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Using communication to mitigate the challenges of outsourced projects

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of the

UNIVERSITY OF JOHANNESBURG



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01 December 2019

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DECLARATION

I hereby declare that this minor dissertation, 'Using communication to mitigate the challenges of outsourced projects' is my own original work. It is submitted in partial fulfilment of the requirements of the degree Magister Philosophiae in Engineering Management, and has not been submitted for any degree, qualification or credit at another institution.

I also declare that all data used from other publications, books and resources are properly referenced according to the IEEE standard referencing technique.

01 December 2019

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Date



ABSTRACT

The multi-organisational mode of outsourcing projects increases the significance and complexity of project communication. Communication is essential for any organisation, offering the necessary structures within which people may successfully work together, make decisions and act to accomplish organisational goals. If project necessities are not communicated accurately, negative outcomes are frequently the result, proving detrimental to the organisation and the outsourced project.

Literature review revealed ten common challenges to the outsourcing of projects, with mitigation strategies identified to minimise the impacts of such challenges. This study makes use of the case study research method and semi-structured interviews as the primary means of data collection. The method of analysis chosen for the study was the qualitative approach of thematic analysis. A cross-case analysis was done, similarities and variations were grouped together, and themes were identified based on participants' responses. These were compared to the literature findings.

It was found that six of the ten challenges were experienced in all three case studies. Four were unique to particular projects. The findings indicate that challenges affected project teams' ability to communicate effectively, and that the identified mitigation strategies all included the component of communication, whether synchronous or asynchronous. With the achievement of the research objective, this study will contribute to the existing body of knowledge within the project management fraternity and within academia. Knowledge gained may be used by project management professionals and will, it is hoped, enhance the way projects are outsourced and managed in the engineering sector.



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LIST OF ABBREVIATIONS

BPO	-	Business process outsourcing
CAGR	-	Compound annual growth rate
CAQDAS	-	Computer-assisted qualitative data analysis software
IP	-	Intellectual Property
ITO	-	Information technology outsourcing
NDA	-	Non-Disclosure Agreement
RQ1	-	Research question 1
RQ2	-	Research question 2
PRI	-	Political Risk Insurance



1. CHAPTER 1: INTRODUCTION

1.1 Research background

A project is a temporary task for creating a unique service or product [1]. Temporary means that each project has a fixed start and end, and an 'end' means that the service or product differs from all other products or services in some way [1]. If a project is completed on time, at cost and at an acceptable level of quality, it is considered successful [2]. Companies have to compete and deliver projects within a given period and budget, and should aim for a risk-free approach to achieve project success [3].

The outsourcing of engineering projects has become prevalent in modern business practice, as it allows companies to be cost effective by handing over non-core activities to third parties [4]. This is not a new phenomenon; it originated in the 1960s and 1970s when companies were set up to provide professional services, facilities management and financial and operations support to companies [5]. The 1950s saw the rise of offshore outsourcing [6], but in the 1980s it was widely adopted by organizations [6]. Global trends in business have led to increased competition, forcing businesses to adapt more quickly to evolving markets and to guarantee the high quality of products at low costs [7]. Efforts to reduce costs for specific companies' processes lead to an external provider being responsible for their implementation [8]. Giertl [8] acknowledges that, outsourcing has become a general trend of the 21st century.

According to a study by Iqbal [9], "The worldwide outsourcing market is expected to grow from \$161.9 billion in 2002 to just over \$235.6 billion in 2007 at CAGR of 7.8 percent." Details of the expected global market growth for outsourcing are provided in Figure 1.

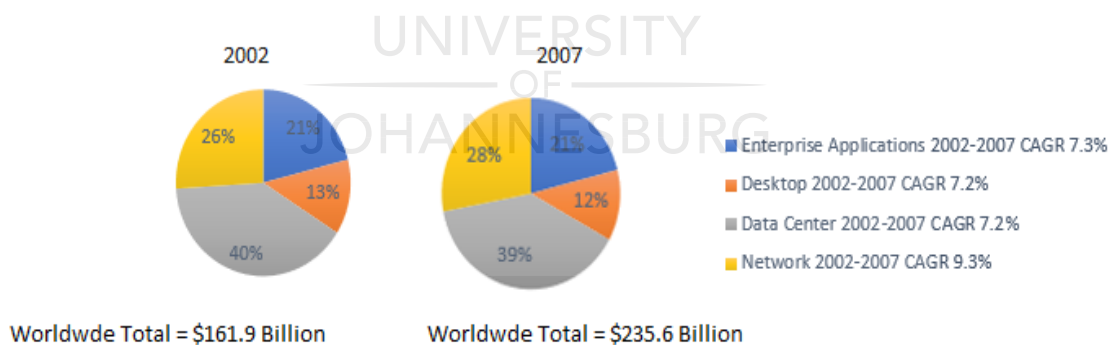


Figure 1.1 Worldwide IT outsourcing segments, size, and growth rates [9]

A study conducted by Willcocks [10] estimated that that between 2011 and 2014, ITO will grow at 5%–8% per annum and BPO will grow at 8%–12% per annum. 65% of US and European companies are currently using offshore providers to develop applications; a further 13% plans to start doing so in the coming years[11]. This trend means that it is clearly necessary to understand how outsourcing projects can be managed more efficiently. Outsourcing enables organisations to focus on the key services they provide [4]. It is seen as a way of unloading unnecessary, burdening projects that are unprofitable for the organisation [12].

Outsourced projects require shared participation, with each party dealing with its own unique problems and issues, its own vision and objectives, due to the degree of freedom that outsourcing permits [4]. However, the

multi-organisational mode of outsourcing projects increases the significance and complexity of project administration and communication practices [13].

The most important factor in the success of a project is the project manager's communication capacity [14]. Communication in a project is exceptionally important, and has been characterised as the lifeblood of a project [13]. Communication is a strong force that impacts on the project's success [15]. Poor communication between partners is a key factor influencing time spent on the project and can cause challenges throughout the implementation of the project [16]. A lack of communication, including support for an outsourced project and data sharing, may weaken the success of a project [4]. Numerous outsourced projects face challenges, with the breakdown in communication causing most of these challenges [17]. Poor communication results in misunderstandings, which add time and costs to projects [18]. Lack of communication influences a project's schedule, cost and quality [14].

Where project requirements are not communicated accurately, the outcomes may be negative and costly to the organisation and the project [19]. It was found that the main causes of cost overruns in construction projects in Saudi Arabia were poor communication between parties, payment delays, administration problems and delays in decision making [20]. Lack of strategic guidance and communication about objectives can lead to time and cost overruns [21]. Well-communicated data on project areas, project categories, and customer types would pre-empt overruns on both cost, time and quality [22].

1.2 Statement of the problem

The root cause of most project challenges comes down to lack of effective communication plans, or a breakdown of communication altogether [23]. It was found that 80% of construction projects that completed their projects on time, within the budget, and to a high standard, had an effective communication plan in place and communicated efficiently. [22]. Lack of communication during project execution influences the cost, time, safety and quality of projects [14].

The research problem statement is: 'If communication is improved in outsourced projects, the impact of challenges is reduced.'

1.3 Research objective

The research objective is to:

- Identify the communication patterns which contribute to the challenges in outsourced projects and those that provide mitigation strategies.

The knowledge gained from this research may be used by project management professionals and will add to the existing body of knowledge within the project management fraternity.

1.4 Research questions

In order to achieve the research objective, the following research questions needed to be answered:

- RQ1: What are the main challenges faced during outsourced projects?
- RQ2: What are the mitigation strategies to minimise the challenges?

1.5 Research justification

The motivation for doing this study was to identify the communication patterns which contribute to the challenges in outsourced projects and those that provided mitigation strategies.

1.6 Research design

The research is aimed at identifying the communication patterns which contribute to the challenges in outsourced projects and those that provide mitigation strategies. The research makes use of qualitative data in order to describe and provide an in-depth understanding of the challenges and their mitigation strategies. Therefore, multiple case studies of outsourced projects are used to determine whether the challenges and mitigation strategies are consistent throughout. The information was derived from qualitative research through semi-structured interviews. The aim was to interview six project management professionals who had worked in outsourced projects.

In order to perform a data analysis, the recordings were transcribed with the aid of voice-recognition software. A CAQDAS software package assisted the researcher with the transcription process of data and was used to analyse data gathered from the interviews. The package allows for the organisation of qualitative data, assigning and generating codes, and integrating and interpreting data. Thematic analysis was performed to organise the items into logical patterns within data. The data was then coded according to emergent themes. Once the transcription process was completed, the data was sent back to participants for them to confirm the content.

1.7 Limitations of the study

Initially six participants were targeted for the interviews, two from each case study. However, challenges were experienced due to the participants' non-availability to participate. Many of the professionals could not be interviewed, and in the end, data could be collected from only one participant per case study, as shown in Table 4.2. The researcher is aware that this means data generated by this study is not generalisable; however, it will still give a good foundation for further investigation. Another limitation of the study was that the researcher wanted to perform an analysis of project documents as a secondary data collection method; however due to confidentiality considerations, the researcher was unable to acquire project documentation. The researcher therefore made use of three case studies and a cross-case pattern analysis.

1.8 Research process

An approach adapted from Yencken, Fien and Sykes [17] and Saunders, Lewis and Thornhill [18] was followed to answer the research questions, as illustrated in Figure 1.1.



Figure 1.2 Research process [24]

Each stage of the research process is defined below:

Stage 1: Topic selection. This stage involved the selection of a topic and the development of research questions.

Stage 2: Reviewing of literature. This stage involved critically reading, evaluating and organising readily available material to obtain answers to the research questions.

Stage 3: Clarification of research questions. Formulating and clarifying the research questions.

Stage 4: Research design. Selecting the most suitable research strategy and techniques for collecting and analysing data.

Stage 5: Data collection. Based on the research methodology selected, data for this study was collected through semi-structured interviews with project management experts.

Stage 6: Data analysis and research results. This stage involved analysing the data collected and finding a correlation between data from the literature review and the interviews.

Stage 7: Findings and conclusions. The answers to the research questions are stated, and a determination is made as to whether the research met the research objectives.

1.9 Research report layout

This study comprises content arranged into chapters as follows:

Chapter 1. Introduction. This chapter presents the background, statement of the problem, question, research objectives and research design followed in the execution of the research.

Chapter 2. Literature review. This chapter provides an overview of the relevant literature, investigating the findings of other researchers with regard to communication and outsourced projects. The findings of the literature reviews helped the researcher to formulate the research questions.

Chapter 3. Research design and methodology. This chapter discusses the research methodology and data collection approach followed in this study.

Chapter 4. Data analysis and research results. This chapter analyses the collected data and verifies whether or not the research objectives were met.

Chapter 5. Conclusion. This chapter summarises the findings of the research, drawing conclusions and making recommendations.

1.10 Conclusion

Chapter 1 has provided an overview of the study. The chapter gave some background to the problem, explained how the research objectives were achieved, and gave an overview of the research methodology and a map for the rest of the study. Chapter 2 provides an overview of the topic based on the findings of other researchers, according to the literature.

2. Chapter 2: Literature Review

2.1 Introduction

This chapter explores the available literature on sourcing types, the purpose of outsourcing, causes of challenges faced in outsourced projects and the strategies that have been used by companies to mitigate the identified challenges.

2.1.1 Types of sourcing

Sourcing refers to collaboration methods. Generally, two sourcing modes exist; insourcing and outsourcing [26]. Insourcing involves internal collaboration within companies and outsourcing involves external collaboration between third parties [26]. Barney [27] defines the two types according to whether or not the work is carried out by the organisation's employees. Insourcing and outsourcing may also be differentiated by whether work is carried out in the country of origin of the organisation (onshore) or in a different country (offshore) [27].

Moe [28] and Jalali [29] identify four types of sourcing or collaboration; offshore outsourcing, onshore outsourcing, onshore insourcing and offshore insourcing. Šmite et al. [23] name these modes 'near-shoring' and 'far-shoring' [30]. Rao [31] refers to inter-organisational outsourcing as offshore outsourcing. According to Jabangwe [32], two offshore sourcing types, offshore insourcing and offshore outsourcing, are commonly implemented. A general representation of outsourcing types [29] is presented in Figure 2.1.

Different Countries	Offshore Insourcing	Offshore Outsourcing
Same Country	Onshore Insourcing	Onshore Outsourcing
	Same Organization	Different Organization

Figure 2.1 Types of sourcing collaborations [29]

The section below defines each of the collaborations indicated in Figure 2.1. above:

Onshore insourcing occurs in the same country and within the same organisation [26]. The insourcing approach requires building up internal capabilities [33]. This model creates a wholly-owned subsidiary on the international market and engages local workers [34].

Offshore insourcing occurs in a different country within the same organisation [26]. Offshore insourcing is further defined as a scenario where an organisation conducts part of its development work in a wholly-owned subsidiary in another country [32]. Huen [35] further defines offshore insourcing as setting up in-house centres overseas.

Onshore outsourcing occurs in the same country but is carried out by a different organisation [26]. This is the strategy where a client company undertakes part or all of its activities through an external vendor [36].

Offshore outsourcing occurs in a different country and is carried out by a different organisation [26]. Offshore outsourcing occurs when a company is in a contractual agreement with a third party or a supplier in a different country [32], [35].

2.1.2 The purpose of outsourcing

Outsourcing occurs when an independent company engages a third party or external company to carry out activities [37]. Outsourcing means the provision of services from sources outside the company [38]. This is not a new phenomenon; it originated in the 1960s and 1970s when companies were set up to provide professional services, facilities management and financial and operations support to companies [5]. This technique has been widely used as a method to reduce costs and increase income in numerous industries, and includes manufacturing outsourcing and call centre outsourcing [12].

Outsourcing is often used because of a lack of expertise in the company [39]. Outsourcing minimises production costs and the complexity of projects, especially where a lack of infrastructure or expertise or specific technical aspects may make insourcing too challenging; it can sometimes be achieved in the same country [39]. Some companies outsource due to the need to improve their quality [40]. Outsourcing can help organisations to focus their attention on their core business, and lower costs [12], [38]. By outsourcing less central activities to companies specialising in such activities, an organisation can generate greater value by focusing on and excelling in its key activities [7].

The outsourcing decision is a strategic decision for many companies since it includes assessing potential cost savings in comparison with the effects of a loss of control over a product or service [41]. Other reasons why companies outsource [39] are indicated in Figure 2.2. below.

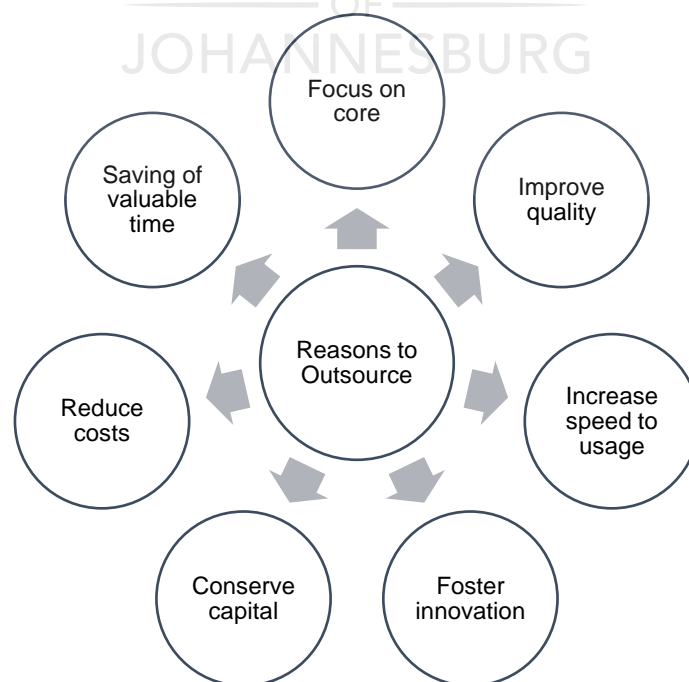


Figure 2.2 Reasons to outsource [39]

2.1.3 Advantages of outsourcing

Outsourcing offers companies the opportunity to concentrate on core activities. This is achieved through the appointment of a third-party agent to perform non-core activities which allow a company to concentrate on its primary business activities and enhance its competitiveness [9], [39], [42]. Outsourcing results in the business being able to save costs [37]-[40]. Outsourcing allows companies to access expertise through the appointment of experienced and skilled personnel which the organisation might not have access to internally [9]. The resultant outcome is often improved performance due to cost savings [39]. The cost reduction is observed in operational cost savings [45] and recruitment cost savings [42], [46].

Despite the many advantages of outsourcing, companies opting to outsource still experiences many challenges, as discussed below.

2.1.4 Disadvantages of outsourcing

Outsourcing a function to a third party can result in a loss of control over external operations, since external resource management requires specific skills such as human and process management capabilities, contract management and power negotiations [46],[47]. Outsourcing gives rise to the risk of exposing confidential data and technology, which is why almost every outsourcing agreement contains security and confidentiality conditions. However these agreements are always difficult to execute and audit [25],[46]. Companies outsource because they expect better quality service from external service providers than from internal staff. However, this hoped-for better quality does not always materialise, with poor quality work and cost escalations often occurring [26]. Outsourcing agreements are signed, detailing the services to be offered for the fee; however, hidden costs often arise which can result in the company having to pay extra charges [48],[27].

The following section discusses the challenges of outsourcing, their impact and the strategies used to mitigate the challenges.

2.2 Challenges of outsourcing

Outsourcing incurs a range of challenges including high costs of coordination, geographical remoteness, the security of information, different time zones, lack of communication, knowledge gaps, political risks and knowledge loss [49]. For projects outsourced to remote stakeholders, there is an increased chance of requirements being improperly defined, for any of the following reasons [9]:

- Communication is slower and more expensive and therefore there tends to be less of it.
- Different time zones result in collaborating parties having different working hours.
- The absence of face-to-face meetings and the language differences between members of a team can have a negative effect.
- Political, cultural, and intellectual property rights differ from country to country and region to region.

Some of the problems encountered by companies when they outsource include time zone differences, cultural differences, the retention of employees, a lack of knowledge transfer, and lack of protection of intellectual property [50]. The geographic vicinities of projects involved when projects are outsourced impact on outsourcing transaction costs [51]. The geographic division between team members may prevent adequate

personal communication and interaction, which is an important prerequisite for problem-solving in order to achieve an optimum design result [52]. Different stakeholders reside in different areas, which makes it difficult to monitor the outsourced project [53]. Risk management in projects is crucial to project success and is often the responsibility of the project manager [18]. The team risk may be due to coordination and communication challenges, particularly if two organisations are involved [18].

Table 2.1 below indicates some of the challenges faced by the outsourced project as identified by the various authors reviewed.



Table 2.1 Challenges of outsourcing

	Authors																		
Outsourcing challenge	[54]	[55]	[56]	[47]	[57]	[58]	[53]	[59]	[60]	[61]	[18]	[62]	[53]	[63]	[64]	[56]	[65]	[66]	[50]
Geographical Location	X	X	X		X	X	X			X			X	X	X	X			
Time zone	X		X		X	X	X		X		X		X	X	X				X
Trust					X	X	X		X			X	X		X	X	X		
Culture	X	X	X			X	X	X	X		X	X	X	X		X			X
Knowledge loss																		X	
IP Protection				X				X											
Lack of control			X	X											X			X	
Hidden costs				X				X							X		X	X	
Language	X								X				X			X			X
Political risks															X				

As the table above indicates, several challenges exist when outsourcing, with most authors listing geographical location, time zone, trust issues and culture as challenges faced by outsourced projects. This finding is confirmed by Lilian [58] and Iqbal [9] who state that the main challenges are associated with trust, distance, different time zones and problems arising from cultural differences. The following sections discuss the identified challenges and the mitigation strategies in detail.

2.2.1 Challenges and mitigation strategies related to geographical location

Geographic distance means the physical separation of team members across various remote areas [56]. The geographic dispersion of team members decreases the level of social support and traditional forms of communication between individuals [57]. Although distance is seen as a challenge for multicultural and geographically dispersed teams, some studies do not view distance as a problem [67]. For geographically dispersed teams, team members use technology to communicate much more than they might do in face-to-face meetings [68].

2.2.1.1 Impact of geographical dispersion on outsourced projects

With distance from an organisation, changes in companies become far more difficult to manage than in one company [53]. The team members' geographical separation prevents face-to-face communication, which in problem-solving sessions is often necessary to achieve optimum results [52]. Limited opportunities for informal communication due to site location may also cause problems with team social integration [60]. From a project execution perspective, it is much harder to identify project problems and coordinate appropriate control measures when working across multiple organisations [53]. Geographic distribution creates challenges for monitoring the progress of the project and makes it less effective to integrate controls made at the planning stage into daily communication [13].

The geographical locations of the different projects influence transaction costs associated with outsourcing [51]. This can be a major issue because employees need time to create dynamics that assist them to develop [57]. Geographical dispersion makes it more challenging for leaders to maintain relationships with followers, making the quality of the relationship between leaders and their distributed team members more difficult [57].

2.2.1.2 Mitigation strategies of challenges related to geographical location

The issue of geographical location in outsourced projects can be mitigated by having key team members or leaders regularly traveling to remote locations [69], while informal communication and synchronous communication can be used to reduce the challenge of the geographical dispersion of project teams [69]. Through the use of communication guidelines, project teams can also promote casual interactions to improve communication and collaboration [60].

2.2.2 Challenges and mitigation strategies related to time zone

When not managed properly, a time zone difference can become an obstacle in outsourced projects [70]. Due to the dispersal of project teams across different countries, time-related challenges are common, where team members work in different time zones and do not have overlapping working hours [58]. The challenge of

communication among sub-teams increases due to time zone differences [53]. It is also noted by Khana et al [56] that responses are sometimes delayed; this is a huge challenge for team members working in different time zones. Time can be a problem when the project teams are dispersed across various time zones [71]. Time zone differences affect communication and collaboration between teams [18].

2.2.2.1 Impact of time zone on outsourced projects

Due to time zone differences, some projects fail to deliver on time as the difference in time and location is not taken into account in the contract right from the start [72]. It takes longer to detect and resolve problems because the time difference amplifies whatever dysfunction is already present [71]. In outsourced projects, time differences create issues and challenges in coordinating and collaborating among global service providers [73]. Distance can also create additional costs because time differences limit the flow of information and cause communication friction. Real-time communication becomes limited. This can have a negative effect on task synchronisation, problem resolution in real time, and communication between global teams [73]. The costs of coordinating and the complexity of projects inevitably increase when time zones differ [74].

Time differences tend to increase coordination costs [75]. Multiple time zones results in miscommunication, conflicts, lack of trust, increases in cost and project delays [76]. In time-separated environments, team members rarely meet face to face. Due to time zone differences they have to wait for responses from some team members; since they have deadlines for the completion of tasks, they frequently cannot wait for responses and try to overlook and ignore issues that need clarification. This compromises project quality [76].

2.2.2.2 Mitigation strategies of challenges related to time zone

With a large time zone difference, a company can operate 24 hours a day [77] which can be distinct advantage. Good connections must be established through clearly delineated communication networks, which allow rapid transmission of business services at a low marginal cost [77]. If there is a large time difference, the outsourced organisation and the home organisations need to work beyond normal working hours and sometimes work 24 hours a day to complete the project quickly [39]. The time zone barrier can be overcome through procedures and technologies that enable people to interact, connect and collaborate [70].

2.2.3 Challenges and mitigation strategies related to an absence of trust

Trust is a key component in establishing and sustaining collective social associations [78]. In order to establish proper communication between the customer and the company doing the outsourced work, it is imperative that there is sufficient trust and honesty between stakeholders [78]. Trust is a key success factor for outsourced projects [64]. Common trust plays a key role in successful geographically dispersed teams [79]. Trust improves the possibility of good communication and good performance [80]. Trust is based on the belief that members of the team can and will deliver on their promises and satisfy team expectations. Trust is considered central in geographically dispersed teams; when there is trust, results that meet or exceed expectations are regularly achieved [81]. Trust is of major importance in dispersed teams facing uncertainty and lack of understanding of all members [58].

Trust between organisations is necessary to preserve and develop the quality of the project in unforeseen events [46]. Newell highlights that trust is necessary to promote knowledge sharing [78]. Trust is important as the project manager cannot always maintain contact with all team members [62]. A team cannot be effective in achieving its objectives without trust, communication and cooperation [82]. Trust is developed through communication, and communication is important for successful projects [52]. The literature on virtual teams tends to highlight the need for face-to-face meetings at the start of a project to build relationships and to strengthen trust among team members [83]. Communicating over the telephone is more difficult than walking to the desk of a person to talk [18]. Failure to interact face to face can create other challenges in projects, such as misunderstanding the scope of work, a lack of team awareness and issues of trust [84].

2.2.3.1 Impact of the absence of trust on outsourced projects

Project team members will not share their knowledge with colleagues on a project team if they do not trust them [78]. If there is a lack of trust, there will be a lack of communication and the amount of information transmitted to remote team members is likely to be restricted [56]. Mutual trust is essential but hard to achieve because of a lack of interaction between one person and another, cultural differences and poor social relations [60],[62]. Geographical distance impacts on trust and knowledge sharing among organisations, which may lead to collaboration and knowledge development problems in the project [60].

A high level of customer trust in project design teams reduces transaction costs and maximises creativity and the speedy solution of problems [46]. In an attempt to maintain and improve design performance, trust between organisations is required [46]. Where there is trust, communication between team members is more open, which ultimately boosts a team's performance and quality [29].

2.2.3.2 Mitigation strategies of challenges related to trust

With face-to-face interactions, trust is easier to build [53]. A lack of trust and opportunities for face-to-face communication may be mitigated by ensuring that project plans and timetables are transparent. An absence of trust can also be mitigated by members making the effort to get to know each other at the outset of a project and by the sharing of important project details by the client, enabling all to keep up to date on projects [85]. They can also promote visits and the exchanges of staff across sites [60].

2.2.4 Challenges related to cultural differences

Cultural conflict and misunderstanding is a common problem experienced by teams working with outsourced projects. Cultural conflict may include differences in social mores and standards, or differences in values between regions or countries [72]. In virtual teams, cultural diversity is frequently described as a challenge, which is reflected in perceptions, political differences, language differences, ethnic differences, and differences in motivation and work ethic [86]. Brunelle [87] states that cultural challenges may be expressed in various communication methods and values. Dispersed working groups with members in various countries frequently encounter cultural differences which can affect the overall achievement of the group [62]. Various businesses also have their own unique working habits, standards, values, behavioural forms, work ethics, quality

standards, communication types, terminologies and hierarchies [88] – which amount to different business cultures.

Tavčar [89] suggests that efficient communication is needed to overcome cultural differences, including language barriers, to build trust in dispersed geographic teams [89]. Outsourcing allows work for a single project to be done in locations across the globe, where different cultures, values and languages apply; these influence behaviours and perceptions, which may make work difficult [87]. Cultural factors not only play a role in the success of an outsourcing company, but also in the quality of relationships, outsourcing expertise and geographic distance [64].

2.2.4.1 Impact of cultural differences on outsourced projects

Differing cultural expectations and language differences will always exist, making it difficult for all team members to align with project plan definitions, expectations and ownership [53]. Culture has the effect of complicating processes in communication and the identification of problems, thus complicating work [87]. Culture can have a huge impact on how people interact and how they respond to different issues [56]. Cultural differences may lead to inaccurate judgments and lack of trust, and can have a damaging effect on communication and collaboration efforts [60]. Cross-cultural communication makes it harder for parties to translate complex social and material concepts into simple and grammatically correct procedures [64]. There are reports of significant cultural differences causing differences in attitudes, poor collaboration, widely differing perceptions, communication barriers and lack of understanding of activities relating to the project [90]. Cultural differences may cause business conversations and professional behaviours to be misinterpreted [91]. These challenges of coordination and integration typically result in hidden and additional costs for companies, which may mean that they do not achieve the expected benefits of outsourcing [92].

2.2.4.2 Mitigation strategies of challenges related to cultural differences

Informed communication choices are particularly important for international teams comprising diverse cultures [64]. Computer-aided communication can provide a quick and direct way for intercultural communication to occur, altering people's thinking about space and time, but technology also has the potential to amplify cultural semantic differences [64]. A gap analysis may be used to measure differences in beliefs and attitudes toward time and acceptable conduct between team members in one culture and another. If the gaps are large, team communication is likely to be problematic, overall satisfaction may be reduced and work may be carried out less efficiently [93]. Language issues can be addressed through asynchronous communication [94]. Knowing the national culture and religious values may help to understand the behaviour of cultural groups [29],[30] where group members have different cultural and religious backgrounds [86]. The leadership of outsourced projects should check the outsourcing candidate country to prevent socio-cultural hazards. They must also research the social and cultural principles, norms and opinions of the country [91].

2.2.5 Challenges and mitigation strategies related to hidden costs

The cost of outsourcing is often expected to be lower than the cost of using internal capacity within the company [8]. Although cost-effective, outsourcing may have hidden costs, such as the legal costs of signing

contracts [92]. Coordination and integration challenges typically lead to hidden costs and additional costs for companies that do not achieve the expected outsourcing benefits [92]. Companies spend a great deal of time, resources and effort – which are not always budgeted for – in getting contracts signed [95]. Additional costs may include post-contract costs in the design, requirement specifications, deviations orders, transfer of knowledge, monitoring and synchronisation [92].

2.2.5.1 Impact of hidden costs

Hidden costs arising out of interruptions, lack of vendor skills, a need for additional controls and synchronisation costs, particularly at the end of a project, are not always considered by the customer and can lead to cost overruns [96]. The element of hidden costs is mainly seen from the customer viewpoint, e.g. expenses caused by interruptions, absence of supplier expertise, the need for extra monitoring and cooperation [96].

2.2.5.2 Mitigation of hidden costs in outsourcing

Negotiating accurate costs with the service provider is crucial. Project designers need to make sure that the contract contains a complete list of possible additional costs. Where necessary, a third-party law firm may be hired to provide advice if staff lack expertise and need contract advice [70].

2.2.6 Challenges and mitigation strategies related to language

Communication is composed of both verbal and non-verbal aspects, both of which have a significant impact on the message being communicated [72]. Communication includes the formulation, transmission and receipt of oral and non-verbal messages that result in a response, assessment and possible correction [97]. International projects involving people of different nationalities and cultures must contend with serious barriers. These are not only attributable to basic language differences but also to the fact that people assume that the symbols and glossaries they use mean the same thing for all people [98].

2.2.6.1 Impact of language on outsourcing

Where information is transmitted from a sender and to a receiver, each having a different home language, there may be considerable delay and a risk of inaccurate translations. However, of even greater significance than language differences are personal weakness with regard to communication skills [72]. Differences in language exacerbate such weaknesses and make communication in projects more difficult, leading to delays and disputes [11]. Language differences may make projects more complex, necessitating longer time periods for the exchange information [11]. Differences in language make communication with the project hard and can result in delays and disputes [11]. In general, communication in offshore projects requires more time and effort [11].

2.2.6.2 Mitigation of language challenges

To overcome such pitfalls, a translator may be employed, who should always be a native speaker of the language into which a text is translated [99]. Improper translations can pose a real danger [88] particularly in

the drafting and understanding of agreements. Some of the challenges of language may be overcome through the translation of company policies into local languages and an emphasis on language acquisition by staff members [74]. Companies doing business with other companies in cultures not their own can make a particular effort to understand the language and business culture of the partner company; they can encourage one-on-one meetings with team members, and encourage all parties to use a common language to avoid misunderstandings [74].

2.2.7 Challenges and mitigation strategies related to knowledge transfer

It is very important to transfer knowledge effectively from the parent company to the outsourced company and teams – and sometimes vice versa. Outsourcing often comes with the transfer of corporate resources, skills, equipment and staff [72]. Providing all the information, data and knowledge is essential to ensure that the company doing the outsourced work can deliver what is required [70].

2.2.7.1 Impact of knowledge transfer in outsourcing

With no knowledge transfer, companies develop a dependency on the vendor company and their competitive advantage becomes more and more vendor-dependent [100]. Employees will lack the knowledge necessary to implement new systems and rely on vendors to train them [101]. This lack of knowledge transfer may result in increased financial costs and reduced quality concerning the outsourced business activity [100]. Knowledge of the customer setting, requirements and expectations of quality, supplier abilities and capacities, knowledge of relationships and working procedures are all aspects that need to be transferred [66].

2.2.7.2 Knowledge transfer mitigation strategy

Companies need to look for outsourcers with state-of-the-art software tools to capture business processes and identify critical knowledge areas in order to preserve them. This ensures knowledge transfer accuracy, speed, and efficiency [70]. It is also important to select outsourcers who are always looking for the latest technology to facilitate the transfer of knowledge [70].

2.2.8 Challenges and mitigation strategies related to IP protection

When outsourcing, it is important to know how the intellectual property (IP) of the collaboration is to be managed and how responsibility and ownership will be allocated [102]. Outsourcing involves delegating part of a company's activities to a third party company [70]. Intellectual property laws vary greatly from country to country. Outsourcing often includes a sharing of sensitive company information [38].

2.2.8.1 Intellectual property impact on outsourced project

Companies provide sensitive information such as processes, employee details and other important data to the outsourcer when outsourcing. It is therefore natural for businesses to be concerned about how the outsourcing provider handles the security aspect [70]. Without adequate protection, a company's IP may be violated during outsourcing and subcontracting, with the result that a supplier may easily become a competitor [54].

2.2.8.2 IP protection mitigation strategies

Trusted and secured channels often convey critical information regarding finances, marketing and competitor analysis [72]. Companies should check that the third party enterprise is willing to sign a non-disclosure agreement (NDA), and specifically ask whether the firm has experience with handling sensitive data [70]. When sharing sensitive company details, it is advisable to consult with a lawyer specialising in the Intellectual Property Act of the concerned country [38].

2.2.9 Challenges and mitigations strategies related to political risk

Political risk is the risk of political forces or events disrupting business operations [103]. Offshore outsourcing puts businesses at risk of political unrest and instability, nationalisation and acts of terrorism. In addition to the risk to the host company, there are government policies, regulations and attitudes towards foreign companies [91].

2.2.9.1 Political risk impacts

Political risk is the risk of political forces or events delaying business operations [103]. The political stability of a country will influence the ability to conduct business there [19]. Political unrest can affect companies because of interruptions to business continuity [91]. Government rules and policies in some developing countries can suddenly change based on decisions made by heads of state [91]. Political issues cause misunderstandings and conflicts within projects [94]. Berssaneti [104] points out that in some companies severe project delays have been caused by political processes and conflicts, causing complications for controlling and monitoring the outsourced project [49]. The common causes of costs overrun in projects are political instability, interference, corruption, requirements for permits, periodic regulatory changes, and bureaucracies within government institutions [105].

2.2.9.2 Political risk mitigation

The purchase of political risk insurance (PRI) is the key tool for mitigating political risk [103]. PRI offers protection from the risk of adversely affecting trade investment activities by foreign governments or political groups [103].

2.2.10 Challenges and mitigation strategies related to loss of control

Proper organisational management between companies is one of the most important processes for maintaining and developing collaboration [106]. Outsourcing can be clearly associated with loss of control over external operations, requiring a specific focus on external resource management. External resource management requires specific skills that combine both human and process management capabilities, contract management and power negotiations [46],[47].

2.2.10.1 Loss of control impact

Outsourcing affects the control of the brand owner and makes it more difficult to implement design changes [64]. The loss of both control and information is amplified due to the fact that some subcontractors engage in further subcontracting, as many suppliers do not provide full disclosure about their capabilities [101]. The outsourced supplier may be unable to monitor the vendor's costs, schedule, quality, daily project management

and internal staff [107]. Lack of control over a project can result in problems such as cost and schedule overruns [60].

2.2.10.2 Loss of control mitigation strategies

Companies must take into account the interests of their customers and employees before outsourcing and make informed decisions [41]. There must be a solid working relationship between the outsourcing company and key stakeholders [108]. Finally, companies ought to assign an internal staff member to the project team to provide regular reports on the challenges and progress of the project [70].

As may be seen in the above discussion, communication is listed for most items, both as a challenge for outsourced projects and as a mitigation strategy for ameliorating the effects of the various challenges. The following section discusses the role of communication in outsourced projects.

2.3 Communication in outsourced projects

Communication bridges the gap between project teams by allowing a free flow of information in the outsourced project. This flow of information is important for managerial effectiveness and decision making, particularly for project managers who must be in constant contact with various project stakeholders. Effective communication provides information about the vision, objective, responsibilities, performance, expectations, feedback and project success criteria [1]. It offers efficient coordination for project teams to carry out their tasks and help to monitor the project risks, hence lowering the possibility of delivering wrong functionalities [1].

Communication is always fundamental to organisation or work, as it offers the necessary structures for people to work together, make decisions and act to accomplish organisational goals [2]. Although communication generally is an important component of project management, the most important factor for the success of an outsourced project is the project manager's ability to communicate effectively [3]. Without physical contact, it becomes more important to report progress and project status through reports and documentation [4]. In the field of outsourcing, it is common to use communication channels such as conference calls and emails to help improve communication [5].

If project managers do not communicate effectively and timeously, differences in expectations may arise, affecting the outcome of the outsourced project. Problems occur when a project manager fails to update the stakeholders when changes occur during a project [9]. Such failure also leads to misunderstanding of project requirements and knowledge management problems and may result in participants lacking information for the performance of their tasks [57]. Naturally such obstacles become sticking points, increasing costs and time and reducing quality [11]. Lack of adequate communication can also result in an increase in the frequency of rework [86]. If a project's basic necessities are not communicated accurately, negative outcomes for both the organisation and the project are the inevitable result [6]. Rahman, Shafique and Rashid concur that lack of communication during a project influences the project schedule, cost, safety and quality [3].

Poor communication between partners is a key factor influencing time and can cause challenges throughout the implementation of the project [7]. A lack of communication, including support for an outsourced project and

data sharing, will weaken the success of a project [4]. As has been mentioned in section 2.2, communication in outsourced projects is affected by challenges such as geographic location, absence of trust, cultural differences, time zone, language barriers and organisational limitations [8]. Outsourcing faces a range of challenges including the high costs of coordination, geographical remoteness, the security of information, different time zones, lack of communication, knowledge gaps, political risks and knowledge loss [46].

However, of all these challenges, it is the breakdown in communication that results in most project challenges [10]. A geographic dispersion of team members decreases social support and the level of traditional communication between individuals [11]. The challenge of communication among sub-teams increases with time zone differences [12]. Berry states that communication involves the transmission of information, meaning, and understanding between two or more parties [55], while Martinic, Fertalj and Kalpic regard communication and collaboration as the greatest challenges in project management and project delivery [109]. Communications management is therefore a critical component of project management, influenced by several factors such as project participant characteristics, structure, environment, communication properties and technological characteristics [61].

There are several reasons for difficulties with communication in global project teams; poor language skills and technology issues rank high, as do differences with regard to cultural matters, ways of thinking and ways of dealing with difficulties [61]. Geographical dispersion, different time scales, the nature of digital communication devices, variations in labour practices, and diversity and cultural differences are all key elements which restrict the abundance of interactions. Managers tend to focus on asynchronous communication, which gives less immediate possibilities for feedback [87]. Both virtual and face-to-face communication is vital to any organisation or business as it provides the basic building blocks with which people work, decide and act towards the goals of the organisation [55]. Regular and focussed communication offers the means for efficient coordination between project teams, allowing them to carry out their tasks and reduce conflicts [83]. In cases where aspects of a project are outsourced, it becomes even more important to report on progress and project status through reports and documentation [110]. Conference calls and emails help [72], but having a documented 'paper trail' is equally essential for such projects .

Communication between members of a dispersed team differs from face-to-face communication, typically relying on asynchronous computer data and knowledge distribution, which enable multiple conversations among many contributors to be conducted simultaneously [111]. However, conversing using asynchronous communication and coordination tools can be risky [56]. Asynchronous communication between members of the team may also cause confusion; explaining intricate concepts by e-mail, for instance, can increase the risk of misunderstanding [56].

Failure to communicate effectively is often a major cause of unnecessary conflict [61]. Virtual communication loses the aspect of social or contextual information as a result of the anonymity of members' social status and level of experience, because communications on electronic channels are carried out without physical contact, and the distances between the team members can be great and wide [63]. Communication in such cases is affected by cultural differences, language barriers and organisational limitations [88].

Wu, Liu, Zhao and Zuo concur that during the implementation of a project, communication difficulties or disorders result in a sharp increase in unnecessary costs [21]. Due to weak communication skills and the difficulty of maintaining team members' relationships, rework often has to be done [111]. The lack of cohesion between virtual team members weakens communication and creates numerous communication difficulties [69]. A lack of effective communication also leads to misunderstanding of project requirements, causing knowledge management problems, and may result in participants being improperly informed about tasks, objectives and overall contribution [60]. Another result of poor communication in the outsourced project is that it leads to cost overruns [19]. Increased dependence on electronic communications can lead to misunderstanding and can affect team communications and efficiency [62].

Project managers use different communication technologies to minimise the risks associated with a lack of face-to-face communication that may, in turn, present new challenges. An international project manager needs to develop an extensive plan of communication to help the team cooperate to develop an effective product [112]. Multiple modes of communication, including face-to-face synchronous communication support, can help to mitigate communication challenges and monitor project progress [60].

2.4 Summary of challenges

If a project is completed on time, at cost and at an acceptable level of quality, it is considered to be successful [2]. From the literature research undertaken where various sources were consulted, a table was compiled that summarises the challenges, consequences, and mitigation strategies for various communication challenges – Table 2.2.

Table 2.2 Literature evaluation

Challenge	Impact of challenge on project lifecycle	Mitigating strategies
Geographical Location	<ul style="list-style-type: none"> • Change management becomes difficult [53] • Limited face-to-face communication [52] • Difficult to manage project challenges [53] 	<ul style="list-style-type: none"> • Regular travelling to remote sites [69] • Use of technology [69] • Establish communication guidelines [60]
Time zone	<ul style="list-style-type: none"> • Takes longer for issues to be resolved [71] • Difficulty with team coordination and collaboration [73] • Increases projects costs [73] • Task synchronisation Issues [73] 	<ul style="list-style-type: none"> • 24-hr work days [77] • Setup good communication networks [39] • Setting up collaboration procedures [70]
Trust	<ul style="list-style-type: none"> • Lack of communication [56] • Limited knowledge sharing [78] • Collaboration problems [60] 	<ul style="list-style-type: none"> • Transparency (project plans, project updates) [85] • Promote team interactions [60]

Challenge	Impact of challenge on project lifecycle	Mitigating strategies
Culture	<ul style="list-style-type: none"> • The team cannot align with the project [53] • Inaccurate judgments and lack of trust [60] • Misinterpretation of business conversations and professional behaviours [91] 	<ul style="list-style-type: none"> • Learn the national culture [29],[30] • Be accommodative of other cultures [64] • Study the country's socio-cultural values and beliefs [91]
Knowledge loss	<ul style="list-style-type: none"> • Increased dependency on third parties [100] • Increased competition [100] 	<ul style="list-style-type: none"> • Facilitate the process of knowledge sharing [70] • Identification of critical knowledge areas [70]
IP Protection	<ul style="list-style-type: none"> • Sensitive information shared with outsiders [70] 	<ul style="list-style-type: none"> • Trusted and secured channels should convey critical information [72]
Loss of control	<ul style="list-style-type: none"> • Loss of control of day to day management of the project [107] 	<ul style="list-style-type: none"> • Assign internal staff in project team i.e. Project Manager [70]
Hidden costs	<ul style="list-style-type: none"> • Lack of understanding of contract [96] • Costs arising out of interruptions [96] 	<ul style="list-style-type: none"> • Negotiate costs upfront [70] • Contract to allow for all additional costs [70]
Language	<ul style="list-style-type: none"> • Inaccurate translations [11] • Misunderstanding of the project scope [72] 	<ul style="list-style-type: none"> • Translate policies and practices into local languages [74] • Review of documentation by a native speaker [99]
Political risks	<ul style="list-style-type: none"> • Project delays due to political unrest [91] 	<ul style="list-style-type: none"> • Obtain risk information [103] • Obtain Political Risk Insurance (PRI) [103]

2.5 Conclusion

This chapter has discussed the various types of outsourcing, the purpose of outsourcing, the advantages, and disadvantages of outsourcing, the challenges faced by managers and teams of the outsourced project, and the mitigation strategies for these challenges. Lastly, a summary of the findings from the literature, showing the challenges and their mitigation strategies, was presented, which may be viewed as a practical implementation guideline to help companies address the challenges.

The literature review indicated that outsourced projects require shared participation so that both parties may deal with the challenges they experience. The multi-organisational mode of outsourced projects increases the significance and complexity of project administration and communication practices. Lack of communication,

including lack of support for an outsourced project and lack of data sharing, may weaken the success of a project.

Chapter 3 focusses on the research design, methodology and data collection.



3. Chapter 3: Methodology

3.1 Introduction

Chapter 2 comprised a detailed literature review undertaken to gain an understanding of the research problem. From this review, important issues regarding challenges and mitigation strategies faced during outsourced projects were identified, along with project success factors. Chapter 3 discusses the methodology employed for collecting data for the study. The chapter aims to provide information regarding the research method selected, justification for using this method, reasons for selecting certain participants, the data collection process and the data analysis process.

3.2 Suitable methodology – Case study

This study aims to answer the research questions, '*What are the main challenges faced during outsourced projects?*' and '*What are the mitigation strategies to minimise the challenges?*' Noor mentions that there are three types of case study research methods, namely, descriptive, exploratory and explanatory [113]. The study describes the challenges faced during outsourced projects, and the mitigation strategies employed to minimise the challenges. A descriptive and qualitative approach was followed in order to gain a deep understanding of the challenges and the mitigation strategies [113]. This approach also assisted the researcher to discover patterns in the interactions of project management practitioners in the real-life context of outsourced distributed teams.

The reason for selecting a descriptive case study method is that a descriptive case study consists of the participants, their views, their relevant background and their qualitative information about the situation [114], all of which are deemed relevant for answering the research questions. Holmstrom [94] says that previous studies have used qualitative interviews to present challenges related to time zone, geographical and socio-cultural distance in outsourced projects. An inductive approach was chosen because it allows for unexpected findings and thereby remains flexible regarding research direction [94]. Tayauova [47] used face-to-face interviews with top managers to identify advantages and disadvantages of outsourcing for Kazakhstan banks. The approach followed in this study is therefore aligned with previous research conducted.

3.2.1 Definition of a case study

Many definitions of a case study exist. Yin [113], for instance, defines a case study method as an empirical study investigating the current phenomenon within the context of its reality, where the boundaries of phenomenon and context are not clear, and where multiple evidence sources are used. Swanborn [115], defines a case study as an investigation of a social phenomenon which sometimes involves participants in the process of comparing explanations, opinions and behaviour with other participants, and with regard to the researchers preliminary observations. Creswell [116], defines a case study as a design type or study object in qualitative research as well as a research product. Verner [117] suggests that case study research can assist in providing an understanding of what happens in real life.

3.2.2 Case selection

The aim of the research is to identify the communication patterns which both contribute to the challenges and provide mitigation strategies for the challenges. It is believed that project management professionals may use the knowledge uncovered in this study to implement and execute outsourced projects more effectively. According to Teegavarapu, Summers and Mocko [118], a unit of analysis is the case being studied. In this study, three outsourced projects were selected, all of which experienced challenges but still delivered to satisfactory levels. These were studied in order to understand how challenges were overcome and to find out what communication strategies were used to mitigate the challenges. The unit of analysis is the completed outsourced project, in order to study the challenges faced during the project's outsourcing.

3.3 Data to be collected: Qualitative

Qualitative research is concerned with phenomena involving quality [119]. Qualitative data relates to any non-numeric information or information not quantified, and may be the end result of all study approaches [25]. This method of study is well adapted for the examination of relation embeddedness, where case studies and interviews provide information on the kinds of connections between participants and their values [120]. Qualitative research enables the researcher to record individual or group interviews [25]. According to Yin [121], sources of data collection for a case study include interviews. In order to obtain a wide view on the chosen case studies, the data source for this qualitative study was semi-structured interviews, as discussed in depth in the following sections.

3.4 Data collection method

The collection of data was performed through semi-structured interviews. When using interviews as a data collection method, it is important to explain how many interviews will be held, how long each is intended to last, whether they will be recorded and how they are to be analysed [25]. The main benefit of personal interviews is the direct and personal connection that takes place between interviewers and respondents and the elimination of non-response rates. The approach in this case allowed participants to talk about their knowledge and experiences regarding the challenges faced during outsourced projects, their impact on project delivery, and the mitigation strategies the project team applied to minimise the difficulties.

This research makes use of individual interviews which aim at exploring the views, experiences, beliefs and/or motivations of project managers and team members regarding challenges faced during outsourced projects and the strategies employed to mitigate those challenges. Interviews enable a researcher to collect valid and reliable information relevant to the questions and goals of research [25] and to develop a thorough understanding of various social phenomena. Interviews are a type of qualitative research method by which the observer collects data relating to an individual through a question-and-response process and can be structured or unstructured.

Table 3.1 indicates the profiles of the individuals interviewed for this study, along with the characteristics of each project.

Table 3.1 Outsourced project characteristics

Case Study	Identified Participants	Number of scheduled interviews per case study	Outsourced project characteristics	Sourcing collaboration type
Case Study 1	<p>Two participants were identified to participate in research interview for case study 1:</p> <ul style="list-style-type: none"> Project Manager with 8 years' experiences in managing outsourced projects Technical Metallurgist with 3 years' experience in project management functions. 	2	<p>The project was for research and development of relevant technology. The contract was awarded to a chemical engineering company based in South African.</p> <p>The end-user is a South American company based in Chile, with a five-hour time difference to South Africa.</p> <p>The South African company outsourced parts of the contract works to an Italian company. The Italian company had no time difference to South Africa.</p> <p>The communication language used between the three parties was English; however, the Italian and Chilean team members also communicated in Spanish.</p>	Offshore Outsourcing
Case Study 2	<p>Two participants were identified to participate in research interviews for case study 2:</p> <ul style="list-style-type: none"> Project Manager with 5 years' experiences in managing outsourced projects Lead Project Engineer with 6 years' experience in project management functions. 	2	<p>The project was for the supply, engineering supervision, training and commissioning of a Process Control System at a diesel storage facility in Ghana.</p> <p>There was a two-hour difference between Ghana and South Africa.</p> <p>Many languages are spoken in Ghana, but English was used as the communication language with the client.</p>	Offshore Outsourcing

Case Study	Identified Participants	Number of scheduled interviews per case study	Outsourced project characteristics	Sourcing collaboration type
Case Study 3	<p>Two participants were identified to participate in research interviews for case study 3:</p> <ul style="list-style-type: none"> • Project Manager with 13 years' experiences in managing outsourced projects • Project Engineer with 4 years' experience in project management functions. 	2	<p>The project was a government construction project for the upgrades of a hospital ward, located in the Gauteng province in South Africa.</p> <p>The project was outsourced by the Department of Health to a company based in Limpopo, South Africa.</p> <p>There was no time zone difference as both parties are based in South Africa.</p> <p>English was the main language of communication although some employees of both teams used other African languages</p>	Onshore outsourcing

Table 3.1 above indicates a summary description of the selected outsourced projects and their team leaders. The main reason for selecting project managers and their teams is that they have an in-depth knowledge and understanding of challenges faced in outsourced projects. They have first-hand experience of the challenges and their mitigation strategies.

3.4.1 Design interview protocol

The interview was chosen as the primary method for collecting data. Creswell [122] states that the major advantage of data collection through detailed interviews is that they provide an opportunity for the interviewer to understand another person's perspective of an event or experience. Interviews in this study assisted the researcher to understand the challenges associated with outsourcing projects, the impact these challenges have on projects, and the various mitigation strategies that project managers have used to manage and deliver outsourced projects within cost and schedule, and to an acceptable standard.

Prior to the interviews, a letter inviting individuals to participate in the interviews was sent out by email to all identified participants. Following their acceptance, interview dates were scheduled. This interview stage is very important as it enables the researcher to extract maximum evidence from the participant. The interview questionnaire consisted of a preliminary welcome and explanation and three sets of interview questions, as may be seen in Annexure A. The division of the questionnaire is as follows.

Preliminary checklist: In this section the interviewer thanks the participants for their participation, requests permission to record, communicates the ethical considerations pertaining to the interview, and provides the participants with a brief overview of the study and the objectives of the interview.

Section A: In this section the interviewer requests background information about the interviewer, i.e. role, number of years in the organisation and level of their position.

Section B: This section addresses the first research question: '*What are the main challenges faced during outsourced projects?*' The interview asks participants probing and descriptive questions regarding the identified challenges faced during outsourced projects and their impact on project execution. These challenges are extracted from Table 2.2 in Chapter 2.

Section C: This section addresses the second research question: '*What are the mitigation strategies to minimise the challenges?*' The interviewer asks the participants probing questions about the mitigation strategies the organisation has used to minimise the risks to project success. The mitigation strategies are extracted from Table 2.2 in Chapter 2.

3.5 Participants

The sampling method followed was purposive or expert sampling. Three project managers and one member of their teams respectively were selected to participate in the interviews; therefore, the research sample was intended to comprise six participants, interviewed individually. It was intended that each interview would last an hour. Interviews were recorded on a recording device, i.e. a smart phone. The criteria for the selection of participants was:

- Participants are project managers who have managed an outsourced project, or
- Participants have been or are part of a team in an outsourced project.

The following section describes the process followed during data analysis of the collected data.

3.6 Data analysis

Data analysis is the final stage of research, involving an analysis of the data collected and the seeking of correlations between data generated by the literature review and the interviews. The data analysis stage includes the collection of statements through interviews in which the interviewees explore their experience. The role of the interviewer is to ensure there is alignment of every interview question with the research questions; in this case, so that information gathered related closely to the challenges and mitigation strategies experienced during outsourced projects. The responses to the interview questions were loaded into a computer-assisted qualitative data analysis software (CAQDAS) tool, which assisted with analysing responses. The CAQDAS package used was Atlas.ti, as it allows for generating codes, and integrating and interpreting data. Thematic analysis was used to organise items into relevant themes within the data [56].

3.7 Data display

The researcher identified recurring phrases, meanings or words in relation to the research questions [123]. These enabled the researcher to create codes and develop themes, partly through eliminating irrelevant information. Themes that emerged were compared with those that surfaced during the literature review, as indicated in Table 2.2. Once themes had been identified, the researcher interpreted the findings in light of the themes, focussing on the implications for practice or, in the case of grounded theory, the development and discussion of new theories. Data was presented in tabular form, direct participant quotations and graphical format.

3.8 Reliability, validity and triangulation

Reliability means the degree to which one can depend on the data source; the reputation of the source is critical [124]. Reliability can be achieved by replication. The research is regarded as reliable if, when repeated, it produces the same results by the same methods. Reliability was achieved by drafting a concise and clear interview guide, so that methodological triangulation could be achieved. The validity of information is its relevance and appropriateness to the research question and the directness and strength of its association with the concepts under study. Validity refers to the accuracy of the data produced by the research instrument, whether it derived from an interview or questionnaire or other research tool. The transcripts of the individual interviews were prepared immediately after the interview, after which the transcribed documents were sent to the participants for confirmation.

Good research practice requires that researchers triangulate, which means that multiple methods, sources of data and researchers are used to improve the validity of the research findings. The use of multiple methods and data sources during the conduct of a study enable it to withstand criticism from colleagues [125]. A

combination of sampling methods to collect data from different categories of informants, or from the same individuals at various times and locations, is one way of offering a variety of perspectives [126]. The case study method enables data triangulation by offering the researcher a chance to collect data using different techniques, such as the interview [118]. For the purpose of this study, interview data from the participants was triangulated by comparing it with the data gathered during the literature review results, as tabulated in Table 2.2.

The researcher therefore made use of interviews and the literature to achieve triangulation. The researcher wanted to do document analysis; however due to confidentiality issues, she was unable to acquire such documentation. The case studies, however, yielded sufficient data to do a cross-case pattern analysis. Cross-case analysis is a technique of comparing for similarities and variations in the events, activities, and processes in the units of analysis, i.e., the in-case studies. Cross-case analysis is also a general term to describe a process where two or more case studies are analysed to produce a synthesised result.

3.9 Ethical considerations

In the process of data collection and analysis, the rules below applied and were communicated to the participants.

3.9.1 Informed consent

The researcher provided participants with verbal descriptions of the research study, the aim, the researcher's details and the ethical review process. The participants were afforded the opportunity to seek clarification at every stage of the interview. These measures ensured that participants were conscious of what was involved and how the process might affect them prior to agreeing to participate. The researcher ensured that participants were clear about the interview, emphasising the information contained in the consent form.

The researcher sought permission from the participants to audio-record the interviews and informed them about the transcription process which translated the audio-recorded data into a text format for ease of analysis. All data collected during the interviews were saved in password-protected documents on the researcher's computer, and only the researcher had access to these documents.

3.9.2 Confidentiality

At the start of each interview, it was made clear that all private data would remain private throughout the study. Although interviews were audio-recorded, participants' names and organisations were not recorded. The researcher made sure that nothing linked the participants' names and organisational information to any part of the research. Both participants information and interview responses were kept confidential.

3.9.3 Anonymity

Participants' anonymity was protected, with all data coded using a system known only to the researcher to protect the identity of the participants. In addition, participants were allowed access to their data at any time.

3.9.4 Participation and withdrawal

It was emphasised that if participants felt uneasy with any aspect of the interview, they were free to cancel participation at any moment without consequences.

3.9.5 Objectivity

In order to remain objective during the interview process, the researcher maintained neutrality, holding an unbiased view regarding the outcome of the interview, and operating in an unbiased and value-free way as far as possible.

3.10 Conclusion

This chapter has discussed the research methodology and the data collection approach followed. A descriptive case study research method was used for data collection as it offered the possibility of a deep understanding of the challenges and mitigation strategies and enabled the researcher to discover patterns in the interactions of project management practitioners in the real-life context of outsourced distributed teams.

Chapter 4 presents the results of the interviews and their analysis, in an attempt to achieve the research objective as described in Chapter 1.



4. Chapter 4: Data analysis and research results

4.1 Introduction

This chapter provides information on the three case studies selected. A description is given of how the case study evidence was collected. The data collected through the semi-structured interviews is presented and cross analysed and compared with data gained in the literature findings, as shown in Table 2.2. The methodology followed was described in Chapter 3.

4.2 Data analysis

The data analysis stage of this qualitative study consisted of the collection of all participants' statements made in the semi-structured interviews, during which the participants related their experiences. The participants were selected based on their experience in project management and their roles in an outsourced project. The interviews were audio-recorded with the participants' informed consent. The audio recordings were afterwards transcribed into text with the aid of a voice-recognition software.

The next step was to load the transcribed files into computer-assisted qualitative data analysis software (CAQDAS). The use of CAQDAS assisted with analysing responses from the interview questions and discarding data not related to the research questions. The CAQDAS used was Atlas.ti version 8, as it enabled the researcher to store, categorise, retrieve and compare data. The package also allows a researcher to organise qualitative data, assign and generate codes, and integrate and interpret data.

4.2.1 Thematic analysis

In order to perform data analysis, the audio recordings were transcribed into text with the aid of voice-recognition software. Creswell [116] states that when multiple cases are chosen, a typical format is to first provide a detailed description of each case and the themes within the case, then perform a thematic analysis across the cases, called a cross-case analysis, and lastly to interpret the case details.

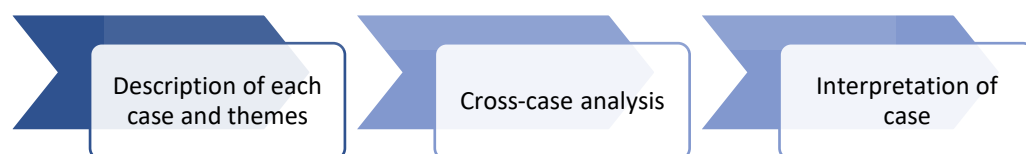


Figure 4.1 Multiple case thematic analysis format [116]

Figure 4.1 indicates the process followed in analysing the data. A thematic analysis was used to organise the items into appropriate themes within the data [56]. The process followed was:

- First each case study was analysed.
- Secondly, a cross-case analysis was performed to determine whether the results were consistent in the three cases.

- Lastly an interpretation of the cases was done, as presented in Chapter 5.

Data in this chapter is presented in tabular form and in the form of direct quotations.

The following section discusses the process followed by the researcher when formulating themes and creating codes.

4.2.2 Themes and coding

Three case studies were selected for this research study, to determine whether the challenges faced in projects were consistent with those of the others, and to determine the mitigation strategies that each project employed to minimise the impact of the challenges. In order to disregard irrelevant data from participants' responses, the researcher started by creating themes, extracted from the literature review and shown in Table 2.2. The ten challenges identified in the literature review were used as themes to guide the investigation of each case. Each theme was then linked to a pre-determined impact code and mitigating factor code, drawn from Table 2.2.

This approach assisted the researcher to focus only on the relevant information, which related to the data found in the literature review. Since participants did not use exactly the same terminology as that of the literature, to ensure alignment with the contents of Table 2.2 the researcher identified recurring phrases, meanings or words in relation to each research question [123].

Table 4.2 below indicates the ten themes used to guide investigations into the three cases, based on Table 2.2 of the literature review.

Table 4.1 Case study themes

Themes	Theme description
Theme 1	Geographical Location
Theme 2	Time zone
Theme 3	Trust
Theme 4	Culture
Theme 5	Knowledge loss
Theme 6	IP Protection
Theme 7	Loss of control
Theme 8	Hidden costs
Theme 9	Language
Theme 10	Political risks

4.2.3 Interviewee profiles

Initially six participants were targeted for the interviews, two for every case study, and identified based on their experience in working with outsourced projects. However, challenges were experienced with regard to availability and many could not, in the end, be interviewed. Data eventually came from one participant per case

study, as indicated in Table 4.2. The researcher therefore understands that this research may not be generalisable at all; however, it nevertheless provides good input for a next iteration of the topic.

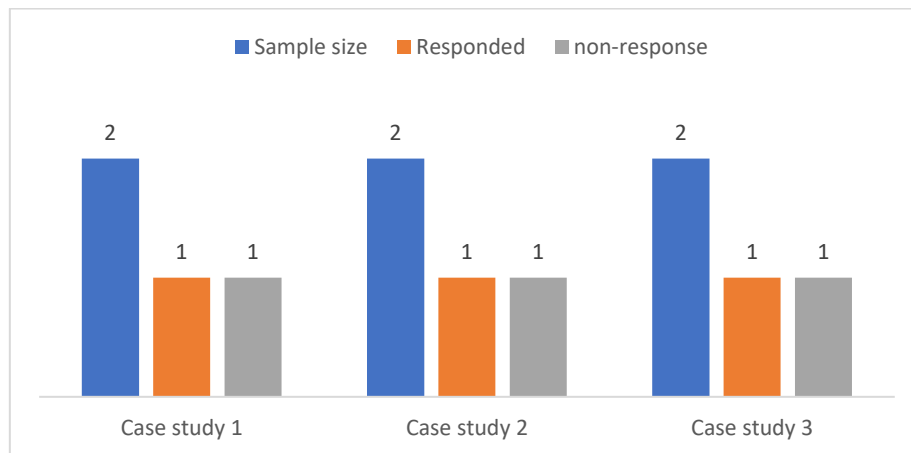


Figure 4.2 Interview responses

For the initial questions, participants were asked background information on their role, number of years in the organisation, level of their position and a brief description of the project in terms of location, time zone, language and whether the project was completed successfully. Data relating to position in the company and years' service in the company are shown in Table 4.2 below.

Table 4.2 Participants' background information

Theme	Case Study 1	Case Study 2	Case Study 3
Role	Technical Metallurgist	Lead Project Engineer	Project Manager
Number of years in the organisation	3 Years	6 Years	13 Years
Level of position	Middle Management	Senior Management	Senior Management

A summary of the case study findings, presented in the same order as the interview questions themselves, is discussed in the following sections. Colour coding was used to identify phrases that belonged under the impact code and those that belonged under the mitigation factor code. Colours have been retained here to aid understanding.

The following section presents the findings of case study 1, using verbatim quotations from the semi-structured interview.

4.3 Research findings: Case study 1

4.3.1 Case study 1: Description

The project comprised the research and development of technology used to produce a resin used for ion exchange in order to separate two metals in a liquid stream. The end-user is a South American (Chilean) company, which has a five-hour time difference from South Africa. The research and development contract was awarded to a chemical engineering company based in South Africa. The South African company outsourced parts of the contract works to an Italian company, which had no time difference with South Africa. This project was done in the form of an offshore outsourcing collaboration mode, as it occurred in different countries and was carried out by different organisations through a contractual agreement. The communication language used between the three parties was English. Although the project experienced challenges, it was delivered successfully, due to the strategies applied to mitigate the impact of the challenges on project delivery. The project delivered to the client met all the project requirements.

Section 4.2 below presents information on each of the ten themes for case study 1, based on Table 2.2 of the literature review. Findings are given in the form of verbatim quotations. The questions asked of the participant are shown in Annexure A.

4.3.2 Case study 1. Theme 1 – Geographical location

4.3.2.1 Challenges

During the literature review, it was established that geographical location of project teams is a challenge during outsourced projects. To determine whether the challenge is consistent for all outsourced projects, participant 1 was asked the following questions: *'What challenges did you face in your project due to geographical location of the project teams? What was the impact of this challenge during the project?'* From the responses, the researcher extracted the following quotations for analysis. The responses confirmed the literature findings:

- *'... it took quite a while for us to really understand **what needs to be done** in terms of the problem that we trying to resolve **and how we're going to go about it ...**'*
- *'... meetings were done **over the phone** and **we had several teleconferences.**'*

In analysing the above participant quotations, the researcher assigned the data to the impact code based on Table 2.2, as indicated below:

- **Change management**
- **Limited face-to-face contact**

4.3.2.2 Mitigation

With the above challenges identified by the participant, the participant was then asked, *'What mitigation strategies did you make use of to minimise the challenge due to geographical dispersion?'* From the responses the following quotations were identified:

- 'We **agreed on a biweekly meeting** where we address all issues then.'
- 'Before the meetings, parties **would submit a report on the issues that must be addressed and provide the background information ...**'
- 'Meetings were done over the phone and **we had several teleconferences ...**'

In analysing the participant quotations above, the researcher assigned them mitigation factor codes based on Table 2.2, as indicated below:

- **Communication guidelines**
- **Use of technology**

The following section discusses the participants responses with regard to time zone differences.

4.3.3 Case study 1. Theme 2 – Time zone difference

4.3.3.1 Challenges

During the literature review stage, it was established that time zone differences are a challenge during the outsourcing of projects. To determine whether the challenge is consistent in all projects, participants were asked, 'What challenges did you experience due to time zone differences? What was the impact of this challenge during the project?' From the response for case 1, the researcher extracted the following verbatim quotations for analysis:

- '... I think the other thing was the issue of when you need something now, there's an issue now, and you communicate it maybe on email maybe you're **not going to get a response** now, you might get it late. So that resulted in **delays**. There were always delays.'
- 'The fact that we ourselves and Italy were not that different, then it worked for us, but the other guys it was **different because just when we knock off, they're starting their day.**'
- 'The other challenge is you put the problem on the table and the guys in Italy will respond and then you respond and there's that conversation, then **seven hours later the South American guys come in and they change ...**'

In analysing the participant quotations above, extracted from the interview transcript of case study 1, the researcher identified the following impact codes:

- **Delay in resolving issues**
- **Difficulty in team coordination**
- **Task synchronisation issues**

4.3.3.2 Mitigation

With the above challenges identified by the participant, the participant was asked, 'What mitigation strategies did you make use of to minimise the challenge due to different time zones?' From the responses the following quotations were identified.

- ‘... we **agreed on a biweekly meeting** where we address all issues.
- And so, **what we did is, every party before the meeting would submit a report** on the issues that must be addressed and provide the background.’

In analysing the participant quotations above, the researcher assigned mitigation factor codes based on Table 2.2, as indicated below.

- **Good communication networks**
- **Setting up collaboration procedures**

The next section discusses the participant’s responses regarding absence of trust between project teams.

4.3.4 Case study 1. Theme 3 – Absence of trust

4.3.4.1 Challenges

Participant 1 was asked, ‘What challenges did you experience due to an absence of trust among team members? What was the impact of this challenge during the project?’ From the responses, the researcher extracted the following verbatim quotations for analysis:

- ‘Some of the **stuff we’re not going to share. Instead of sharing we’d rather send you an engineer** from our office who’s going to come and spend a month there and test this thing with you, you are responsible to make sure that the resources to test this thing are there.’
- ‘so, they **were not sharing** everything.’

In analysing the participant’s quotations above, extracted from the interview transcript of case study 1, the researcher identified the following impact code:

- **Limited knowledge sharing**

4.3.4.2 Mitigation

With the above challenges identified by the participant, the question was asked, ‘What mitigation strategies did you make use of to minimise the challenge due to the lack of trust between project teams and members?’ From the responses the following quotations were identified.

- ‘We went the legal route. I mean if you have an **NDA in place**, and we have a contract in place, so if you deviate from the agreement then there’s legal consequences. We went through it that way.
- ‘Some of the **details they didn’t share but I think then we got enough to make a success** of the project, we **engaged them**, and we used to use legal methods to overcome the challenge.’

In analysing the participant’s quotations above, the researcher assigned mitigation factor codes based on Table 2.2, as indicated below.

- **Team interactions**
- **Non-disclosure agreement (NDA)**

The next section discusses the participant's responses in terms cultural differences between the project teams.

4.3.5 Case study 1. Theme 4 – Cultural difference

4.3.5.1 Challenges

Participant 1 was asked, '*What communication challenges existed in the project due to cultural differences? What was the impact of this challenge during the project?*' From the responses, the researcher extracted the following verbatim quotations for analysis:

- '*Before I could communicate some of the details ... so, they were impatient whereas the South Americans guys, they were a bit relaxed to a point that sometimes you even worry whether they are really interested in this thing.*'
- '*Sometimes we found ourselves misunderstanding what needs to be done since we are not really getting the right information.*'
- '*... and then every time a new person comes you must go through the same thing, you know, getting them to understand that sometimes, especially when you're doing research, things sometimes do take time.*'

In analysing the participant quotations above, extracted from the interview transcript of case study 1, the researcher identified the following impact codes:

- Task synchronisation issues
- Team cohesion
- Misinterpretation of project requirements

4.3.5.2 Mitigation

With the above challenges identified by the participants, the participant was asked, '*What mitigation strategies did you make use of to minimise the challenge of cultural differences?*' From the responses, the following quotations were identified.

- '*... they were not patient, and I had to understand why they're like that and value that and try to accommodate them in the way they are.*'
- '*... I had gone through a course on valuing diversity where in this context diversity was basically the culture in terms of the work ethics, if I may put it that way.*'

In analysing the participant quotations above, the researcher assigned mitigation factor codes based on Table 2.2, as indicated below.

- Accommodate other cultures
- Learn national culture

The mitigation strategies employed by the participant support researchers [29] and [30], who according to the literature, recommend mitigating the challenge of cultural difference by having team members learn about the

national culture of other teams. Sharma states that to overcome cultural differences, one must be accommodative of other cultures.

The following section presents the participant's response in terms of knowledge transfer between project teams.

4.3.6 Case study 1. Theme 5 – Knowledge transfer

4.3.6.1 Mitigation

Participant 1 was asked, 'What knowledge transfer challenges existed in the project? What was the impact of this challenge during the project?' From the response, the researcher extracted the following verbatim quotations for analysis:

- '... the challenge with that and the impact it had on the project was **we could end up designing the wrong stuff.**'
- '... the truth, **I don't think they shared everything with us**, even some of the drawings they were so high level, one had to dig for information.'

In analysing the participant quotations above, extracted from the interview transcript of case study 1, the researcher identified the following impact codes:

- **Dependency on third parties**
- **Knowledge sharing**

4.3.6.2 Mitigation

From the literature review it was noted that, with no knowledge transfer, there is increased dependency on the vendor and the competitive advantage of a company becomes increasingly vendor-dependent [100]. Employees will lack the knowledge necessary to implement the systems, relying on vendors to train them [101]. Regarding these challenges, the participant was asked, 'What mitigation strategies did you make use of to minimise the challenge due to lack of knowledge transfer?' From the responses the following quotations were identified.

- 'Information that could be shared and that was a legal matter we addressed it through legal. We could do with the amount of information provided; they **eventually agreed to share** and we were **able to identify shortcomings** and make sure that we shared every bit of information and that we knew which we were not going to share if we didn't have that much knowledge.'

In analysing the participant quotations above, the researcher assigned mitigation factor codes based on Table 2.2, as indicated below:

- **Knowledge sharing**
- **Identify critical areas**

The next section presents participant responses in terms of IP protection between project teams.

4.3.7 Case study 1. Theme 6 – IP protection

4.3.7.1 Challenges

Participant 1 was asked, *‘What Intellectual protection challenges existed in the project? What was the impact of this challenge during the project?’* From the responses, the researcher extracted the following verbatim quotations for analysis:

- *‘... at first they **didn’t want to share the intellectual property**. What they were proposing was us getting a license to use the IP or choose their product.’*

In analysing the participant quotation above, extracted from the interview transcript of case study 1, the researcher identified the following impact code:

- **Sharing of sensitive information**

4.3.7.2 Mitigation

With the above challenges identified by the participant, the participant was asked, *‘What mitigation strategies did you make use of to minimise the challenge due to intellectual property?’* From the responses, the following quotation was identified.

- *‘... the biweekly meetings were not always a just a phone call; we started using **video conferencing facilities so that you can at least see each other** and then tried to understand the body language.’*

In analysing the participant quotation above, the researcher assigned a mitigation factor code based on Table 2.2, as indicated below.

- **Trusted secured channels**

The next section presents participant responses in terms of knowledge transfer between project teams.

4.3.8 Case study 1. Theme 7 – Lack of control

4.3.8.1 Mitigation

Participant 1 was asked, *‘What loss of control challenges existed in the project? What was the impact of this challenge during the project?’* From the responses, the researcher extracted the following verbatim quotations for analysis:

- *‘Some of the stuff **we’re not going to share**. Instead of sharing we’d rather send you an engineer from our office who’s going to come and spend a month there and do testing.’*
- *‘It was just that, at the end of the day, we have **limited information** and actually - another thing I must bring - because of space in research when these guys have issues in the plant using this*

product I'm supposed to be the person helping them technically so ... but if I have limited knowledge, every time it's like I must go back to them, and that created a lot of delays.'

In analysing the participant quotations above, extracted from the interview transcript of case study 1, the researcher identified the following impact codes:

- Limited knowledge sharing
- Project delays

4.3.8.2 Mitigation

With the above challenges identified by the participants, the participant was asked, 'What mitigation strategies did you utilise to overcome the challenge caused by loss of control of external operations?' From the responses the following quotation was identified.

- 'They eventually agreed to share, and we were able to identify shortcomings and make sure that we shared every bit of information, that we knew which we were not going to share if we didn't have that much knowledge.'

In analysing the participant quotations above, the researcher assigned a mitigation factor code based on Table 2.2, as indicated below.

- Knowledge sharing

The next section discusses participants response in terms of hidden costs in this outsourced project.

4.3.9 Case study 1. Theme 8 – Hidden costs

4.3.9.1 Challenges

Participant 1 was asked, 'What challenges did you experience due to costs which were not disclosed (Hidden costs) at the start of the project? What was the impact of this challenge during the project?' From the responses, the researcher extracted the following verbatim quotations for analysis:

- 'Something that we did not discuss in detail when I was scoping this project, also from a cost point of view, it was the whole issue of the exchange rate.'
- 'Those were learnings you put them upfront in your agreement, in terms of how you're going to handle it ... didn't you build enough fat? We did have contingency, but it was all used up. At some point we had to go back to senior management for more funds.'
- 'Like I said we overran our budget because of a currency, the exchange rates.'

In analysing the participant quotations above, extracted from the interview transcript of case study 1, the researcher identified the following impact code:

- Cost overruns

4.3.9.2 Mitigation

With the above challenges identified by the participant, the participant was asked, ‘*What mitigation strategies did you make use of to minimise the challenge due to unforeseen and hidden costs?*’ From the responses the following quotation was identified:

- ‘So, we put more **contingency into our cost** and then I think we didn't have issues going forward into the projects in terms of that.’

In analysing the participant quotation above, the researcher assigned a mitigation factor code based on Table 2.2, as indicated below:

- **Contingency costs**

The next section discusses participant responses in terms of language differences in this outsourced project.

4.3.10 Case study 1. Theme 9 – Language difference

4.3.10.1 Challenges

Participant 1 was asked, ‘*What challenges did you face due to language differences amongst the members of the project team? What was the impact of this challenge during the project?*’ From the responses, the researcher extracted the following verbatim quotations for analysis:

- ‘Some things can be solved through a conversation but **if you don't understand** each other then you must go and write it down. And people with different cultures, **the interpretation of a written message depends on the person who's interpreting it.**’
- ‘**They wrote something in a way that you thought they're fighting with you whereas they are not.**’
- ‘It didn't impact the project from a cost and a schedule as we are technical, but it almost **ruined the relationships.**’

In analysing the participant quotations above, extracted from the interview transcript of case study 1, the researcher identified the following impact code:

- **Inaccurate translations**
- **Misunderstanding of the project scope**

4.3.10.2 Mitigation

With the above challenges identified by the participant, the participant was asked, ‘*What mitigation strategies did you make use of to minimise the challenge due to language differences?*’ From the responses the following quotations were identified:

- ‘Both parties (Italy and Chile) could speak Spanish, which we didn't here in South Africa. Spanish was their **default language.**’

- *'If someone didn't really understand something, we make **sure it's properly captured** in the easiest way in the minutes ...'*
- *'...we always **had people assisting from all parties** - they're just assisting to make sure that we understand the point the same way and a lot of those discussions were often followed by minutes.'*

In analysing the participant quotations above, the researcher assigned a mitigation factor code based on Table 2.2, as indicated below.

- **Translation by native speaker**

The next section discusses participant responses in terms of political risks experienced during the outsourced project.

4.3.11 Case study 1. Theme 10 – Political risks

4.3.11.1 Challenges

Participant 1 was asked, *'What political challenges existed in the project? What was the impact of this challenge during the project?'* From the responses, the researcher extracted the following verbatim quotations for analysis:

- *'... there is that **delay** in terms of negotiating and then we started losing time.'*
- *'The project was mainly run by the technical people like me. So, every time they throw a little question then I must go to the legal person and my company must do the same. **It took time and we did lose some time.**'*

In analysing the participant quotations above, extracted from the interview transcript of case study 1, the researcher identified the following impact code:

- **Project delays**

4.3.11.2 Mitigation

With the above challenges identified by the participant, the participant was asked, *'What mitigation strategies did you make use of to minimise the challenge due to political risks?'* From the responses the following quotations were identified:

- *'We were going to pay a lot of tax if we wanted to import something that we can get locally. So, we had to do **a proper risk assessment** on the construction of equipment ...'*
- *'To do the quality checks, we **had to involve them** ...'*

In analysing the participant quotations above, the researcher assigned a mitigation factor code based on Table 2.2, as indicated below:

- Obtain risk information
- Risk insurance

The next section provides a summary of the findings of case study 1, indicating the theme factor, the impact code and the mitigating factor code.

4.3.12 Case study 1: Findings summary

Table 4.3 below summarises the findings of case study 1. Each theme is shown with the impact and associated mitigation strategy to minimise the challenge.

Table 4.3 Case study 1: Findings summary

	Theme	Impact code	Mitigation factor code
Theme 1	Geographical location	Change M=management	Communication guidelines
		Limited face-to-face	Use of technology
Theme 2	Time zone	Delay in resolving issues	Good communication networks
		Difficulty in team coordination	Setting up collaboration
		Task Synchronization	
Theme 3	Absence of trust	Limited knowledge sharing	Team interactions
Theme 4	Culture	Task synchronization issues	Accommodate other cultures
		Team cohesion	
		Misinterpretation of project requirements	Learn national culture
Theme 5	Knowledge loss	Dependency on third parties	Knowledge sharing
		Knowledge sharing	Identify critical areas
Theme 6	IP Protection	Sharing of sensitive information	Use trusted, secure channels
Theme 7	Lack of control	Limited knowledge sharing	Knowledge sharing
		Project delays	
Theme 8	Hidden costs	Cost overruns	Contingency costs
Theme 9	Language	Inaccurate translations	Translation by native speaker
		Misunderstanding of the project scope	
Theme 10	Political risks	Project delays	Obtain risk information

The following section presents the findings for case study 2, using verbatim quotations from the semi-structured interview.

4.4 Research findings: Case study 2

4.4.1 Case study 2 description

The project was for the supply, engineering supervision, training and commissioning of a Process Control System at a diesel storage facility in Ghana. Some of the work packages were outsourced to third parties,

such as the installation of panels and cabling. This project was done in the form of an offshore outsourcing collaboration mode, as this occurred in different countries and was carried out by different organisation through a contractual agreement. South Africa is two hours ahead of Ghana in terms of time zone. Design engineering was done in South Africa. Many local languages are spoken in Ghana, but English was used as the communication language with the client. The project was executed successfully.

4.4.2 Case study 2. Theme 1 – Geographical location

4.4.2.1 Challenges

Participant 2 was asked the following questions: *‘What challenges did you face in your project due to geographical location of the project teams? What was the impact of this challenge during the project?’*

From the responses, the researcher extracted the following verbatim quotations for analysis:

- *‘... on top of that, if you have **to make changes** on the designs it’s a process, because you cannot just make changes without making sure everyone is on board.’*
- *‘... working in different areas really **limits the amount of personal interactions**.’*

In analysing the participant quotations above, extracted from the interview transcript of case study 2, the researcher identified the following impact codes:

- **Change management**
- **Limited face-to-face contact**

4.4.2.2 Mitigation

With the above challenges identified by the participant, the participant was then asked, *‘What mitigation strategies did you make use of to minimise the challenge due to geographical dispersion?’* From the responses the following quotations were identified:

- *‘... we also made an **effort to travel** once a month to site, that actually made things better for us.’*
- *‘... we had to **rely on technology** to facilitate communication. In an inhouse project we would normally schedule weekly face-to-face meetings, but in this instance, we schedule Skype meetings with the team.’*

In analysing the participant quotations above, the researcher assigned a mitigation factor code based on Table 2.2, as indicated below.

- **Travelling**
- **Use of technology**

The next section discusses participant responses in terms of time zone differences.

4.4.3 Case study 2. Theme 2 - Time zone difference

4.4.3.1 Challenges

Participant 2 was asked, *‘What challenges did you experience due to time zone differences? What was the impact of this challenge during the project?’* From the responses, the researcher extracted the following verbatim quotations for analysis:

- *‘... I think the other thing was the issue of when you need something now, there’s an issue now, and you communicate it maybe on email maybe you’re **not going to get a response now** you might get it late. So that resulted in delays. There were always delays.’*
- *‘It was really **difficult to get everyone rowing at the same pace** and it was taking us a lot of time to get project issues resolved.’*
- *‘... also, it was taking us a **lot of time to get project issues resolved.**’*

In analysing the participant quotations above, extracted from the interview transcript of case study 2, the researcher identified the following impact code:

- **Delay in resolving issues**
- **Difficulty in team coordination**

4.4.3.2 Mitigation

With the above challenges identified by the participant, the participant was asked, *‘What mitigation strategies did you make use of to minimise the challenge due to different time zones?’* From the responses the following quotations were identified:

- *‘... so, we were ahead by two hours, right, we **created a platform** where members of the team would log in, I think the platform was team-viewer.’*
- *‘... that software each person in the team was able to login and **report or provide status updates** once they were at the office. Also, the Skype meetings scheduled we were able to mitigate the challenge of time zones.’*

In analysing the participant quotations above, the researcher assigned a mitigation factor code based on Table 2.2, as indicated below:

- **Good communication networks**
- **Setting up collaboration procedures**

The next section discusses participant responses in terms of the absence of trust between project teams.

4.4.4 Case study 2. Theme 3 - Absence of trust

4.4.4.1 Challenges

Participant 2 was asked, '*What challenges did you experience due to absence of trust among team members? What was the impact of this challenge during the project?*' From the responses, the researcher extracted the following verbatim quotations for analysis:

- '*... we struggled to adapt to the fact that the teams are located in various locations, therefore **limiting communication**.*'

In analysing the participant quotation above, extracted from the interview transcript of case study 2, the researcher identified the following impact code:

- **Lack of communication**

4.4.4.2 Mitigation

With the above challenges identified by the participant, the participant was asked, '*What mitigation strategies did you make use of to minimise the challenge of lack of trust?*' From the responses the following quotations were identified.

- '*... when you engage with people regularly it also gives them comfort and confidence to share information ... we made **sure status reports were always communicated**.*'

In analysing the participant quotations above, the researcher assigned a mitigation factor code based on Table 2.2, as indicated below.

- **Transparency**

The next section discusses participant responses in terms of absence of cultural differences between project teams.

4.4.5 Case study 2. Theme 4 - Cultural difference

4.4.5.1 Challenges

Participant 2 was asked, '*What communication challenges existed in the project as a result of cultural differences? What was the impact of this challenge during the project?*' From the responses, the researcher extracted the following verbatim quotations for analysis:

- '*Sometimes we found ourselves **misunderstanding what needs to be done** since we are not really getting the right information.*'

In analysing the participant quotations above, extracted from the interview transcript of case study 2, the researcher identified the following impact code:

- **Misinterpretation of project requirements**

4.4.5.2 Mitigation

With the above challenges identified by the participants, the participant was asked questions related to mitigation strategies applied to minimise the risk caused by cultural differences. From the responses the following quotations were identified:

- ‘... before we even went to Ghana, we had someone come to our company *to educate us about the culture in Ghana. It did really help.*’
- ‘We learnt they don’t like offending anyone by talking back, you know, so we *accepted their culture.* I am telling you, that country ...’

In analysing the participant quotations above, the researcher assigned a mitigation factor code based on Table 2.2, as indicated below:

- **Learn national culture**
- **Accommodate other cultures**

The next section discusses participant responses in terms of knowledge transfer between project teams.

4.4.6 Case study 2. Theme 5 - Knowledge transfer

4.4.6.1 Challenges

Participant 2 was asked, ‘What knowledge transfer challenges existed in the project? What was the impact of this challenge during the project?’ From the responses, the researcher extracted the following verbatim quotations for analysis:

- ‘... mentioned previously that part of our scope, we had to also outsource to third parties. So, they *dictated timelines* of when we would get certain things and, we found ourselves *dependant on them* as that part of the work was not core to our business.’
- ‘To tell you the *truth I don’t think they shared everything* with us, even some of the drawings they were so high level, one had to dig for information, it was a bit of a challenge, I must say.’

In analysing the participant quotations above, extracted from the interview transcript of case study 2, the researcher identified the following codes:

- **Dependency on third parties**
- **Knowledge sharing**

4.4.6.2 Mitigation

With the above challenges identified by the participant, the participant was asked, ‘What mitigation strategies did you make use of to minimise the challenge due to lack of knowledge transfer?’ From the responses the following quotations were identified:

- ‘At the beginning of the project, the client asked us **to prepare a training or skills transfer plan**, which kind of forced us to **commit to sharing the knowledge** ... that plan was more like a KPI, we were measured on a monthly basis on how many locals have we empowered.’
- ‘... for example, the process control system was **an area of importance to them**, so we had to make sure their systems engineers are properly trained as to **be able to help themselves** once the project has been handed over.’

In analysing the participant quotations above, the researcher assigned a mitigation factor code based on Table 2.2, as indicated below.

- **Knowledge sharing**
- **Identify critical areas**

The next section presents participant responses in terms of IP protection in the project.

4.4.7 Case study 2. Theme 6 - IP protection

4.4.7.1 Challenges

Participant 2 was asked, ‘What intellectual property protection challenges existed in the project? What was the impact of this challenge during the project?’ From the responses, the researcher extracted the following verbatim quotations for analysis:

- ‘Because the project involved us sharing confidential and **sensitive information about our company**, we had to make sure the legal department is on-board to ensure the non-disclosure agreement was in place’.
- ‘One of the stipulations of the contract that we sign it was that we must provide training to the people that we are employing. This meant that **we share a lot of how we do things within the company** with the people that we employed and a lot of the people were employed on a contract basis, which meant that they **were free to leave** once the particular contract that they were involved in ended and **take those skills somewhere** ...’

In analysing the participant quotations above, extracted from the interview transcript of case study 2, the researcher identified the following impact codes:

- **Sharing of sensitive information**
- **Increased competition**

4.4.7.2 Mitigation

With the above challenges identified by the participant, the participant was asked, ‘What mitigation strategies did you make use of to minimise the challenge due to intellectual property?’ From the responses the following quotations were identified:

- ‘We involved our IT department and they made sure the **data protection processes were followed** by all involved in the project.’
- ‘So, during the project, the files which were sent from outside the organisation were **thoroughly scanned for potential threats** and nothing was found.’

In analysing the participant quotations above, the researcher assigned a mitigation factor code based on Table 2.2, as indicated below:

- **Trusted, secured channels**

The next section presents participants response in terms of lack of control in the project.

4.4.8 Case study 2. Theme 7 - Lack of control

4.4.8.1 Challenges

Participant 2 was asked, ‘What loss of control challenges existed in the project? What was the impact of this challenge during the project?’ From the responses, the researcher extracted the following verbatim quotations for analysis:

- ‘This, however, meant we were **not really in touch with the daily running** of the project, and we **had to rely** on the project manager to provide us with status updates and feedback.’

In analysing the participant quotation above, extracted from the interview transcript of case study 2, the researcher identified the following impact code:

- **Loss of control of day-to-day activities**

4.4.8.2 Mitigation

With the above challenge identified by the participant, the participant was asked questions related to mitigation strategies that they applied to minimise the risk caused by lack of control. From the responses the following quotations were identified:

- ‘Onsite **we had a dedicated project manager**, whereas at the panel manufacturers we actually didn’t have control of what was happening. That was a challenge, but we managed to deliver the project as per schedule.’

In analysing the participant quotation above, the researcher assigned a mitigation factor code based on Table 2.2, as indicated below:

- **Assign internal staff**

The next section presents participant responses in terms of hidden costs in the project.

4.4.9 Case study 2. Theme 8 - Hidden costs

4.4.9.1 Challenges

Participant 2 was asked, *'What challenges did you experience due to costs which were not disclosed (Hidden costs) at the start of the project? What was the impact of this challenge during the project?'* From the responses, the researcher extracted the following verbatim quotations for analysis:

- *'One thing we had not factored in was **delays coming from the client's** side. We had a project team on site, only for the **commissioning to be delayed** by close to two months, and we had **not factored that into our costing**.'*

In analysing the participant quotation above, extracted from the interview transcript of case study 2, the researcher identified the following impact code:

- **Costs arising from interruptions**

4.4.9.2 Mitigation

With the above challenges identified by the participant, the participant was asked, *'What mitigation strategies did you make use of to minimise the challenge due to unforeseen and hidden costs?'* From the responses the following quotations were identified:

- *'... we as a company always make an **allowance for unforeseen costs** in a form of a contingency cost.'*
- *'... we make this cost a certain percentage of the total cost of the contract value.'*
- *'Also, because there were also unknown elements on the scope, we made sure **the contract allows for variation orders** during the lifecycle of the project.'*

In analysing the participant quotations above, the researcher assigned a mitigation factor code based on Table 2.2, as indicated below:

- **Variation orders**
- **Contingency costs**

The next section discusses participants response in terms of language differences in this outsourced project.

4.4.10 Case study 2. Theme 9 - Language differences

4.4.10.1 Challenges

Participant 2 was asked, *'What challenges did you face due to language differences amongst the members of the project team? What was the impact of this challenge during the project?'* From the responses, the researcher extracted the following verbatim quotations for analysis:

- *'We had staff members who could not really speak English, in some instances it was a challenge as they could **not understand the what needs to be done.**'*
- *'... so, when the supervisor was translating the messages, we were not sure if he is **translating the correct information.**'*

In analysing the participant quotations above, extracted from the interview transcript of case study 2, the researcher identified the following impact codes:

- **Inaccurate translations**
- **Misunderstanding of project scope**

4.4.10.2 Mitigation

With the above challenges identified by the participant, the participant was asked questions related to mitigation strategies they applied to minimise the risk caused by language differences. From the responses the following quotations were identified:

- *'Luckily the official communication language was English, we then made sure for local teams are led or rather supervised by a local person that can speak English and **also translate to them in the language they understand.**'*
- *'... that's how we got around the language issue. Even minutes of meetings were done in English, so it was important to have that **local person who can fluently speak** English.'*

In analysing the participant quotations above, the researcher assigned a mitigation factor code based on Table 2.2, as indicated below:

- **Translation by native speaker**
- **Documents reviewed by native speaker**

The next section discusses participant responses in terms of political risks experienced during the outsourced project.

4.4.11 Case study 2. Theme 10 - Political risks

4.4.11.1 Challenges

Participant 2 was asked, *'What political challenges existed in the project? What was the impact of this challenge during the project?'* From the responses, the researcher extracted the following verbatim quotations for analysis:

- *'So, because this was one of the biggest projects in the country, the government needed to bring in external skills to make sure the project was executed successful. However, that meant some of the locals will be without jobs.'*

- ‘So labour unrest was anticipated, and this could have resulted **in project delays** as well as cost overruns. Luckily at the time nothing really happened.’

In analysing the participant quotations above, extracted from the interview transcript of case study 2, the researcher identified the following impact code:

- **Project delays**

4.4.11.2 Mitigation

With the above challenges identified by the participant, the participant was asked questions related to mitigation strategies they applied to minimise the risk caused by political factors. From the responses the following quotations were identified.

- ‘Since this was the biggest the project in the country, we also, in this instance, involved our market research and analysis team **to perform a country risk analysis** prior to us even submitting our bid.’
- ‘We also had to make sure we had **enough insurance** to cover us should anything happen as a result of labour unrest.’
- ‘Also, **gaining insights about the country** from the embassy office assists a lot.’

In analysing the participant quotations above, the researcher assigned a mitigation factor code based on Table 2.2, as indicated below.

- **Obtain risk information**
- **Risk insurance**

The following section provides a summary of the findings of case study 3, indicating the theme factor, the impact code and the mitigating factor code.

4.4.12 Case study 2. Findings summary

Table 4.5 below summarises the findings of case study 2. Each theme is grouped with the impact and associated mitigation strategy to minimise the challenge.

Table 4.4 Case study 2: Findings summary

	Theme	Impact Theme	Mitigation theme
Theme 1	Geographical location	Change management	Travelling
		Limited face-to-face	Use of technology
Theme 2	Time zone	Delay in resolving issues	Good communication networks
		Difficulty in team coordination	Setting up collaboration
Theme 3	Absence of trust	Lack of communication	Transparency

	Theme	Impact Theme	Mitigation theme
Theme 4	Culture	Misinterpretation of project requirements	Learn national culture
			Accommodate other cultures
Theme 5	Knowledge loss	Dependency on third parties	Knowledge sharing
		Knowledge sharing	Identify critical areas
Theme 6	IP Protection	Sharing of sensitive information	Trusted secured channels
		Increased competition	
Theme 7	Lack of control	Loss of control of day-to-day activities	Assign internal staff
Theme 8	Hidden costs	Cost arising from interruptions	Variation orders
			Contingency costs
Theme 9	Language	Inaccurate translations	Translation by native speaker
		Misunderstanding of the project scope	Documents reviewed by native speaker
Theme 10	Political risks	Project delays	Obtain risk information
			Risk insurance

The next section presents the findings of case study 3, using verbatim quotations from the semi-structured interview.

4.5 Research findings: Case Study 3

4.5.1 Case study 3 description

The project was a government construction project for the upgrade of a hospital ward located in Gauteng Province, South Africa. The Department of Health outsourced the project to a company based in Limpopo, meaning that there was no time zone difference. This project was done in the form of an onshore outsourcing collaboration mode, as it occurred in same country and was carried out by different organisation through a contractual agreement. English was the main language of communication although some employees and migrant workers in the project had challenges with English; these were engaged using other African languages. The project experienced many challenges due to the nature of the contract with the government; however, through the mitigation factors which the project team made use of, the project was delivered successfully within the scope, time and budget, and the client was satisfied.

The next section presents the findings of case study 3 using verbatim quotations from the semi-structured interview.

4.5.2 Case study 3. Theme 1 - Geographical location

4.5.2.1 Challenges

Participant 3 was asked the following questions: *‘What challenges did you face in your project due to geographical location of the project teams? What was the impact of this challenge during the project?’* From the responses, the researcher extracted the following verbatim quotations for analysis:

- *'This created challenges when we had to sometimes have urgent engagement on site, and you find that, as the project manager, I am busy **attending to something else** at the head office and suddenly I am **required to avail myself urgently** for a site incident or a site meeting.'*
- *'... and **miss some of the contributions** of meetings or have **to reschedule meetings** resulting in certain **delays** within the project.'*

In analysing the participant quotations above, extracted from the interview transcript of case study 3, the researcher identified the following impact codes:

- **Change management**
- **Difficult to manage project challenges**

4.5.2.2 Mitigation

With the above challenges identified by the participant, the participant was then asked, *'What mitigation strategies did you make use of to minimise the challenge due to geographical dispersion?'* From the responses the following quotations were identified:

- *'... **traveling** to client's site, and we had to establish the office on site and also find accommodation for some of our stuff that lived far from the project site, so that we can shorten the travelling time and distance and invest all those back onto the productivity of the project.'*
- *'This allowed us the space to be able to have **more face-to-face contact** with the client on a more regular basis which saves a lot of waiting time and a lot of traveling time as well.'*

In analysing the participant quotations above, the researcher assigned a mitigation factor code based on Table 2.2, as indicated below.

- **Travelling**

The above statements support statements made by two researchers, [60] and [69]. Through the use of communication guidelines, project teams can also promote casual interactions to improve communication and collaboration [60]. Khana et al [69] mention that informal communication and synchronous communication can be used to lessen the challenge of the geographical dispersion of project teams.

The next section discusses the participant's responses in terms of time zone differences.

4.5.3 Case study 3. Theme 2 - Time zone differences

4.5.3.1 Challenges

Participant 3 was asked, *'What challenges did you experience due to time zone differences? What was the impact of this challenge during the project?'* From the responses, the researcher extracted the following verbatim quotations for analysis:

- *'We did **not have a time zone difference** as we were all based in South Africa.'*

In analysing the participant quotations above, extracted from the interview transcript of case study 3, the researcher identified the following impact code:

- **No time zone difference**

4.5.3.2 Mitigation

With the above challenges identified by the participants, the participant was asked, '*What mitigation strategies did you make use of to minimise the challenge due to different time zones?*' From the responses the following quotations were identified.

- '*We did **not have a time zone difference** as we were all based in South Africa.*'

In analysing the participant quotations above, the researcher assigned a mitigation factor code based on Table 2.2, as indicated below.

- **No time zone difference**

The next section discusses participants response in terms of absence of trust between project teams.

4.5.4 Case study 3. Theme 3 - Absence of trust

4.5.4.1 Challenges

Participant 3 was asked, '*What challenges did you experience due to absence of trust among team members? What was the impact of this challenge during the project?*' From the responses, the researcher extracted the following verbatim quotations for analysis:

- '*The client's team were not very technical in terms of construction. This created **a lot of doubt in the work that we were doing** as they did **not have the proper understanding** and we had to constantly explain to them to a point of having to teach them some of the things just so that we can be on the same page.*'

In analysing the participant's quotations above, extracted from the interview transcript of case study 3, the researcher identified the following impact code:

- **Limited knowledge sharing**

4.5.4.2 Mitigation

With the above challenge identified by the participant, the participant was asked, '*What mitigation strategies did you make use of to minimise the challenge of absence of trust?*' From the responses the following quotations were identified.

- '*We then established a liaison office between ourselves and the client so that processes and perceived end results **could be communicated** and explained correctly.*'
- '*We therefore **had dedicated people from the liaison office on our side and had dedicated people from the client's** site that could ask questions or make consultations.*'

In analysing the participant's quotations above, the researcher assigned mitigation factor codes based on Table 2.2, as indicated below:

- **Transparency**
- **Team interactions**

When there is absence of trust, project team members will not share their knowledge with their colleagues on the project team [78]. Geographical distance impacts trust and knowledge sharing among organisations, which may lead to collaboration, knowledge and knowledge development problems in the project [60].

The next section discusses the participant's responses with regard to cultural differences between project teams.

4.5.5 Case study 3. Theme 4 - Cultural difference

4.5.5.1 Challenges

Participant 3 was asked, *'What communication challenges existed in the project due to cultural differences? What was the impact of this challenge during the project?'* From the responses, the researcher extracted the following verbatim quotations for analysis:

- *'We had a lot of people from neighbouring countries to South Africa ... These people are highly respectful they are punctual and highly skilled artisans. This created a situation whereby the locals would take advantage of their kindness and sometimes ask them to do other jobs without our knowledge.'*
- *This created a lot of delays and overworked employees because you find that you are looking for someone and they are sometimes busy doing something that they are not getting paid for just because they are scared to say no and always willing to help.'*

In analysing the participant's quotations above, extracted from the interview transcript of case study 3, the researcher identified the following impact code:

- **Team cohesion**

4.5.5.2 Mitigation

With the above challenge identified by the participant, the participant was asked questions related to mitigation strategies they applied to minimise the risk caused by the cultural differences. From the responses, the following quotation was identified:

- *'As most of the South African languages overlap like Tsonga in Mozambique or Ndebele in Zimbabwe, we had some of our guys playing the role of translators between team members, while some of the other foreign people could understand or at least speak some basic English.'*

In analysing the participant quotation above, the researcher assigned a mitigation factor code based on Table 2.2, as indicated below:

- **Learn national culture**

The mitigation strategies employed by the participant supports the findings of two researchers, [29] and [30], who advocate mitigating the challenge of cultural differences by having team members learn the national culture. Sharma states that to overcome cultural differences, one must be accommodative of other cultures.

The next section discusses the participant's responses in terms of knowledge transfer between project teams.

4.5.6 Case study 3. Theme 5 - Knowledge transfer

4.5.6.1 Challenges

Participant 3 was asked, '*What knowledge transfer challenges existed in the project? What was the impact of this challenge during the project?*' From the responses, the researcher extracted the following verbatim quotation for analysis:

- '*Most of the staff that are employed by the client are health professionals. Now this created a challenge when it came **to having to train them on technical stuff** such as the operating or the restarting of generators, the resetting of air conditioners and other such items, as the hospitals themselves do not have functional workshops where technicians and other such articles could be found.*'

In analysing the participant quotation above, extracted from the interview transcript of case study 3, the researcher identified the following impact code:

- **Dependency on third parties**

4.5.6.2 Mitigation

With the above challenge identified by the participant, the participant was asked, '*What mitigation strategies did you make use of to minimise the challenge due to lack of knowledge transfer?*' From the responses the following quotation was identified.

- '***We trained key staff** how to utilise all the equipment that we had installed and how to perform basic maintenance on them.*'

In analysing the participant quotations above, the researcher assigned a mitigation factor code based on Table 2.2, as indicated below:

- **Knowledge sharing**

Ostapchuk [70] identifies knowledge sharing as a mitigation strategy to knowledge loss and agrees that parties should identify critical knowledge areas to focus on when transferring knowledge between project teams.

The next section presents the participant's responses in terms of Intellectual property and the protection of data in this outsourced project.

4.5.7 Case study 3. Theme 6 - IP protection

4.5.7.1 Challenges

Participant 3 was asked, '*What intellectual property protection challenges existed in the project? What was the impact of this challenge during the project?*' From the responses, the researcher extracted the following verbatim quotations for analysis:

- '*One of the stipulations of the contract that we signed was that we must provide training to the people that we are employing. This meant that **we share a lot of how we do things** within the company with the people that we employed, and a lot of the people were employed on a contract basis which meant that they were free to leave once the particular contract that they were involved in ended.*'
- '*... put us at the risk of these workers going outside and **getting employment with our competitors** and being at the liberty of **sharing what they have learnt** from us with people that are working against us in terms of competition.*'

In analysing the participant quotations above, extracted from the interview transcript of case study 3, the researcher identified the following impact codes:

- **Sharing of sensitive information**
- **Increased competition**

4.5.7.2 Mitigation

With the above challenges identified by the participant, the participant was asked, '*What mitigation strategies did you make use of to minimise the challenge due to intellectual property?*' From the responses the following quotation was identified.

- '*To mitigate this kind of challenge we had to **sign a Non-Disclosure Agreement** with some of our subcontractors and then we required that those who have worked for us, especially in critical skills, will have to have a cooling off period of at least six months before they could move on to a similar position in a company that is in competition with us. This was done in the form of a **trade restraint agreement** between the company and our employees.*'

In analysing the participant's quotations above, the researcher assigned mitigation factor codes based on Table 2.2, as indicated below:

- **Trusted secured channels**
- **Non-disclosure agreement**

The above quotation supports a statement by Chen and Lin [72]: 'Trusted and secured channels should convey critical information regarding finances, marketing, and competitor analysis.'

4.5.8 Case study 3. Theme 7 - Lack of control

4.5.8.1 Challenges

Participant 3 was asked, '*What loss of control challenges existed in the project? What was the impact of this challenge during the project?*' From the responses, the researcher extracted the following verbatim quotations for analysis:

- '*The fact that **we did not have full control of the decisions** that needed to be made on site presented a particular challenge.*'
- '*Let's take a situation whereby we need to decide on a certain type of material to use, and we have to now go back to the client for a consultation and an approval for it. That **consumed a lot of time.***'

In analysing the participant quotations above, extracted from the interview transcript of case study 3, the researcher identified the following impact code:

- **Loss of control of day-to-day activities**
- **Project delays**

4.5.8.2 Mitigation

With the above challenges identified by the participant, the participant was asked, '*What mitigation strategies did you utilise to overcome the challenge caused by loss of control of external operations?*' From the responses, the following quotations were identified:

- '*We had **weekly meetings** every Monday morning with the client, whereby all factors that needed to be done for the week will be discussed and decisions will be taken.*'
- '*This allowed us to also give **project status reports and plan** for the week ahead.*'

In analysing the participant quotations above, the researcher assigned mitigation factor codes based on Table 2.2, as indicated below:

- **Meetings**
- **Project status update**

From the participant responses, it is noted that the relationship between the two parties was not good. According to Dadds et al, the mitigation strategy for lack of control is that there should be a solid working relationship between the outsourcing company and the key stakeholders [108].

The next section discusses the participant's responses in terms of hidden costs in this outsourced project.

4.5.9 Case study 3. Theme 8 - Hidden costs

4.5.9.1 Challenges

Participant 3 was asked, 'What challenges did you experience due to costs which were not disclosed (hidden costs) at the start of the project? What was the impact of this challenge during the project?' From the responses, the researcher extracted the following verbatim quotations for analysis:

- 'Most of the hidden costs came about where there was a **lack of project clarity or scope**. You find that you have items that were not clearly mentioned in the initial scope but are necessary in order to complete the project.'
- 'This resulted in having to go back to **renegotiate the contracts** and it **cost us time and money** as we **had not budgeted for the renegotiations** and the **obtaining of variation orders**.'

In analysing the participant's quotations above, extracted from the interview transcript of case study 3, the researcher identified the following impact codes:

- **Lack of understanding of contract**
- **Cost arising from interruptions**

4.5.9.2 Mitigation

With the above challenges identified by the participant, the participant was asked, 'What mitigation strategies did you make use of to minimise the challenge due to unforeseen and hidden costs?' From the responses the following quotation was identified.

- 'During our bi-weekly meetings with the client we had to present the project status, financial projections and all other items that we foresee that will be needed in the project but were not budgeted for. We would then have to agree if we are going to get a **variation order** for us to carry on with the additions or we leave them out for their future consideration.'

In analysing the participant quotations above, the researcher assigned a mitigation factor code based on Table 2.2, as indicated below:

- **Variation orders**

The challenge was mitigated by allowing for additional costs in the project. Ostapchuk [70] mentions that parties need to ensure the contract contains a complete list of possible additional costs and that one of the parties hires a third-party law firm to provide advice if the staff lacks expertise and contract advice is necessitated.

The next section discusses the participant's responses in terms of language difference in this outsourced project.

4.5.10 Case study 3. Theme 9 - Language differences

4.5.10.1 Challenges

Participant 3 was asked, '*What challenges did you face due to language differences amongst the members of the project team? What was the impact of this challenge during the project?*' From the responses, the researcher extracted the following verbatim quotation for analysis:

- '*We had a lot of language differences at our project as we employed people that came from South Africa and its neighbouring countries. This resulted in a lot of **misunderstandings**, whereby project members talk past each other and you will find certain team members do not even try to engage with each other due to language differences ... this creates silos within the team and groupings, which it's not healthy for the project team as a whole, because you want your team to work together and share ideas, but now they are limited due to language differences*'.

In analysing the participant quotations above, extracted from the interview transcript of case study 1, the researcher identified the following impact code:

- **Misunderstand of project scope**

4.5.10.2 Mitigation

With the above challenge identified by the participant, the participant was asked, '*What mitigation strategies did you make use of to minimise the challenge due to language differences?*' From the responses the following quotation was identified:

- '*As most of the South African languages overlap, like Tsonga in Mozambique or Ndebele in Zimbabwe, we had some of our guys playing the **role of translators** between team members, while some of the other foreign people could understand or at least speak some basic English.*'

In analysing the participant quotation above, the researcher assigned a mitigation factor code based on Table 2.2, as indicated below:

- **Translation by native speaker**

The next section discusses participants response in terms of political risks experienced during the outsourced project.

4.5.11 Case study 3. Theme 10 - Political risks

4.5.11.1 Challenges

Participant 3 was asked, *‘What political challenges existed in the project? What was the impact of this challenge during the project?’* From the responses, the researcher extracted the following verbatim quotations for analysis:

- *‘When working on government projects in South Africa there is an expectation from the locals for you to create jobs for them out of the project. The other challenge is that once you have employed people, even the ones that you employed, immediately come up with their own demands for benefits, pay increases and permanent employment. At some instances this creates a lot of labour unrest as people go on unprotected strikes.’*
- *‘There are also external factors that one must deal with such as when there are taxi union strikes which prevent people from coming to work and other community uprisings that can prevent people from moving around. All of these can be costly for time on the project.’*

In analysing the participant quotations above, extracted from the interview transcript of case study 3, the researcher identified the following impact codes:

- **Project delays**
- **Project delays due to political unrest**

4.5.11.2 Mitigation

With the above challenges identified by the participant, the participant was asked, *‘What mitigation strategies did you make use of to minimise the challenge due to political risks?’* From the responses the following quotations were identified:

- *‘We take up political risk insurance with every project that we embark on.’*
- *‘We also have policies and procedures in all the contracts that we sign with our staff members so that all the risk factors that might arise are covered within our employment contracts.’*

In analysing the participant’s quotations above, the researcher assigned a mitigation factor code based on Table 2.2, as indicated below:

- **Obtain risk information**
- **Risk insurance**

The next section provides a summary of the findings of case study 3, indicating the theme factor, impact code and mitigating factor code.

4.5.12 Case study 3: Findings summary

Table 4.7 below summarises of findings for case study 1. Each theme is grouped with its associated impact code and mitigation factor code.

Table 4.5 Case study 3: Findings summary

	Theme	Impact code	Mitigation factor code
Theme 1	Geographical location	Change management	Traveling
		Difficult to manage project challenges	
Theme 2	Time zone	No time zone difference	No time zone difference
Theme 3	Absence of trust	Limited knowledge sharing	Transparency
			Team interactions
Theme 4	Culture	Team cohesion	Learn national culture
Theme 5	Knowledge loss	Dependency on third parties	Knowledge sharing
Theme 6	IP Protection	Sharing of sensitive information	Trusted secured channels
Theme 7	Lack of control	Loss of control of day-to-day activities	Regular meetings
		Project delays	Project status updates
Theme 8	Hidden costs	Lack of understanding of contract	Variation orders
		Cost arising from interruptions	
Theme 9	Language	Misunderstanding of the project scope	Translation by native speaker
Theme 10	Political risks	Project delays	Obtain risk information
		Project delays due to political unrest	Risk insurance

4.6 Cross-case analysis

In this section, data from case study 1, case study 2 and case study 3 are compared to identify similarities and variations with regard to challenges and mitigation strategies. The three case studies are cross analysed to determine if the challenges and mitigation methods are consistent throughout. The researcher used colour coding to indicate similarities and variations in participants' responses.

Table 4.8 indicates participants' summarised responses to research question 1: *'What are the challenges faced during outsourced projects?'*

Table 4.6 Challenges of outsourced project

		Challenges of outsourced projects		
	Theme	Case study 1	Case study 2	Case study 3
Theme 1	Geographical location	Change management	Change management	Change management
		Limited face-to-face	Limited face-to-face	Difficult to manage project challenges
Theme 2	Time zone	Delay in resolving issues	Delay in resolving issues	No time zone difference
		Difficulty in team coordination	Difficulty in team coordination	
		Task Synchronization		
Theme 3	Absence of trust	Limited knowledge sharing	Lack of communication	Limited knowledge sharing
Theme 4	Culture	Task synchronization issues		
		Team cohesion		Team cohesion
		Misinterpretation of project requirements	Misinterpretation of project requirements	
Theme 5	Knowledge loss	Dependency on third parties	Dependency on third parties	Dependency on third parties
		Knowledge sharing	Knowledge sharing	
Theme 6	IP Protection	Sharing of sensitive information	Sharing of sensitive information	Sharing of sensitive information
			Increased competition	
Theme 7	Lack of control	Limited knowledge sharing	Loss of control of day-to-day activities	Loss of control of day-to-day activities
		Project delays		Project delays
Theme 8	Hidden costs	Cost arising from interruptions	Cost arising from interruptions	Cost arising from interruptions
				Lack of understanding of contract
Theme 9	Language	Inaccurate translations	Inaccurate translations	Misunderstanding of the project scope
		Misunderstanding of the project scope	Misunderstanding of the project scope	
Theme 10	Political risks	Project delays	Project delays	Project delays

Legend:

All cases experienced the same impact on project delivery.
2 out of 3 case studies experienced the same impact on project delivery.
All 3 cases experienced a different challenge compared to the other cases.

Table 4.10 indicates participants' summarised response to research question 2: 'What are the mitigation strategies used to minimise the challenge?'

Table 4.7 Mitigation strategies to minimise the challenge

	Theme	Mitigation strategies		
		Case study 1	Case study 2	Case study 3
Theme 1	Geographical location	Communication guidelines	Travelling	Traveling
		Use of technology	Use of technology	
Theme 2	Time zone	Good communication networks Setting up collaboration	Good communication networks Setting up collaboration	No time zone difference
Theme 3	Absence of trust	Team interactions	Transparency	Transparency
				Team interactions
Theme 4	Culture	Accommodate other cultures	Learn national culture	Learn national culture
		Learn national culture	Accommodate other cultures	
Theme 5	Knowledge loss	Knowledge sharing	Knowledge sharing	Knowledge sharing
		Identify critical areas	Identify critical areas	
Theme 6	IP Protection	Trusted, secured channels	Trusted, secured channels	Trusted, secured channels
Theme 7	Lack of control	knowledge sharing	Assign internal staff	Regular meetings
				Project status updates
Theme 8	Hidden costs	Variation orders	Variation orders	Variation orders
		Contingency costs	Contingency costs	
Theme 9	Language	Translation by native speaker	Translation by native speaker	Translation by native speaker
		Documents reviewed by native speaker	Documents reviewed by native speaker	
Theme 10	Political risks	Obtain risk information	Obtain risk information	Obtain risk information
			Risk insurance	Risk insurance

Legend:

All cases used the same mitigation strategy to minimise the challenge.
2 out of 3 cases used the same mitigation strategy to minimise the challenge.
All cases used a different mitigation strategy to minimise the challenge.

4.7 Conclusion

This chapter presented the data and an analysis thereof on the challenges experienced and mitigating factors employed by each company in relation to the ten themes identified in the literature review. A summary of the results was presented in tabular form and was cross analysed by means of comparing participants' responses.

Chapter 5 presents a synthesis of the research findings, drawing final conclusions and making recommendations for the enhancement of engineering companies and their communication strategies in South Africa.



5. Chapter 5: Conclusion

5.1 Introduction

This chapter reviews the findings gained and determines whether the research objective was achieved and the research questions in section 1.3 answered. The chapter summarises the findings from the semi-structured interviews and lists answers to the research questions. Finally, it makes recommendations for the enhancement of communication strategies in South African engineering companies.

5.2 Problem statement

The research was conducted on the following statement:

- If communication is improved in outsourced projects, the impact of challenges is reduced.

In order to provide solutions to the problem statement, the following research questions were investigated:

- RQ1: What are the main challenges faced during outsourced projects?
- RQ2: What are the mitigation strategies to minimise the challenges?

RQ1 was aimed at identifying challenges that impact on communication during the outsourcing of projects and RQ2 was aimed at identifying mitigation strategies used to minimise the impact of the challenges.

5.3 Cross-case findings

In order to provide solutions to the research questions, ten challenges were identified and defined according to the literature review, as presented in section 2.2. When cross-case study results were compared to the literature review findings, six communication patterns supported the literature data.

The following six challenges were found to be experienced across all cases:

- Geographical location
- Knowledge loss
- IP protection
- Hidden costs
- Language
- Political risks

After performing the cross-case analysis the following mitigation strategies were found to be consistent across all cases:

- Understanding cultural differences
- Protecting against knowledge loss
- Taking IP protection measures
- Accommodating for hidden costs

- Working around language differences
- Taking out insurance against political disruption

The finding from the cross-case analysis are compared to the literature findings in the sections that follow.

5.3.1 Research question 1: Challenges

To answer research question 1, refer to section 4.3, 4.4 and 4.5 of this document. This section discusses the evidence gathered. After performing the literature and case analysis, the researcher found the following challenges to be consistent in all cases. In instances where the challenge experienced is consistent with findings in the literature, the relevant finding is highlighted.

Table 5.1 Challenges confirming cross literature and all three case studies

Challenge	Impact of challenge on project lifecycle (Table 2.2)	Case Study 1	Case Study 2	Case Study 3
Geographical Location	Change management becomes difficult [53]	Change management	Change management	Change management
	Limited face-to-face communication [48]		Limited face-to-face	
	Difficult to manage project challenges [53]			Difficult to manage project challenges
Time zone	Takes longer for issues to be resolved [71]	Delay in resolving issues	Delay in resolving issues	No time zone difference
	Difficulty in team coordination and collaboration [73]	Difficulty in team coordination	Difficulty in team coordination	
	Increases projects costs [73]			
	Task synchronization Issues [73]	Task Synchronization		
Trust	Lack of communication [56]		Lack of communication	
	Limited knowledge sharing [78]	Limited knowledge sharing		Limited knowledge sharing
	Collaboration problems [60]			

Challenge	Impact of challenge on project lifecycle (Table 2.2)	Case Study 1	Case Study 2	Case Study 3
Culture	The team cannot align with the project [53]	Team cohesion		Team cohesion
	Inaccurate judgments and lack of trust [60]	Task synchronisation issues		
	Misinterpretation of business conversations and professional behaviours [91]	Misinterpretation of project requirements	Misinterpretation of project requirements	
Knowledge loss	Dependency on third parties [100]	Dependency on third parties	Dependency on third parties	Dependency on third parties
	Increased competition [100]	Knowledge sharing	Knowledge sharing	
IP Protection	Sensitive information shared with outsiders [70]	Sharing of sensitive information	Sharing of sensitive information	Sharing of sensitive information
			Increased competition	
Loss of control	Loss of control of day to day management of the project [107]	Limited knowledge sharing	Loss of control of day-to-day activities	Loss of control of day-to-day activities
		Project delays		Project delays
Hidden costs	Lack of understanding of contract [96]			Lack of understanding of contract
	Costs arising out of interruptions [96]	Cost arising from interruptions	Cost arising from interruptions	Cost arising from interruptions
Language	Inaccurate translations [11]	Inaccurate translations	Inaccurate translations	
	Misunderstanding of the project scope [72]	Misunderstanding of the project scope	Misunderstanding of the project scope	Misunderstanding of the project scope
Political risks	Project delays due to political unrest [91]	Project delays	Project delays	Project delays

The challenges confirmed by the literature and in all three case studies are:

- Geographical location
- Knowledge loss
- IP Protection
- Hidden costs
- Language
- Political risks

The next section presents mitigation strategies and suggestions according to the literature.

5.3.2 Research question 2: Mitigation strategies

To answer research question 2, refer to section 4.3, 4.4 and 4.5 of this document. This section discusses the evidence gathered. Researchers in the literature suggest various mitigation strategies, as indicated in Table 5.2 below. Where the literature and the findings of the case studies agree, the item is highlighted in green, and where they differ the mitigation strategy are not highlighted.

Table 5.2 Mitigation strategies confirmed by the literature and all three case studies

Challenge	Mitigating strategies	Case Study 1	Case Study 2	Case Study 3
Geographical Location	Regular travels to remote sites [69]	Communication guidelines	Travelling	Traveling
	Use of technology [69]	Use of technology	Use of technology	
	Establish communication guidelines [60]			
Time zone	24 hrs workday [77]			No time zone difference
	Set up good communication networks [39]	Good communication networks	Good communication networks	
	Set up collaboration procedures [70]	Set up collaboration	Set up collaboration	
Trust	Transparency [85]	Team interactions	Transparency	Transparency
	Promote team interactions [60]			Team interactions
Culture	Learn the national culture [29],[30]	Learn national culture	Learn national culture	Learn national culture
	Be accommodative of other cultures [64]	Accommodate other cultures	Accommodate other cultures	

Challenge	Mitigating strategies	Case Study 1	Case Study 2	Case Study 3
Culture	Study the country's socio-cultural values and beliefs [91]			
Knowledge loss	Facilitate the process of knowledge sharing [70]	Knowledge sharing	Knowledge sharing	Knowledge sharing
	Identify critical knowledge areas [70]	Identify critical areas	Identify critical areas	
IP Protection	Trusted and secured channels should convey critical information [72]	Trusted, secured channels	Trusted, secured channels	Trusted, secured channels
Loss of control	Assign internal staff to the project team i.e. Project Manager [70]	Knowledge sharing	Assign internal staff	Regular meetings
				Project status updates
Hidden costs	Negotiate costs upfront [70]	Variation orders	Variation orders	Variation orders
	Contract to allow for all additional costs [70]	Contingency costs	Contingency costs	
Language	Translate policies and practices into local languages [74]	Translation by native speaker	Translation by native speaker	Translation by native speaker
	Review of documentation by a native speaker [99]	Documents reviewed by native speaker	Documents reviewed by native speaker	
Political risks	Obtain risk information [103]	Obtain risk information	Obtain risk information	Obtain risk information
	Obtain Political Risk Insurance (PRI) [103]	Risk insurance	Risk insurance	Risk insurance

The mitigation strategies confirmed in the literature and in all three case studies is:

- Understand cultural differences
- Protect against knowledge loss.
- Take IP protection measures.
- Accommodate hidden costs.
- Work around language differences.
- Take out insurance against political disruption.

The next section discusses findings from the cross-analysis of the literature and the case studies.

5.4 Discussion of findings

The common challenges are listed and discussed.

5.4.1 Geographical challenge – Pattern 1

The first pattern identified is **geographical location**. Under this theme it is noted that change management was a common impact for all three outsourced projects. All projects experienced the same impacts relating to geographical location during the outsourced project lifecycle, whether the locations were spread out across the globe or merely in two different provinces in South Africa. This finding supports statements made by Adamu [52] and Erickson [53]. Erikson mentions that with greater distance from an organisation, change becomes far more difficult to manage than when all parties are in one company. Adamu mentions that when team members are geographically separated, face-to-face communication is prevented, which in problem-solving sessions is problematic as face-to-face meetings are often necessary to achieve optimum results. It becomes very difficult to gather the entire team together at the same time, which has an effect on the quality of communication and the coordination of outsourcing [74].

5.4.2 Knowledge loss – Pattern 2

The second pattern was **knowledge loss**, for which all case studies revealed that due to lack of knowledge transfer they were dependant on third parties to execute some of the works. Outsourced projects increase dependency on the third party, which can result in certain tasks not getting the same level of attention as activities being handled by the company executing the outsourced work. The finding supports statements made by Williams and Durst [100], who mention that with no knowledge transfer, there is an increased dependency on the vendor and the competitive advantage becomes vendor dependent. Employees lack the knowledge necessary to implement systems and rely on vendors to train them. Knowledge loss contributes to an environment in which project teams generally lack knowledge about the project requirements. This leads to poor communication and ineffective results during interactions with clients or customers. Challenges are also inevitable if the project manager does not communicate updates to the stakeholders when changes occur during the project [16].

To mitigate against knowledge loss, the three cases utilised the process of deliberate knowledge sharing. The approach followed is in agreement with Daim et al [62], who state that providing all necessary information, data and knowledge is essential to ensure that the company executing the work can deliver what is required. Knowledge needs to be transferred about client environment, project requirements and quality expectations.

5.4.3 IP Protection – Pattern 3

The third pattern identified relates to **intellectual property protection**. All cases had a challenge with the issue of sharing sensitive information. In outsourced projects, companies share sensitive information, trade secrets and employee data with third parties. The use of such sensitive data might potentially result in a provider becoming a competitor. It is therefore natural for businesses to be concerned about how the outsourcing provider handles the data [62]. All cases utilised trusted and secured channels to share sensitive,

critical information with other team members. The findings support Khana et al [52], who state that trusted and secured channels should convey critical information regarding finances, marketing and competitor analysis. However, protecting IP can result in restrictions in information sharing which can have an adverse impact on general knowledge distribution and communication.

5.4.4 Hidden costs – Pattern 4

The fourth pattern is **hidden costs**, which all participants highlighted as a challenge. Case study 1 engaged in further contract negotiations, which, according to Kurdi, Abdul-Tharim, Jaffar, Azli, Shuib, and Ab-Wahid [92], can result in increased costs and project delays. Cost overruns emerge in the form of variation orders when there is a lack of understanding of project requirements. The findings are also supported by Kurdi et al [92] who highlight that companies spend a lot of time, resources and effort which might not have been budgeted for just getting contracts signed.

All cases mentioned that the signed contract must allow for additional, unforeseen costs. Firms need to ensure that they include a clause which allows for variation orders prior to contract signing. The cost model for an outsourced project should include contingency costs which will cater for unforeseen circumstances. This statements is supported by Khan and Khan [70], who specify that the contract should contain a complete list of possible additional costs. Hidden costs, especially those related to communication, can make communication very expensive, thus hindering the frequency of communication between team members.

5.4.5 Language differences – Pattern 5

The fifth pattern is **language differences** which result in misunderstanding of the project scope. All projects experienced this challenge. Outsourced projects where language differences exist are bound to have project team misunderstanding of various project requirements. In cases where information is misunderstood because of language differences, there is a considerable delay and the risk of inaccurate translations. All companies reviewed made use of a translator in order to translate instructions into the local language so that all parties could understand. Mitigation methods included understanding customer language and business culture, encouraging one-on-one meetings with team members where possible, and encouraging them to use a common language to avoid misunderstandings [73]. Language differences limit the ability for coherent communication to take place [86]. Language differences make projects more complex and information exchange inevitably just takes longer [11].

5.4.6 Political risks – Pattern 6

The last pattern identified is **political risk** which results in project delays. Political unrest and other political challenges affect business continuity and result in project delays [88]. This is particularly true when the government decides to change things such as value added tax in the middle of a project. Political unrest has a negative impact on the project as it results in cost overruns and project delays. To mitigate against such risks, participants obtained risk information prior to and during projects. When governments lack trust in each other, the risk of espionage and phishing is elevated, as foreign organisations are looked at with suspicion.

This can lead to corporations tightening the security around their information, causing them to withhold important information for projects.

5.4.7 Communication patterns

Based on the findings above, communication patterns which might be used to reduce the impact of the challenges are indicated in Table 5.3 below. These are offered as recommendations for engineering companies considering outsourcing:

Table 5.3 Communication patterns

Pattern	Challenge	Use of communication to mitigate the challenges
Pattern 1	Geographical location	<ul style="list-style-type: none"> • Informal communication and synchronous communication can be used to reduce the challenge of the geographical dispersion of project teams [69]. • Through the use of communication guidelines, project teams can also promote casual interactions to improve communication and collaboration [60]
Pattern 2	Knowledge loss	<ul style="list-style-type: none"> • Provide all the information, data and knowledge to ensure that the outsourcing company can deliver what is required [70].
Pattern 3	IP Protection	<ul style="list-style-type: none"> • Establish site office with the powers to make decisions in order to stimulate face-to-face communication in real time [38].
Pattern 4	Hidden costs	<ul style="list-style-type: none"> • Hidden costs, especially communication costs, can make communication very expensive, thus hindering the frequency of communication between outsourcing team members [96].
Pattern 5	Language difference	<ul style="list-style-type: none"> • Train team members [89]. • Establish a standard language for the project [61]. • Understand customer language and business culture, encourage one-on-one meetings with team members, and encourage them to use a common language to avoid misunderstandings [74]. • To avoid this risk, carefully choose the outsourcing country and vendor. Choose a service provider which can guarantee that their remote team will be able to communicate with you in the preferred language.
Pattern 6	Political risks	<ul style="list-style-type: none"> • Study their work culture, living standards, government policies, tax issues, political stability and work experience, before signing a contract with third parties [91]

5.5 Recommendations

This study has identified a multitude of challenges faced when companies outsource projects. The mitigation strategies for the challenges have been discussed and presented in both discussion format and tabular format. It is recommended that the mitigation strategies mentioned by both respondents and by researchers in the literature are practised to overcome cost, time and quality challenges experienced during outsourced projects.

5.6 Possible future research

Possible aspects of future studies might include the following:

- The study could be repeated but include both the client and the outsourced party, to find out whether their comments validate one another, and whether they validate the findings of this study.
- The sample size should be large so that the findings may be generalised.
- The study could be repeated with companies in a single, common industry.
- To perform data triangulation, secondary data, i.e. documentation, should be analysed and used as a data collection method in conjunction with the interviews.

The knowledge generated could be useful to project managers and help them mitigate the challenges which can have such a negative impact on outsourced projects.



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Annexure A – Interview Questions

Preliminary checklist

1	Thank interviewees for participating	
2	Request permission to record	
3	Ethical considerations communicated	
4	Objective of the interview	

Section A – Background/ Demographic questions

	Question	Response
1	<p>Please provide me with a brief description of your outsourced project in terms of:</p> <ul style="list-style-type: none"> • Location? • Time zone of client location? • Communication language of the client? <p>Was the project completed successfully?</p>	
2	What was your role on this project?	
3	Number of years with the organisation?	
4	What is the level of your position?	

Section B – Probing questions related to RQ1

Research Question	Chapter 2: Literature	Probing Question	Response
What are the main of challenges faced during your outsourced projects?	Table 2.2	<ul style="list-style-type: none"> • What challenges did you face in your project due to geographical location of the project teams? • What was the impact of this challenge during the project? 	
		<ul style="list-style-type: none"> • What challenges did you experience due to time zone differences? • What was the impact of this challenge during the project? 	
		<ul style="list-style-type: none"> • What challenges did you experience due to absence of trust among team members? 	

		<ul style="list-style-type: none"> What was the impact of this challenge during the project? 	
		<ul style="list-style-type: none"> Were there any challenges which resulted from cultural differences in the project? What were those challenges? What was the impact of this challenge during the project? 	
		<ul style="list-style-type: none"> What challenges did you experience due to costs which were not disclosed (Hidden costs) at the start of the project? What was the impact of this challenge during the project? 	
		<ul style="list-style-type: none"> What challenges did you face due to language differences amongst the members of the project team? What was the impact of this challenge during the project? 	
		<ul style="list-style-type: none"> What knowledge transfer challenges existed in the project? What was the impact of this challenge during the project? 	
		<ul style="list-style-type: none"> What Intellectual protection challenges existed in the project? What was the impact of this challenge during the project? 	
		<ul style="list-style-type: none"> What political challenges existed in the project? What was the impact of this challenge during the project? 	
		<ul style="list-style-type: none"> What loss of control challenges existed in the project? 	

		<ul style="list-style-type: none"> What was the impact of this challenge during the project? 	
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Section C – Probing questions related to RQ2

Research Question	Chapter 2: Literature	Probing Question	Response
What are the mitigation strategies to minimise the challenges?	Table 2.2	<ul style="list-style-type: none"> What mitigation strategies did you make use of to minimise the challenge due to geographical dispersion? 	
		<ul style="list-style-type: none"> What mitigation strategies did you make use of to minimise the challenge due to different time zones? 	
		<ul style="list-style-type: none"> What mitigation strategies did you make use of to minimise the challenge due to the lack of trust between project teams and members? 	
		<ul style="list-style-type: none"> What mitigation strategies did you make use of to minimise the challenge of cultural differences? 	
		<ul style="list-style-type: none"> What mitigation strategies did you make use of to minimise the challenge due to unforeseen and hidden costs? 	
		<ul style="list-style-type: none"> What mitigation strategies did you make use of to minimise the challenge due to language differences? 	
		<ul style="list-style-type: none"> What mitigation strategies did you make use of to minimise the challenge due to lack of knowledge transfer? 	
		<ul style="list-style-type: none"> What mitigation strategies did you make use of to minimise 	

		the challenge due to intellectual property?	
		<ul style="list-style-type: none"> What mitigation strategies did you make use of to minimise the challenge due to political risks? 	
		<ul style="list-style-type: none"> What mitigation strategies did you utilise to overcome the challenge caused by loss of control of external operations? 	

