority issues for some of the interviewees. This is a significant shortcoming in the existing communication practices, irrespective of whether the nature of the communication was formal or informal.

Quotes from the interviews, in support of the ideas discussed above, are provided below.

“I think people say that on bigger projects you have too many meetings and crap. I think we don't actually have enough meetings, technical meetings. It's all the project management and higher level stuff that we sit around talking about. We still do that but it's not formal. If you make it more formal, weekly meetings, quick, go around the table; say what your issues are. It works.” – (7)

“It does, it does. I'm just thinking when, sometimes you forget about communication, not all the time, not that you are forgetting about information or communication; but you leave out some parts of the information, which can be vital; but because you

have a deadline, or you know, it's at the back of your mind; because you're thinking oh, I need to finish this, or oh, this person needs to receive this; and then you forget you were supposed to do a, b and c, now you want to cut corners and go from a to g, but then forgetting that no, you are not the only one involved here. There are other people who also need to be aware of what's happening, or asking – how can we help?”-(6)

“One thing is time constraints; because often people feel that there is no time to communicate, no time to call a meeting, no time to just have a quick team discussion. I guess that's one thing.” – (8)

“I think basically what needs to come from it is if you have a meeting or informal discussion, or whatever the case is, or whatever your means of communication is, it needs to be documented; and there needs to be an action list produced with that. So, if there are no actions, it's fine but; if there are actions, there needs to be an action documented and a required date, due date, to be provided. I think that's the only way; because without out any documentation, you can't hold anyone accountable for what you requested. So, there has got to be a documentation phase in there; but it is just not done to be honest.” – (2)

The views expressed by the interviewees are supported by the authors below.

Frequent meetings were shown to correlate well with project performance (Kuprenas, 2000: 10); and this was something that team members often requested (Nidhra *et al.*, 2012: 21). This correlates well with the views expressed in the interviews.

Concerns about being prepared for meetings, managing time, and not recording important information about decisions etc., implies a lack of skill from within the team to manage meetings, thereby causing meetings to suffer (Lockwood, 2015: 125). Outputs from meetings should include records of what has been communicated, in the form of letters, memos or meeting minutes, and be tracked in some form of register. These tools should be included in the communication plan (PMI, 2008: 261).

Other important tools for recording information are: to issue logs to document and monitor the resolution of issues, change logs to document changes during the project, as well as performance reports, which consolidate the project's progress, issues and changes (PMI, 2008: 263-267). The logs and reports can be used to create an action plan, which stipulates who will be responsible for attending to the various matters arising from the meetings (Nicholas and Steyn, 2012: 440).

4.3.3 Electronic tools

Tools, such as emails and instant messaging (IM) have a significant role to play in communication within the project team.

Emails are effective at sharing information between team members, and for recording and confirming key information and any decisions taken. This serves to provide a digital record of project communication. The interviewees did express concern about the interpretation of emails; and they felt that emails should be accompanied by verbal or face-to-face methods, where the misinterpretation of emails could be a problem. On the other hand, some interviewees considered email communication to be superior to face-to-face communication in high-pressure situations, or in situations, where important decisions need to be made.

They felt that emails could give them an opportunity to first think through their response and structure it in a logical way. It also allowed them time to cool down, before responding in times of conflict.

Another concern about email communication that was raised in the interviews was that email communication poses challenges in terms of the filing and retrieving of information that has been sent. The volume of email communication contributes to these concerns. One team member felt that emails tend to get lost very quickly; and they are not revisited, once opened. The timing of emails is thus important; since emails are not viewed as important at the time of reading – and they may even be forgotten.

Quotes from the interviews, in support of the ideas discussed above are provided below.

“...if it’s the type of information that needs to be referred to often or in the future, then email is the best. A digital copy can be saved of that. Often, with just a discussion, it doesn’t always get recorded correctly; and it can get lost. If you want something to have a longer future, then email is definitely the way to go.” – (3)

“Something that people often don’t think about is the wording of emails. I’ve seen emails get interpreted completely wrong. Someone didn’t mean it; and then it gets replied back in another email. In the same manner, or taken completely in the wrong way. If there is a breakdown, it does affect the team and the project.” - (8)

“I think that everyone would agree we spend way too much time these days on emails; and if you are out of the office for one day, you could have 50 emails waiting for you; and if you are away for a week, or take a week’s leave, you come back to 200 or 300 emails that need to be responded to. If you really go through it you will find that probably a small percentage is important stuff; the rest of the stuff has just

been passed on, or could have been dealt with – without necessarily sharing the information.” – (1)

Instant messaging was deemed to be effective in certain circumstance, for keeping people informed, for the sharing of site information, or for contacting people, who were not available in the office. Many of the interviewees expressed concern that it was too informal, as a project-communication tool; and this blurred the lines between personal and project communication. The blurring of the lines was a significant concern to interviewees, who valued the separation of project and business communication. The storage or recording of instant messages also posed a problem for one of the project leaders.

Quotes from the interviews, in support of the ideas discussed above are provided below.

“We have used Whatsapp to send a photo if we are on site. We use it mainly when we are on site. Whatsapp is very convenient on site; because to send a photo with a quick description and question is so easy.” – (8)

“We are flexible, I don’t like to use Whatsapp for work-related stuff. I feel it is for more personal things, I prefer sms’s; but I will always respond.” – (1)

“We do use that; so, if certain team members are not in the office; and we need to make contact with them, we will quite often Whatsapp them to find out where they are, or where the information is stored, how far they are. So, Whatsapp is used; but again, how does that information get documented formally, you know? It’s a concern I think.” – (2)

The views expressed by the interviewees are supported by the authors below.

Cunningham (2014a: 203) identified email communication, as having the following specific benefits:

- Speed of use;
- Random access to messages or parts of messages;
- Fewer apparent status differences than in face-to-face communication; and
- Reduction of selective attention bias.

An increased frequency of emails was shown to reduce productivity (Patrashkova-Volzdoska et al., 2003: 263); and it can lead to misunderstandings, which erode team communication and productivity (Daim et al., 2012: 203). Other disadvantages of email include (Cunningham, 2014a: 203):

- Information overload;
- Reduction of politeness and respect for others;
- Difficulty in the interpretation of the emotional meaning of messages;
- Lacks the warmth of human interaction;
- Time wastage from spam or junk mail; and
- Low levels of trust for and difficulties in reaching an agreement.

The views of the interviewees regarding the use, benefits and concerns of email communication are thus supported by the literature described above.

Instant messaging tools, such as Whatsapp, are a form of communication that effectively covers synchronous (real-time) and asynchronous (delayed) communication, where team members may be either remotely or collocated (Gorse and Emmitt, 2007: 1197). Instant messaging tools, such as Whatsapp, are especially useful for remote, real-time communication (Otter and Emmitt, 2007: 411).

4.3.4 Electronic file sharing and storage

The use of cloud-based file-sharing platforms, such as Dropbox, was mentioned by some of the interviewees; but there were mixed responses to its efficacy. The interviewees seemed to be confused about its use – with some claiming it was not allowed – and others using it on a regular basis, and some having poor results with it. The majority of those interviewed did not actively use cloud-based storage and filing systems.

The company server and intranet were, however, mentioned as a repository for project information; and they provided access to all important documents and files – provided they were correctly filed.

Quotes from the interviews, in support of the ideas discussed above, are provided below.

“Yes there is, everything is in a project folder, all the info is there. Could be very confusing at times; because of the way people give drawings and things names. There is a central point where we can find all our information. I think some of the guys use Dropbox. I have used Dropbox once or twice. I’m not sure about anything else. Because what happens if they are working on a drawing with Cape Town, or whatever; then I have no idea where to get the info from” – (9)

“The only other thing we use sometimes is Dropbox; but it’s not really a communicating technique, more for sharing large files. Our system seems to work. I think it depends on the person using it. The system is fine; we just have to use it;

and use it correctly. Make sure the things we have planned are actually done. I'm not that innovative when it comes to that sort of thing." - (5)

"Dropbox! No we are not actually allowed to use Dropbox. We, basically, use emails or hand delivery. Those are the two main things." – (6)

The views expressed by the interviewees are supported by the authors below.

Effective communication tools must cover both synchronous (real-time) and asynchronous (delayed) communication; where the team members may be either remotely or collocated (Gorse and Emmitt, 2007: 1197). Project Management Information systems are a way of managing this communication; and they are defined as systems for collecting, organizing, sorting, processing, and disseminating information (Nicholas and Steyn, 2012: 443).

Practical examples of PMIS for project teams include online or network software (Nicholas and Steyn, 2012: 443).

4.3.5 Resolution of sub-question 3

A number of interviewees stated that the communication tools used by the project team were ultimately effective; and that they were satisfied with them. The effectiveness of the tools provided and the overall effectiveness of the team communication lay with the group members themselves, their communication skills, their motivation, and the amount of buy-in to the communication process.

Quotes from the interviews, in support of the ideas discussed above, are provided below.

"May be something else could be even level of motivation. May be sometimes people don't want to; they just feel like I'm going to do this; but I'm not really bothered anymore about deadlines or whatever the case may be. Ja, motivation as well; people just don't feel the want or need to communicate anymore." – (8)

"I would say it fails because of the people, not because of the system. Some people just don't communicate well. Some people just don't want to. Some people just don't respond to emails. It's a personal thing – whether the communication works well, or not. To manage that from a project-management perspective is the difficult part." – (5)

"I think there are tools and strategies that have been put into place; but it's just that people use them differently; or they don't use them at all. Then, with all these tools, there is still no real integration or improvement in the overall communication. The

same problems still come up – despite all the communication tools we have. There is an avoidance of getting up and talking to somebody. – (4)

The views expressed by the interviewees are supported by the authors below.

There are numerous communication-tool options for project teams both collocated and remotely located; and each of these has its uses and advantages. It was concluded that organisations should (Thissen et al., 2007: 7):

- Allow teams to choose their own communication tools;
- Insist on frequent communication among all the members, including interactions, such as telephone, chat and web conferencing; and
- Provide shared file storage to facilitate team interaction.

Good internal communication practices can improve employee engagement (Yates, 2006: 71). The most significant strategies to improve internal communication practices are to use employee input, and to integrate total rewards, and to give employees an insight into how the business is run (Yates, 2006: 75).

4.4 What factors affect the communication between team members in a high-performance project team?

This section of the research explored inter-personal communication in high-performance teams at Aurecon. All the interviewees agreed that the communication skills of members in their teams had, at some stage, impacted negatively on project performance; and they could be improved. Furthermore, interviewees who felt that their own communication skills were lacking; and even those who perceived that they had good communication skills; believed that they could benefit from improving their own skills.

Overall, five themes were identified as affecting the communication between the project members, namely:

- Project roles;
- A focus on costs;
- Gender, language and culture;
- Personal communication skills; and
- Trust and relationships.

The themes listed above are described in detail below.

4.4.1 Project Roles

From the interviews, it was clear that to deduce that the roles of the team members within the project had a significant effect on how they perceived communication in the project. Team members felt that leaders should set the tone and lead by example. Leaders held that team members should use their initiative and take ownership of the communication processes. As a number of the interviewees had dual roles, this was seen to be potentially confusing, especially if the individuals concerned had not had previous experience in the roles, in which they were now required to function.

Team leaders were typically expected to facilitate communications across all of the stakeholders. This would include giving instructions, clarifying information, formal reporting, chairing meetings, writing emails/letters, and resolving any conflict. In contrast, team members limited their communication acts to requesting information, providing feedback and resolving technical issues. Team leaders were thus expected to function at much higher communication levels; and they need a variety of skills, in order to perform their duties properly.

Quotes from the interviews, in support of the ideas discussed above, are provided below.

“Look, that’s my job, I just put in all my requests to the project leader; and they deal with everyone.” – (7)

“My role would generally be to make sure that the client is happy, I am more client-engaging; and it is important for me that his expectations are being met. Also, that the financial side is being managed, both internally and that invoices and fees to the client are being handled well; and I am there to answer any questions. To make sure that the team is busy, and making sure the deliverables are in line, that they have sufficient information. Answering any queries from the staff and guiding them, so that the work gets done.” - (1)

“It is the role of project leader, co-ordinating the team, finances, client liaison, and then also acting as the engineer on the project, once it goes out to construction.” – (2)

“I’ve got quite a few varying projects at the moment; so it’s different. On the stormwater-maintenance project that I’m doing, I’m leading the project. I have to communicate with all the different parties, make sure all the meetings happen when they should, that type of thing. On the other projects, I’m designing and drawing. I’m the last stop on those projects. I only communicate upwards on those.” – (3)

The views expressed by the interviewees are supported by the authors below.

The project environment comprises individuals with varying roles; and the nature of these roles may cause them to have perceptual differences; and this makes it difficult to get effective knowledge-sharing practices, of which internal communication is a part (Ghobadi and Mathiassen, 2016: 2, Kozlowski and Ilgen, 2006: 85). Project managers are required to communicate the desired goals and values of the team (Ammeter and Dukerich, 2015: 5); to use their communication skills to influence team members (Ziek and Anderson, 2015: 789); and to keep all the stakeholders informed (PMI, 2008: 243). It is thus the burden of the project manager to communicate the “right stuff to all, at the right time, to the right people, in the right way” (Ziek and Anderson, 2015: 797).

In contrast, project team members become increasingly specialized in their particular problem areas and project assignments, resulting in greater role differentiation; and they have less overall interaction with the project group (Katz, 1982: 84). The majority of communication at this level would thus be task-oriented.

There is thus evidence that individual roles play a part in how team members contribute to team communication.

4.4.2 A focus on costs

A consistent theme when addressing quality communication practices in the interviews, was that of budgets. The interviewees identified the project environment as having a predominant focus on costs. This leads to meetings being hurried or cancelled, rushing the planning process, and to creating an environment that is not conducive to building the relationships required for effective communication.

Quotes from the interviews, in support of the ideas discussed above, are provided below.

“I think so, again it comes down to this limited budget, limited resources. I think the better we can communicate, the better the project will go, it goes without saying. It’s just coming up with a tool to do that. It is something that mustn’t be onerous. It has got to be something that is streamlined, but effective. It needs to be bare bones, but effective.” – (2)

“Someone noted down, I think it was Dan or someone else in the office - that yes; it is a business; at the end of the day, we try to make money. We think too much about making money; so that we forget about the small things; that it’s interaction at the end of the day. You need to be able to speak to these people in a good manner, to be able to laugh with these people, to be able to invite them to stuff; but if that core relationship is never built at the start, you can forget about winning work, you must forget about winning projects, or building, or having successful projects; because we don’t have relationships.” – (6)

The views expressed by the interviewees are supported by the authors below.

Project performance has been strongly linked to the quality of project communication (Johns, 1995: 36, Zhang et al., 2014: 14); and quality is one of the traditional success criteria for projects, along with cost and time (Atkinson, 1999: 338). The relationship between the three success criteria, is such that a disproportionate focus on any one of these issues could negatively affect the others (Nicholas and Steyn, 2012). Improved internal communication, through better planning, has been linked to improved project performance (Frank Cervone, 2014: 74) and improving bottom-line results (Yates, 2006: 77). Project teams do, however, have to balance the relationships between cost, quality and time (Atkinson, 1999: 338).

4.4.3 Gender, language and cultural differences

Gender, language and cultural differences were identified as having negative effects on the communication in project teams. This was despite team members being considerate and accommodating of these issues. Each of these constraints affects the ability of various

individuals to communicate in an optimal way in the project setting. During the interviews, it was apparent that culture and language were strongly connected; as also were gender and culture. Language differences appear to be the most dominant of the three barriers. Two of the interviewees were especially critical of the use of the Afrikaans language, as a medium of informal communication in the team setting. It was considered to be extremely exclusionary, although it was not used with the intention of excluding people.

A second concern with regard to Afrikaans was that certain individuals were significantly constrained in their ability to communicate formally in English; because they had experienced limited exposure to English during school and tertiary education, i.e. all formal education had been received in Afrikaans. This was surprising; as many other second-language English-speaking groups could also be at a disadvantage; when it comes to formal project communications; yet, this issue was not highlighted in the answers to the interview questions.

Quotes from the interviews, in support of the ideas discussed above, are provided below.

“Yes, language, people speak Afrikaans. Some words I can understand; but then sometimes I don’t even grasp what people were talking about. The funny thing is they realise they are speaking in Afrikaans; and then they divert back to English; and then they go back to Afrikaans and go back to English. It becomes a problem – especially when a decision needs to be made, or when something vital to a project is being discussed; but you couldn’t be part of it; since you couldn’t fully understand what was going on.” – (6)

“I think we find that the indigenous African staff would have been educated in English; so, they would have had a basic requirement met. I wouldn’t say it is perfect, but I find fewer problems there. My concerns, I would say, are because it is more Afrikaans students, who were educated in Afrikaans, and potentially in English, as well; but it is just their heritage; they don’t speak the language much, they can get by; but when you have to write, it is different from speaking. When talking, you can understand; but when you have to write it – it stands out clearly, and the message can sometimes even be wrong.” – (1)

The cultural theme was observed to link to gender issues. This applied, in particular, to traditional African cultures. One interviewee described that the role of women was to be subservient; and that men were not required to take instructions from them. The project environment could thus be compromised; if women are effectively not allowed to engage in deliberations; or they had to modify their communication behaviour, in order to work around

cultural differences. Another interviewee noticed that women tend to get treated differently, when communication takes place: sometimes for the better; and sometimes for the worse.

Quotes from the interviews, in support of the ideas discussed above, are provided below.

“Then, I think there might be a gender issue to where perhaps a female would feel that she can’t voice her opinion strongly; as she would want to against a male counterpart.” - MV

“With my culture, specifically I know, when an elder person, especially males, you can’t speak back to males. You want to pass a message; but it’s difficult to direct them to do anything; because they look at you; and first of all, you’re a woman; and you are not supposed to be speaking to me in that way; secondly, I have the last say. Half of the time they don’t even listen; you are a woman; and you are not supposed to be directing; so, it does become a problem. Sometimes, I feel that, I have been to some meeting; where mostly there are guys; but there are some females. Half the time, I realised that I didn’t hear anything from a female. All I heard were men talking” – (6)

“Yes, I think language definitely, cultural I would say too much, gender yes, also, well I have seen how there is a difference in the way people would approach a woman in communicating, as opposed to other guys. Sometimes, it’s better; and sometimes, it’s worse. It depends on the situation. It’s almost like culture and gender become mixed, when it comes to communication.” - (8)

“In a meeting, or in a discussion setting, language does put a lot of strain on the discussion; if the person cannot express exactly what s/he wants to say. With technical language we do not have a problem; but there is a bit of strain on communication, due to different first languages.” – (4)

The overall tone around these differences was that they should not interfere with communications; and that the teams were proactive in being inclusive and tolerant of differences.

The views expressed by the interviewees are supported by the authors below.

Cultural differences may manifest in the way that different groups express themselves; or how they approach decision-making (Yasser and Rashad, 2013: 126). Traditional African cultures, for example, are often described as patriarchal in nature, and being at odds with

gender equality (Morrell et al., 2012: 17). Ultimately, ineffective communication can result in diverging group dynamics, based on cultural barriers (Yasser and Rashad, 2013: 126).

Language barriers, such as not being fluent, make it difficult for people to express themselves in an understandable manner, affecting how others value their opinions (Brett et al., 2006: 84-91). Explaining their point of view in their native language leads to additional problems; therefore, people cannot share information, unless they share a common language (Nidhra et al., 2012: 21).

4.4.4 Personal factors

The interviewees attributed successful acts of communication to personal characteristics, such as honesty and sincerity, manifesting in openness. The interviewees expect that team members would prefer to communicate face-to-face, requiring good listening skills, as well as the ability to express themselves concisely. Some team members were said to waffle. This had a negative impact on team performance. It was also recorded that some staff would enter conversations with inflexible, pre-conceived views.

Based on a number of responses from the interviewees, it was clear that team members should be flexible in their communication approach, when dealing with each other. It was identified that individuals had various strengths and weaknesses, when it came to communication. The team should be aware of each other's strengths and weaknesses; and they should also be aware of the communication preferences of individuals. As an example, many interviewees indicated that they would prefer face-to-face communication; whereas a few interviewees preferred to communicate via email, and not have face-to-face encounters. Some members preferred to write letters and emails, as opposed to those who preferred to make use of telephone calls.

The interviewees all valued an open-door approach to communication within the team environment. To maintain this environment, group members must be willing to make themselves available for communication; and they must be responsive and engaged. Ultimately, good interpersonal relationships are required to maintain the levels of communication required for successful projects. These relationships rely on effective interpersonal communication skills to build and maintain them.

Quotes from the interviews, in support of the ideas discussed above, are provided below.

“Starting at things, like disc profiles, or strength finders to identify the different personality types. We need to work on the soft skills; since we tend to avoid a lot of

the times. Gaining an in-depth understanding of the peoples' personality; and how they prefer to communicate.” – (5)

“Definitely yes, just a different personality type can force you to come out of your shell, and to become more interactive. Especially in a very small team, one or two people can make a very big difference.” – (4)

“Not in my team; but some people drive their opinion through and drown out everyone else. No-one gets a word in; there are people like that; and at the end of the day, you think: ‘What the hell; just leave it.’” - (1)

I am not against that, there might be improvements, myself included, I could improve my communication, maybe often why I say there is not communication is because I have not set the tone correctly, I do that sort of thing. A person can always improve, but I wouldn't necessarily say that to come up with an alternative is necessarily an answer. It is a way of life, communication that needs to be taught, the way you go about it, and perhaps there could be specific project-communication improvement that I don't know of; and, this would then be open to look at. Not another procedure, it must just be a better way – (1)

“Perhaps something else could be an even better level of motivation. Maybe sometimes people don't want to, they just feel like I'm going to do this, I'm not really bothered anymore about deadlines, or whatever the case may be. Ja, motivation as well; people just don't feel the want or need to communicate anymore.” – (8)

“So it's also trying to sort out what the motivation is and to get that personal thing going, if you can. What would make them respond or build that bridge that's been burnt previously? Sometimes, its personal issues, disliking someone, it all comes down to the person; you can put in any system you like.” – (5)

“I think that often people aren't that motivated to communicate. Some people may need a bit more encouragement to get on the wagon, and to come together. “- (3)

“I think we need to have an open-door policy. It mustn't be taken advantage of; but there definitely needs to be an openness; and people need to be free to express themselves and their opinions.” – (1)

The views expressed by the interviewees are supported by the authors below.

Communication is defined as the effective transmission of information (Barker, 2010: 1), or as the process by which information is exchanged and understood by two or more people,

usually with the intent to motivate or influence behaviour (Cunningham, 2014a: 188). Communication between parties can, however, be affected by barriers, such as poor language skills (Nidhra et al., 2012: 21), differences in perception, insecurity, or a general lack of knowledge (Carvalho, 2008) Additionally, communication may fail – due to context, relationships and behaviour (Barker, 2010: 25-31).

The abovementioned topics are areas where individuals or groups could work to improve their relationships through structured programs or personal development plans (Butorac, 2006).

Various strategies exist to improve interpersonal communication; and the following seven steps to improve interpersonal communication have been suggested (Barker, 2010: 35):

- Clarify the objectives;
- Structure one's thinking;
- Manage time better;
- Find common ground;
- Move beyond arguments;
- Summarize often; and
- Use visuals.

4.4.5 Trust and relationship

Trust and relationship come across as dominant themes in the success of communication between team members; and then, in turn, project performance. Social relationships were seen to have a host of positive benefits; but they did not necessarily guarantee effective project communication.

The benefits of good relationships are that team members are not afraid to communicate with each other; and they are thus, willing to engage in communication. Relationships provide an insight into each other's strengths and weaknesses, which can either be capitalised on in the case of strengths, or accommodated in the case of weaknesses. The net benefit is that teams would be able to work better if they were aware of these factors.

The degree to which team members are able to socialise was identified as being an important, but not a critical factor; as professional relationships could have the same benefit as strong social relationships – provided that they are still based on trust. Trust was, however, based on experiences with the other team members; and it was strong in teams that had remained close and intact for an extended period.

Furthermore, good relationships seem to create an expectation between members in terms of performance and accountability. Thus, in order to maintain these relationships, team members should give more of themselves at critical times. Good relationships may even overcome shortcomings in communication; as team members would compensate for a lack of communication, based on their knowledge of how the other team members work, or what their expectations might be. It was expressed that teams who had good relationships, or who had worked together before, were able to perform with less planning inputs; as they tended to know what to do, and how to get the best out of each other.

The negative side to social bonds is that teams can become internally focused, rather than adjusting to the broader project environment outside their small team. This creates tension when working with other groups; and it limits the ability to capitalise on expertise outside the group. Furthermore, strong social bonds may cause team members to modify their behaviour, in order to preserve relationships at the expense of project success. As an example, members who are friendly at a social level might not confront each other in times of conflict; or they might not expose each other's failures at a project level; since team harmony is very important.

Relationships thus tend to be abused if members intentionally leverage on this harmony aspect; or if they manipulate others to pick up the slack when they are not performing as they should.

Quotes from the interviews, in support of the ideas discussed above, are provided below.

"I think trust is a very big thing. If you have got trust and people are accountable for their actions, which is when things will work smoothly. So just not keeping tabs on everybody all the time, that not, we are not teachers looking after children." – (2)

"You want to have good relationships; but you still want to achieve. You don't want the boss vs employee relationship. That relationship also isn't nice sometimes; but there has to be a culture of doing things right. Maybe, if you are too relaxed about things going right; it could be a problem. That's where, at the start of the project, you have to communicate what the important things are; and be strict about certain things; or else, they will escalate and become a problem." – (5)

If you don't trust a person; you will not by nature be as open to them as you could be. You might not be as honest you would like to be in terms of how you want to communicate to them. You might say, flip, I have been thrown in the deep end. I don't know how to do this; I don't trust this person. They are going to make me feel

bad; or they are going to put me down; so I'll then not talk to them. I think trust does play a part.” - (2)

“It helps that in our office our team is pretty close-knit; and everybody knows each other inside and outside the office. It makes communication very easy most of the time. I think in an office where people aren't as social with each other, it might be more difficult.” – (3)

“The biggest need is to move away from instructions to a conversational setting. A lot of the communication that we use is because of underlying frustrations. If you communicate better, the relationships would be better; and if you had better relationships, the communication would be better. The first thing to building better, trusting relationship that enables communication is to improve the communication.” – (4)

“We are able to communicate; because we trust each other. I can't speak for the whole office; because that's where there is a big problem. That's another thing; we are too much in teams; and it's become Aurecon PE1, Aurecon PE 2, and Aurecon PE3. I don't know what the heck is happening at the other side. I wouldn't entrust them with anything; even though we are an office; because I don't know them. We don't really hang around. We just see them once in a while. You don't know what's happening. You only know what's happening in your own space. That's when it becomes difficult to trust and to give work or stuff like that.” - (6)

I think it largely depends on who is in the team. If you have got a person, who puts a lot of trust in you, you need to reciprocate that and deliver on that expectation. Relationship is very important; relationship is key.” – (2)

“It can also be a bad thing; because now perhaps you don't want to confront a person; because they are your friend. You don't want to cause any bad issues; so, you tend to go around and communicate in a much less-direct way, in order to get things done. Because if I say it one way; it might affect the relationship. Sometimes, I almost feel obliged to do something; because I don't want to let them down. It can also be bad sometimes. You also think maybe it's something you don't want to do; or maybe they are passing on their responsibility to you. You do it; because you don't want to let your friends down.” – (8)

“I value that in our team we can really talk about whatever; and we can disagree without it being an issue. I like it that we have a sort of open way of talking about

stuff, and saying what you feel and giving your opinion. I like the open relationship between the boss and staff. It's a very nice way of communicating for our team. It works well for our team. I think we have good relationships; we have a nice team; we work well together; and we communicate well. We get on well, which helps. I think everyone on this team gets on well; so that makes a huge difference. It makes work a lot better and nicer.” - (5)

The views expressed by the interviewees are supported by the authors below.

One function of project communication is that of building social bonds (Ammeter and Dukerich, 2015: 5) and project communication is, in turn, strongly influenced by interpersonal relationships (Ziek and Anderson, 2015: 792). This is because relationships stimulate high levels of socio-emotional interaction (relational), which are required to communicate effectively, share task-based information and build effective transactive-memory systems between group members (Gorse and Emmitt, 2007: 1197-1210, Kozlowski and Ilgen, 2006: 85).

These transactive-memory systems are important; because individual project team members may have unique knowledge that is not common to the team, i.e. one team member may know in general what another member knows in detail. By drawing on the collective knowledge of the team the team, they may experience success (Kozlowski and Ilgen, 2006: 116).

The strongest transactive systems are formed by groups that had trained together, and have close relationships (Kozlowski and Ilgen, 2006: 85, Gorse and Emmitt, 2007: 1210).

Trust is widely supported, as an important requirement for good performance in teams (Boies et al., 2015: 1080); and there is a strong relationship between trust and sharing information (Ghobadi and Mathiassen, 2016). Trust also affects conflict resolution and team integration (Akgün *et al.*, 2015). On the other hand, an absence of trust can ultimately translate into a lack of accountability and inattention to project results (Lencioni, 2002).

The dynamics of a trusting team include the mature admission of mistakes and weaknesses and the acceptance of feedback and advice, appreciation of the skills and potential of others, focusing time and energy on work-related matters, apologising and accepting apologies and taking advantage of opportunities to get to know the team better (Potgieter, 2014).

The concept of trust and relationship being important to project teams is thus well supported.

4.4.6 Resolution of sub-question 4

This section focuses on the factors that affect interpersonal communication in project teams. Overall, it was found that there were many ways in which the communication process could be interrupted, thereby leading to an overall drop in the quality of communication. In particular, the interviewees identified that language and culture could be significant barriers to communication in their project environment.

Significantly, the way in which members communicate was linked to their role in the team, relationships with other team members, as well as their own level of communication skill.

4.5 What changes to existing communication planning could improve project team performance?

In considering the various themes coming forward through the interview process, a group of questions were posed to identify how communication planning can be modified to improve project-team performance. This section of the research was aimed at obtaining suggestions on improvement from the team members themselves, based on their own needs and preferences. The most important improvements suggested by the interviewees are summarized in the five themes listed below:

- Planning for internal communication needs;
- Providing personal development opportunities;
- Documentation of project communication;
- Clarification of roles and responsibilities;
- Allowing time for socialization.

Many of the themes listed above have been identified in previous sections; and they are further discussed below.

4.5.1 Planning for internal communication needs

The most significant theme when addressing improvements was that teams should actively plan for the internal communication needs of team members. This should preferably not be done in isolation by the team leader, but collaboratively and with the communication needs of the internal stakeholders of the team being clearly identified. Both formal and informal communication methods should be planned, scheduled and budgeted for, as parts of the project. The benefit of including the internal stakeholders in the planning process is that it creates a sense of ownership; and this should then contribute to the overall performance; since the team members have a vested interest in the success of the project.

Quotes from the interviews, in support of the ideas discussed above, are provided below.

“The communicating is not an issue. We communicate, we say what we have to say, we do what has to be done; but it’s following a process, that’s what’s missing.” – (2)

“Yes, definitely, it needs to be improved. If I think about it, in a scenario where I’m working with others; it would be best to formalise the communication, so that I don’t get skipped in a talk, in the process.” – (8)

“This is something that can be improved. I’m all for proper communication on projects. I think it’s essential and vital to the project. The fact that I’m not aware of project communication plans doesn’t bode well. I have been here long enough that I should be aware of these things and the fact that I’m not is poor. There is scope for improvement.” – (3)

“Yes, that brings me back to an earlier thing I said, where we are often excluded at the early stages; and that’s where that planning should take place. We should be included and say: what do we need? Who needs what? Then that person knows. Because they don’t do it properly in the beginning, they have problems later.” – (7)

“I think with my team at the moment, I don’t have a problem. I think they value my input. But maybe higher up the ladder, the people don’t feel valued. They understand they need my input to do things. I think from higher up the level, that’s an issue, you get excluded when you should be included.” – (7)

“I know they feel actually appreciated or part of the project, when you actually include them as if they were a stakeholder. Involving someone makes them a stakeholder; and not just someone who is doing the designs. It makes the project more personal; and you would assume that they would have more of a vested interest in the work. I think it’s important actually to make someone a stakeholder – even if they are only that in a lesser role. Obviously, we hope that the more you’re included in the project, the better you feel about the project; you’re part of it and all that. I know they have complained before that project management just does their own thing; and then design does their own thing; and they don’t know what’s going on and all that. It’s a good point actually – to make sure your own people see themselves as stakeholders.” - (5)

The views expressed by the interviewees are supported by the authors below.

It has been found that formal communication plans, although not frequent in practice, do facilitate the communication process (Carvalho, 2008: 1282). Planning should be inclusive, by taking into account the views of the team members, in order to avoid perceptual

differences and negative attitudes towards the project (Burke, 2013: 323, Ghobadi and Mathiassen, 2016: 9).

4.5.2 Planning for personal development

The second area of planning, which should be addressed, is the evaluation of the communication skills in the project team. As communication is linked to performance; it may be considered to be a quality issue; and therefore, it needs to be addressed as such. Project leaders who identify that teams need interventions or training in communication should allow for this as part of the overall planning of a project.

Quotes from the interviews, in support of the ideas discussed above are provided below.

“I am not against that, there might be improvements, myself included, I could improve my communication, and maybe often why I say there is not communication is because I have not set the tone correctly, I do that sort of thing. A person can always improve, but I wouldn’t necessarily say that to come up with an alternative is necessarily an answer. It is a way of life, communication that needs to be taught, the way you go about it, and perhaps there can be specific project-communication improvement that I don’t know of, and would be open to look at. Not another procedure, it must just be a better way.” – (1)

“I think one of the main things with our director is being very unclear in communicating what he wants or needs. I have actually tried to schedule a meeting with HR to give training on interpersonal skills.” – (4)

“That is one thing that I think; and we have thought of how we could send some of our staff that we do feel lack just the language skills to maybe do a course, or some internal course, or something just to improve their skills. It is difficult and time-consuming.” – (1)

The views expressed by the interviewees are supported by the authors below.

Communication between parties can be affected by barriers, such as poor language skills (Nidhra et al., 2012: 21), differences in perception, or just a general lack of knowledge (Carvalho, 2008). Additionally, communication may fail due to context, relationships and behaviour (Barker, 2010: 25-31).

The abovementioned topics are areas where individual or groups could work to improve through structured programs or personal development plans (Butorac, 2006: 5).

4.5.3 Documentation

The third theme is planning and implementing effective systems for documenting and following up on any information required, decisions taken and discussions had. This was identified as being very important to project delivery, and a significant shortcoming of the existing planning. These systems would ultimately provide reassurance and prevent confusion on projects, as well as holding individuals accountable.

Quotes from the interviews, in support of the ideas discussed above, are provided below.

“So that is one thing, and in general, I think communications skills in the team are generally fairly good, except for some language things, and maybe just recording documentation, and logging communication, making sure that what has happened and has been communicated, is there for easy reference, if you need to go back in the future, because of project requirements or whatever.” – (1)

“The actual act of communicating, I think I communicate quite well, I try to put it in simple terms that people can understand. So, I think the act of communicating is fine. It might be my follow-up recording of that information that is not up to scratch and needs to be worked on.” – (2)

The views expressed by the interviewees are supported by the authors below.

Guidelines for the recording of project information include keeping records of what has been communicated in the form of letters, memos or meeting minutes. Other important tools for recording information are an issue log to document and monitor the resolution of issues, a change log to document changes during the project, as well as performance reports, which consolidate project progress, issues and changes. These tools collectively can form part of an action plan, which would detail who is responsible for dealing with the various issues (Nicholas and Steyn, 2012: 440). These strategies should be detailed and included in the communication plan (PMI, 2008: 261-267).

4.5.4 Clarifying roles and responsibilities

Project-communication planning needs to address the specific communication roles and responsibilities of the team members, with the expectations being explicitly stated. This is in contrast to providing a basic organogram, which only shows the project hierarchy and can be inaccurate and misleading. Members within the project teams may have different expectations in terms of the communication requirements.

Quotes from the interviews, in support of the ideas discussed above, are provided below.

“As it goes along, you quickly realise who the people are that need to be asked certain things or not. You might not always know that from the beginning. The project leader on one project is a certain person; but he is not the one making the decisions. Sometimes, you don’t know that before the time.” – (5)

“We need to know who all the parties are that are involved in the project. How regularly does the client need to be involved; how regularly does the contractor need to be involved? How often does the project team within our organisation need to meet? Not everyone is needed at every meeting. We need to specify each person’s role in the project; and I suppose, put out a schedule for formal communication in the beginning.” – (3)

“So, that was why I was referring to the schedule; since the schedule is the basic thing. It is referring to the primary things in the sense of communication, that deliverables be met, between the client, minutes that were held, recording of minutes, meetings held or whatever, so from the team I would be happy if I get less information; but the deliverables must be met. So, I would almost go as far as to say it has to do with the competence of the team; whether they can do it on their own; they should know when they can run with something and make a decision without having to consult me, as well as resolving issues themselves; and then, they communicate to me what is required; so that I can perform the work and hand the deliverables over to the client. So from the team, it would be better if they were able to deal with things on their own; but not out of their area of authority; so, basically it comes down to their competence and experience. What I require from the team, but often it doesn’t happen, is to know the full details of what is happening. When they don’t communicate with me – then I need to deal with the issues.” – (1)

“In terms of communication, I would say that it must be regular. They mustn’t hold back on something, if they are not sure. They must communicate regularly/frequently. They must be honest and transparent. If they don’t know, or they are uncertain, they need to tell you that. Where required, you can have open conversations. So, if it’s something that has to be documented, they need to do it in some formal way; whether it be an email or written. So, it must be open, transparent, and frequent and address what the requirements are. It mustn’t beat around the bush. Sometimes, people talk in circles to avoid the point. It needs to be direct and short.” – (2)

“I would expect that every day I would get an update on what we achieved today, what needs to be done. I think that would be great. That comes back to the

progress and so on. If someone is struggling with something; or there is a problem, I would like them to raise it, as soon as possible.” – (8)

“Just that they communicate continuously. That’s often a problem that people don’t communicate. It doesn’t really matter what you say, just always be communicating on stuff, whatever it is. Not only speaking every two weeks, and not realizing what has been happening. I find if people don’t communicate continuously, then there are always issues cropping up; and then, some of those issues become more difficult to handle. I would like someone to copy me in on an email; if he is emailing the client, so I know what he’s saying. If he’s talking to the client, be copied in, be notified what’s going on. Even with little things; so that everyone knows what’s going on.” – (5)

“If you are sitting in a situation; where you have got a subordinate working within a team, that person, if they believe they that they are right or need to have a team meeting, they need to call that meeting. It mustn’t come down to a more senior person. That senior person will be dealing with a lot of things; and perhaps not actually identify the need for meeting. It has got to be made very clear that every team member is an important part of that mechanism; and if they foresee a need for a meeting, or whatever the case is; they to bring it to your attention. If they believe their views oppose yours; they need to make it known; they can’t just keep it to themselves.” – (2)

The views expressed by the interviewees are supported by the authors below.

Project managers are required to communicate the desired goals and values of the team (Ammeter and Dukerich, 2015: 5), to use their communication skill to influence team members (Ziek and Anderson, 2015: 189), and to keep all the stakeholders informed (PMI, 2008: 243). Project members tend to focus on task-based communication; as team members become increasingly specialized in their particular problem areas and project assignments, resulting in greater role differentiation; and they then have less overall interaction with the project group (Katz, 1982: 85).

It is the burden of the project manager to communicate the right stuff at the right time to the right people, in the right way (Ziek and Anderson, 2015: 797). However, project leaders require information from their team members, in order to do this by means of feedback, which is an important function of project communication (Carvalho, 2008: 1280). To formalize the feedback process, the expectations in terms of communication roles and

responsibilities can be set out in a communication matrix, which is often the culmination of a project-communication plan (Nicholas and Steyn, 2012: 438).

4.5.5 Planning for socialization

Communication planning should consider the social needs and the existing relationships within the project environment. Teams with strong bonds may require different communication plans to those with weaker social bonds. A communication plan for the latter group might include socialisation activities, or more informal systems, in order for the team members to get to know each other.

Quotes from the interviews, in support of the ideas discussed above, are provided below.

“I would try to get to know the people. Personally, that’s been my approach, to get to know people better at a personal level, their history etc. By doing that, you can build a relationship and a level of trust in a way. Once that has been established, you can try and see how everyone works in a group and interact in a meeting. I don’t think elaborate outings are always needed. Friday afternoon drinks can help. Not everybody likes that; but it can help.” – (3)

“Ja, no definitely, I think that’s why we try to have a weekly little internal meeting, just to see each other, and talk about the project face-to-face, whatever. Even in a small office like this, a couple of days can go by; and I won’t see anyone from the other side. It’s better to plan that, rather than just expecting it to happen. It probably doesn’t happen as often as it should.” – (5)

“Definitely. How well do people get along on projects? I definitely think there are projects, where a better team spirit exists; and the teams perform better. When relationships start breaking down, the more reluctant people are to set up meetings, or get together. Keeping good relations and having regular contact is essential to the good running of the project.” – (3)

“Those things happen once in a while. They are not part of a project plan. We need to sit down and have a cup of coffee and build a relationship. Those are the last things on people’s minds. But for proper communication, that needs to be the first thing on their minds.” –(6)

The views expressed by the interviewees are supported by the authors below.

Project communication and relationships are closely linked; as one function of communication in the project environment is that of building social bonds (Ammeter and

Dukerich, 2015: 5); and in turn, project communication is strongly influenced by interpersonal relationships (Ziek and Anderson, 2015: 189). Relationships that improve communication can have direct, positive outcomes for project performance; since 95% of project problems are attributed to poor communication (Ramsing and Goodman, 2009, pg 345, Baker, 2007).

4.5.6 Resolution to sub-question 5

This section focuses on the way that communication planning could be improved. Overall, it was that the interviewees wanted project planning to take a holistic approach to project communication, taking into account their social, as well as task-based communication needs. Project planning could also be used as a strategic tool to improve the overall levels of communication skill within the organisation.

Basic issues, such as systems for documentation of important information, were also addressed.

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5 CHAPTER 5: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Research overview

The aim of this research project was to develop an understanding of how effective Aurecon's communication planning practices are at achieving the communication requirements of high-performance civil engineering projects. Project leaders and team members have in the past identified that failure in communication could be attributed to poor planning. This research has investigated and evaluated the effect of current communication-planning practices on the quality of communication in high-performance civil engineering teams at Aurecon; and this was accomplished by asking a series of research questions.

5.2 Achievement of the objectives

The following section presents a summary of the key research findings relating to the objectives stated at the beginning of the research process.

- Objective 1: To identify the communication needs of high-performance project teams.
- Objective 2: To identify how the current communication-planning methods address the communication needs of high-performance project teams.
- Objective 3: To identify the preferred communication tools for delivering the desired communication results between team members on high-performance project teams.
- Objective 4: To identify the factors that affect the quality of communication between team members on high-performance project teams.
- Objective 5: To identify changes to existing communication planning that could improve project-team performance?

5.2.1 Objective 1:

This objective aimed to identify the most significant needs that team members have with regard to communication in the project-team environment. The objective was met by posing a series of questions, designed to probe both the stated and the implied needs of the interviewees.

It was clear from the data that the communication needs of high-performance project teams could be separated into two main categories, namely: the communication process needs; and the communication environment needs of high-performance teams. Each category was composed of a number of themes.

5.2.1.1 Communication-processes needs

The research identified that project teams rely on communication for two processes. These processes are to share information and resolve issues. Sharing information includes feedback, updates, instructions and the dissemination of technical and non-technical information.

Resolving issues is strongly linked to taking decisions; and it is achieved by sharing information. Interviewees, especially those in a leadership position and in technical roles considered this as the primary function of communication in their project environment.

5.2.1.2 Communication-environment needs

In order for communication to be effective, the communication environment must be inclusive, open, built on relationships, as well as being efficient.

Communication must, therefore, include all the relevant stakeholders. It was clear that all the team members see themselves as stakeholders in the project. Furthermore, the communication environment must lend itself to open and honest communication, where the members are free to express themselves. This is only possible where the interpersonal relationships are sufficiently developed to allow this to take place; as relationships are strongly linked to trust. Finally, the communication processes must be efficient, well managed and sufficiently flexible to accommodate the changing project environments; and they must be tailored to individual preferences.

5.2.2 Objective 2:

This objective addressed the methods of communication planning currently used by team leaders, in order to meet the communication needs of the teams. In order to meet the objective, a series of questions on planning techniques and their effectiveness at meeting team-communication needs were posed. This resulted in two distinct categories emerging in

response to the questions, each with a number of themes. The first category identified the current-communication methods used. The second category addressed the current attitude towards communication planning.

5.2.2.1 Current communication-planning methods

The first theme in this category is that project communication planning relies on existing communication planning templates, in order to meet the minimum project-planning requirements. These templates focus on the project organogram, the contact details and a schedule of contractual-communication deliverables.

The second theme is that communication planning revolves around meeting the contractual-communication requirements of the project; and it focuses on the external project stakeholders. Little provision is made for the communication needs or expectations of project members, who view themselves as internal project stakeholders.

5.2.2.2 Attitudes towards planning

Project communication planning is viewed as a low priority activity because of the high likelihood of change; and because communication plans are not used on a day-to-day basis for the execution of the project.

Furthermore, communication plans do not significantly impact on the day-to-day communication processes with the team environment. This further devalues the planning process. To compound the issue, the team members recognised that they were excluded from the planning process; and that the plans focused on the needs of the external stakeholders only. The team leaders confirmed that they did not include the team members in the communication-planning process. Overall, this created a sense of negativity towards communication planning and a lower chance of buy-in.

Finally, the interviewees felt that any additional communication-planning processes that could be implemented, would probably meet with resistance – due to an unbalanced focus on time and budgets.

The combination of these factors described above limits the effectiveness of the existing communication planning.

5.2.3 Objective 3:

This objective explored the current and preferred communication tools used by civil engineering teams working on high-performance projects. The objective was met by asking the interviewees about the various communication acts in the team setting, and by asking questions about their preferred methods of communication. Four themes emerged.

5.2.3.1 The preferred communication styles for the project teams

The preferred and dominant communication method within the team setting is informal, face-to-face interactions between individuals, or groups.

5.2.3.2 Meetings

Meetings, both formal and informal, were identified as important communication tools. Regular meetings between members or groups should be formalised. Meetings should be allocated sufficient time and budget to allow for effective communication to take place. The outcomes or decisions made at these meetings should be recorded and followed up on.

5.2.3.3 Electronic tools

There is a preference for the use of email as an electronic-communication tool. The instant messaging tool, Whatsapp, is also occasionally used by the project teams. Email dominates with Whatsapp finding used in certain applications.

Email was described as having numerous benefits; but it also has a number of disadvantages. Email was especially criticised on two points. Firstly, the interpretation of emails could be problematic; and secondly, the volume of email communication produced could be overwhelming.

The instant messaging tool, Whatsapp messenger, was criticised for being too informal and possibly imposing on personal time. The recording of Whatsapp conversations was also highlighted as being potentially problematic.

5.2.3.4 Electronic-file sharing and storage

The cloud-based file sharing tool, Dropbox, was mentioned by some of the interviewees as an electronic-file sharing tool used by the teams. There were, however, mixed responses to its usefulness. The majority of those interviewed did not actively use cloud-based storage and filing systems. The company servers and intranet were, however, identified as the preferred storage place for information; and they provided access to all the important documents and files – provided they were correctly filed.

Overall, the interviewees were satisfied with the communication tools used by the project teams. The project-team members explained that the success of communication lay with the group members themselves – and not with the tools they were using.

5.2.4 Objective 4:

This objective addressed the factors that affect the communication between team members. The objective was met by posing questions about expectations, personal preferences and effective-communication practices.

The interviewees responded with a number of themes.

5.2.4.1 Project roles

The role of the individual within the team has a direct impact on how they communicate and on the expectation of communication from other team members. Team leaders were required to have advanced communication skills and to demonstrate attributes, such as leadership and co-ordination through communication. In addition, they were seen to carry more responsibility in the communication process because of their leadership role. Team members, on the other hand, tended to focus on technical or task-based communication.

5.2.4.2 A focus on cost

High-performance projects are constrained by limited budgets and time for the completion of the work. Consequently, there is a heavy focus on project budgets from the organisational management, resulting in a perceived pressure to reduce the time spent on non-essential project activities. Project teams are thus hesitant to spend time on detailed project planning and related activities – even though these may translate into improved project performance.

5.2.4.3 Gender, language and cultural differences

Gender, language and cultural barriers were found to have an effect on the quality of communication within the teams. There was a correlation between language and culture and between culture and gender. The interviewees and their teams actively try to cope with these barriers. Language barriers, especially the informal use of Afrikaans, was reported to pose a problem to certain groups – resulting in them not being able to participate in some of the discussions. Some second-language English-speaking members, because of their poor fluency, were limited in their contributions to formal meetings or correspondence. From a cultural point of view, the traditional African tradition of patriarchy was reported to impede the ability of women to effectively communicate in some situations.

5.2.4.4 Personal factors

The project teams value personal characteristics, such as honesty, sincerity and openness. Team members are expected to communicate face-to-face. This requires good listening skills, as well as the ability to express themselves concisely. Team members should communicate directly, and not enter conversations with inflexible or pre-conceived views.

Individuals should be flexible in their communication approach, when dealing with each other and other team members; and they should be aware of the communication preferences of others.

5.2.4.5 Trust and relationships

Trust and relationships play an important part in the communication process in the project teams; but these qualities did not necessarily guarantee effective project communication. Team members must not be afraid to communicate with each other.

Social relationships provide an insight into the strengths and weaknesses of each team member, allowing others to make accommodations for them. Trust is based on experience with team members; and it was strongest in teams that had remained close and intact for an extended period. Teams which had worked together before, were able to perform with less planning inputs; since they tended to know what to do, and how to get the best out of each other.

Long-standing teams can become internally focused. This creates tension, when working with other groups; and it limits their ability to capitalise on expertise outside the group.

5.2.5 Objective 5:

This objective addressed the changes to communication-planning practices that would improve project performance. The Interviewees were asked a number of questions about possible changes to the existing practices that would positively impact on team performance.

In meeting this objective, five significant themes were identified.

5.2.5.1 Planning for internal communication needs

Project managers should allow for the internal project-communication needs of their teams, as part of the project communication plan. This includes both formal and informal processes. Teams must be involved in the planning process, to ensure buy in.

5.2.5.2 Planning for personal development

Project managers should review the communication skills in their teams. Where there are deficiencies, they should plan for communication interventions to improve the quality of communication, and ultimately the chances of project success.

5.2.5.3 Documentation

The plan must include and explain the procedures for recording and following up on important project information stemming from communication activities that occur in the project from day-to-day.

5.2.5.4 Clarify roles and responsibilities

The communication roles, responsibilities and expectations of the various team members should be stated explicitly in the communication plan.

5.2.5.5 Planning for socialization

Project managers must critically evaluate the relationships within the team structures, and incorporate strategies into the communication plan that would build or maintain strong interpersonal relationships between the team members.

5.3 Limitations

The primary limitation to this study is the focus on a single project-based organisation in a much larger industry. Future studies should broaden the research to a wider number of organisations, who are working on high-performance projects in the Civil Engineering environment and outside it.

It is possible that certain interviewees perceived the interviews to be an evaluation of their own performance in terms of planning and project delivery. As a result, they might have answered questions in a way that does not cast their practices in a bad light.

5.4 General conclusions

The general conclusion from the research is that current communication-planning practices are not having any beneficial effect on the quality of internal communication in the project-team environment. The projects teams communicate intuitively on the basis of their communication preferences; and they rely on their interpersonal relationships to overcome any inadequacies in the planning practices. This could either result in effective communication in the team environment or poor communication, depending on factors, such as individual communication skills, relationships between members, or barriers to communication. Since teams on high-performance projects rely on effective communication practices, not planning for the required levels of communication, is an unnecessary risk to overall project performance.

Overall, it was determined that the project teams both desire and would benefit from improved communication-planning processes.

5.5 Recommendations

Strategic recommendations stemming from the preceding analyses were made to various stakeholders below:

Professional bodies

- Placing a priority on professional communication practices and interpersonal communication during the professional registration process would encourage candidates to develop these competencies in their training phase.

Tertiary institutions

- Tertiary institutions that train engineering professionals should include organisational behaviour and leadership as part of their curricula – in a way that promotes personal development. If the relevant skills are not available in the engineering department; then the department of industrial psychology should be approached, in order to develop a module specifically for the engineering students.

Organisational leadership

- Company leaders should include soft skills as a metric in the appointment of individuals in the project environment. High levels of emotional intelligence should be a requirement, when selecting team leaders or members, who will be required to communicate effectively in a broad range of circumstances. This would have a direct and positive influence on the level of communication within teams.
- Management should adopt strategies that allow team leaders to allocate resources to team members and personal development in the areas of project planning, communication and leadership. These strategies could include providing budgets for training, leadership identification and development, or reward systems, based on team performance.
- In addition, creating an environment that fosters relationships and trust would set the tone for project teams working on high-performance projects.

Project leadership

- Project leaders should take an inclusive view in the planning of projects; and they should specifically consider the needs of project members, who consider themselves to be internal stakeholders in the project environment.
- Project leadership should strive to set the tone of communications and be aware of the communication preferences and limitations of the group. They should be flexible and mindful in their approach to communication; as it relates to both the team and to individuals.
- Project leaders must give team members the authority; and enable these members to communicate their needs and provide inputs into communication activities and processes.

Project team members

- Team members must take ownership of communication practices and assert their views and needs within the team setting.

5.6 Future research

The current research focused on a very small cross-section of the project environment. Future research should broaden the research base to include multiple project-based organisations, in order to validate the observations and the conclusion from the study.

Additionally, future research may include developing and testing a project communication-planning strategy. The aim of this research would be to develop literature that specifically addresses the communication planning needs of high-performance project teams.

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APPENDIX A: INTERVIEW GUIDE

Effective communication planning for high-performance civil engineering project teams

Introductory questions

1. Define your typical role in project teams
2. Please describe your contribution or role in the project planning process as part of an Aurecon project team.
3. Do you think that quality of communication between members can affect the results of a project?

Section 1

1. What do you perceive is the main purpose of communication on project teams?
2. What do you expect from your team members in terms of communication when you are working on projects?
3. How can the HP environment change the needs or dynamics of communication between yourself and your project team members?
4. Can you give an example of this from a recent project?

Section 2

1. Please describe how your team approaches communication planning
2. Do your projects have formal communication plans?
3. Please describe what they look like. What should they look like? (inputs and outputs)
4. Do your communication plans have any effect on interpersonal communication between project team members?
5. How do your current communications plans address the needs of interpersonal communication between group members?
6. How do you think this can be improved?

Section 3

1. How does your team share information (process and technology)?
2. How does your team make decisions?
3. How does your team resolve conflict?
4. How are these methods documented in your plans?
5. How would you say that these methods effect the quality of information?
6. What ways/tools would you prefer to, rather than what you are currently doing that would allow for better communication?

Section 4

1. Do you think that you communicate well?
2. Describe any shortcomings in your own communication skills that you would like to improve.
3. Are there some members of your teams that could do with better communication skills?
4. Are there times when the communication skills of your members put strain on the project? How?
5. Have you perceived instances when language, cultural or gender difference affected the quality of communication? If so, please elaborate.
6. What do you think are the main challenges to communication between members?
7. Where are the main areas, in which you would like to see improvement, when it comes to interpersonal communication in your teams?
8. What do you think can be done to improve the quality of communication between the members?
9. Overall, do you believe that your team would benefit from better communication skills and why?

Section 5

1. What changes would you like to see in the way your team members communicate?
2. How can these changes be included in your communication plan?

Section 6

1. What do you think is best about the communication in your project team environment?
2. What is the one thing that annoys you most about the communication in your project-team environment?