

https://dspace.org/

Nature of client team structure and role of the client team leader in two successful infrastructure programmes

Mosaleisi, Tsholofelo

2018

https://hdl.handle.net/10539/26573

Mosalaesi, Tsholofelo Portia (2018) Nature of client team structure and role of the client's team leader in two successful infrastructure programmes, University of the Witwatersrand, Johannesburg, <http://hdl.handle.net/10539/26573>

Downloaded from a DSpace repository. https://dspace.org/



School of Construction Economics and Management

NATURE OF CLIENT TEAM STRUCTURE AND ROLE OF THE CLIENT TEAM LEADER IN TWO SUCCESSFUL INFRASTRUCTURE PROGRAMMES

MASTERS BY RESEARCH DISSERTATION

Submitted by

Tsholofelo Mosalaesi

(Student Number: 572980)

Supervisor

Prof Samuel Laryea

A dissertation submitted to the Faculty of Engineering and the Built Environment, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of Master of Science in Quantity Surveying

October 2018

DECLARATION

I, Tsholofelo Mosalaesi, declare that this research dissertation is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Science in Quantity Surveying in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

……
(Signature of Candidate)

…….. day of ……..., ……
(day) *(month)* *(year)*

ABSTRACT

The role of the client is critical in successful infrastructure project delivery. This requires the appointment of an experienced and capable client team to lead and oversee infrastructure programmes or projects. A number of professionals often work in a client's project management team and play various roles. While textbooks may identify some of the professionals and their roles, little empirical research has been conducted on the structure of such client teams and the critical role of the client's team leader in leading the infrastructure delivery process and managing the whole professional team to perform their roles successfully and deliver the project to achieve the intended objectives and value for money.

Therefore, the aim of this study was to examine the nature of the team structure in each case and how the client's project team leader performed his role to ensure successful delivery of the infrastructure programmes.

Data collection was undertaken through semi-structured interviews with eight (8) members of the team, documentary analyses and listening to one detailed presentation by three key members of the client's team including the client team leader and the client himself.

Based on the results of the work, successful delivery of infrastructure project requires a client team that is structured in a hierarchical manner in terms of reporting lines, but has flexible interaction between members of the team. Although there was a clear hierarchy, various team members referred to structure of the team as ''Flat structure'' this implies that although there was a hierarchy in terms of leadership and membership of the team, they operated much as equals within the team.

In relation to the role of the client's team leader, it was found that project decisions and actions are driven by the values and interests of the client. The client's team leader viewed his primary role to be 'unblocking obstacles to progress' and 'demand management' of inputs from everyone in the supply chain.

The qualitative data showed one possible relationship between the team structure, role of the client tem leader, and project outcomes – the role and performance of the leader is a critical determinant of successful project outcomes.

In conclusion, the main contribution of this study lies in the use of a comprehensive methodology to develop a systematic understanding of the contemporary structure of a client's infrastructure project delivery team; and the critical elements of the role of the delivery manager entrusted with the responsibility to lead the client's team and deliver the intended objectives of the infrastructure programme or project.

DEDICATION

I dedicate this dissertation to first and foremost to God the most high who made it all possible and to my one and only mother.

ACKNOWLEDGEMENTS

I would like to acknowledge and give many thanks to the following people who were seminal in completing my research dissertation:

- To Professor Samuel Laryea, my supervisor who has always believed in me and endlessly providing guidance and steering me in the direction throughout the time it took me to finish my dissertation.

- To my mother who never gave up on me and always encouraged me to work hard.

- To my partner, who has been my biggest fan and also encouraged me to pursue my dreams and finish my dissertation.

- To all the respondents who took time in their busy schedule to have a meeting with me.

- To the School of Construction Admin Staff, friends, colleagues, lecturers and librarians who assisted, advised and supported my research and writing efforts.

TABLE OF CONTENTS

DECLARATION 1
ABSTRACT 2
DEDICATION 3
ACKNOWLEDGEMENTS 4
LIST OF TABLES, FIGURES AND APPENDIX 8
CHAPTER 1: INTRODUCTION 9
1.1. Background to the study 9
1.2. Problem Statement 13
1.3. Research Question 13
1.4. Research Aim 13
1.5. Specific Objectives 13
1.6. Brief overview of the research methodology 14
1.7. Scope of the study 15
1.8. Structure of the dissertation 15
CHAPTER 2: LITERATURE REVIEW 17
2.1. Teams 18
2.2. Team selection and assembly 18
2.3. Types of teams and their organisational structures 21
2.4. Team composition 25
2.5. Teamwork and team performance 27
2.6. Team chemistry and team effectiveness 28
2.7. Team leadership 29
2.7.1. Leadership Theories 31
2.8. Role of the client 33
2.9. Client team 34
2.10. Portfolio, Programme and Project management 36
2.11. Project Outcomes and Project Success 38
2.12. Construction project management teams 39
2.13. Studies conducted on Roles in the Construction industry 41
2.14. Studies conducted on teams in construction projects 42
CHAPTER 3: RESEARCH DESIGN AND METHODS 44
3.1. Research question 44
3.2. Operationalisation and measurement of variables 44

3.3. Research design 47
3.4. Research philosophies 47
3.5. Research approaches 48
3.6. Research strategies 48
3.7. Research choices 49
3.8. Time horizons 50
3.9. Summary of the research design crafted for the study 50
3.10. Techniques and procedures 53
3.11. Population 54
3.12. Sampling 54
3.13. Details of the case study 54
3.14. Research instruments 54
3.15. Ethical considerations 55
3.16. Validity and reliability issues 55
CHAPTER 4: DATA COLLECTION, PRESENTATION, ANALYSIS AND RESULTS 57
4.1: Data Collection 57
4.2: Data Presentation 58
4.3: Data Analysis and Results 59
4.3.1 Roles and responsibilities of the team members 61
4.3.2 Team structure 68
4.3.3 Roles and qualities of the team leader 74
4.3.4 Project outcomes and success factors 79
4.3.5 Summary of the chapter 83
CHAPTER 5: DISCUSSION OF RESULTS 86
5.1: Discussion of findings relating to structure of the client team 86
5.2: Discussion of findings relating to roles and qualities of project team leader 89
5.3: Discussion of relationships between effectiveness of the client team and project outcomes; success factors 91
CHAPTER 6: CONCLUSIONS, RECOMMENDATIONS AND FURTHER RESEARCH 95
6.1: Conclusions relating to structure of a client team 95
6.2: Conclusions relating to critical elements of the role of the client team leader 96
6.3: Conclusions relating to discussion of the impact of client team and client team leader on project outcomes 97
6.4: Recommendations 97
6.5: Issues or questions for further research 98

4. REFERENCES 99
APPENDICES 103
1. Ethics Clearance Certificate 103
2. Informed consent 104
3. Interview Questions 105
4. Documentary Analyses Form 107
5. Transcribed interviews 109

LIST OF TABLES, FIGURES AND APPENDIX

List of tables

TABLE DESCRIPTION	PAGE
Table 1: Brief overview of the research methodology	14
Table 2: Different types of teams	19
Table 3: Operationalisation and measurement of variables	47
Table 4: Interview conduction summary	59
Table 5: New Universities Project Management Team	64
Table 6: Summary and content analysis of interview responses relating to roles and responsibilities of the client	67-69
Table 7: Summary and content analysis of interview responses relating to structure of the client team	70-71
Table 8: Summary and content analysis of interview responses relating to roles and qualities of the client team	76-78
Table 9: Summary and content analysis of interview responses relating to project outcomes and success factors	81-83
Table 10 : Project outcomes	83
Table 11: Success factors	95

List of figures

FIGURE DESCRIPTION	PAGE
Figure 1: Work team structure	22
Figure 2: Project and development team structure	23
Figure 3: Parallel teams' structure	24
Figure 4: Management teams structure	24
Figure 5: Ad hoc networks team structure	25
Figure 6: Framework for developing the research design	48
Figure 7: Research choices	50
Figure 8: Research design for the study	53
Figure 9: Wits Capital Project Programme Team Structure	74
Figure 10: New Universities team structure	75

List of Appendices

APPENDIX DESCRIPTION	PAGE
Appendix 1: Ethics clearance certificate	105
Appendix 2:Informed Consent	105
Appendix 3:Interview Questions	106-107
Appendix 4:Documentary Analysis Form	108-109
Appendix 5:Trancripts from interviews with eight respondents	110-204

CHAPTER 1: INTRODUCTION

1.1. Background to the study

Construction projects are built by people. The general conception of construction projects is that they undergo processes or phases as action steps to be carried out as intended from the beginning. These processes are generic for all construction projects and they have been established in the early ages of the modern construction industry in terms of constructing teams in construction projects (Latham, 1994).

There are common relationships which happen between the people involved in project delivery, where they have to work together across all the stages of the construction process. The main party to these relations is the client. The key role to be performed by construction clients is to initiate the project. A client is an individual or organisation who executes construction projects for themselves or for somebody else. The responsibility of the client is to ensure that the needs of the end-user are achieved and also to finance projects. The client also ensures that there is compliance with the rules and regulations governing projects. An active role is required to be played by the client, which includes understanding what makes a successful project. Clients are the major influencer of construction processes and project delivery outcomes (Lindahl & Ryd, 2007).

According to the Standard for Infrastructure Procurement and Delivery Management (SIPDM), 2016, the primary role of the client is to initiate, commission and pay for the infrastructure project. "The client owns the business case of the project and needs to provide effective leadership of the project throughout the project life cycle, commencing at a strategic level ending at the close out of a project after the beneficiary of the project has accepted and operates the delivered infrastructure'' (SIPDM, 2016, p32). Role performance of the client has to be done with the use of in-house resources. However, at times clients do not have the necessary resources to perform their roles, hence the need to use external technical resources. These external resources include technical advisors who advise and manage activities associated with the initiation of projects, the formulation of the client's specific requirements during the initial stages of the project including a range of technical matters. These advisors act as client's representatives and function within a team environment (Hapuarachchi & Senaratne, 2011).

For this study these advisors are referred to as the 'Client Team' and it is defined as the team that possesses substantial technical expertise in the field of construction, which is responsible for providing advice on the project and construction matters in the early stages of a project before the appointment of a project manager (HM Treasury: Procurement Guidance Note No 1; Latham Report, 1994; Macaulay & Ramsey, 2002 & Telford, 1997). According to the Construction Industry Board (CIB, 1997), the Client Team is defined as the "independent advisor with a knowledge of construction and able to understand the client's business needs and objectives including any special needs of the users. Engaged very early in the project to give impartial guidance on the best way to proceed'' (Murdoch & Hughes, 2001). The SIPDM defines it as the team that provides advice and also manages activities associated with the initiation of projects, the formulation of the client's specific requirements during the initial stages of the project and a range of technical matters. The team does not take the role of the client; the client will still need to be involved.

The role of the team is to act as the client advisor in the preparation of the strategic brief and also to assist the client with a preliminary feasibility study for determining whether to proceed with the project or not (feasibility consultant) (Murdoch and Hughes, 2008). It also has to perform roles such as formulating the project strategy, which must involve a needs assessment while considering the resources available, as this influences the procurement strategy. In performing these roles, the client team is to remain independent and objective when giving the client advice, while keeping in mind the client's requirements and objectives.

The performance of roles within a team environment is to be done with reference to the purpose for which the team is to serve. Different types of teams have different structures. *Team structure* refers to how the team is designed and the rationale behind its development within the organisation. In nature, teams are challenging and time consuming and as a result require ways in which they can be put to order for them to perform at their best. The need for a fundamental structure in team creation is crucial, since there are possible uncertainties and diversity which exists in teams. This requires a firm foundation and in this case it is the structure. Appropriate structures must be identified, which will ensure that the specific performance outcomes of the team are achieved, and it must also make sense to the team members. The way in which teams are structured has an influence on the delivery outcomes of projects in the sense that teams that are structured to be best suited to achieve the client's objectives in most cases successfully meet them.

Team structures can be looked at from two levels; within the organisation and within a team. Different organisational structures include functional, process, product, market, customer, geographic area, matrix and lastly the combination approach. The structure in which teams are organised will be dependent upon the team type, that is, work team structure will typically include the vice president at the top of the hierarchy, followed by managers and lastly the customer service teams (Aranda, Aranda and Conlon, 1998, p. 2).

Specific team members within a team have to be responsible for the leadership of the team and this is a matter of relationship with the other team members. In most cases the formulation of teams follows the functional leadership approach, which is chiefly about the main job that the leader has to undertake, or achieve and handle anything that the team needs efficiently. It can be said that the leader has done his or her job well when he or she ensures that all the critical tasks to be performed by the team or group are adequately undertaken and the team itself is well maintained and appropriately taken care of. There are specific performance functions to be performed by the leader and they include information search and structuring, information use in problem solving, managing personnel resources, and managing material resources (Zaccaro, Rittman and Marks, 2002). The primary function of the leader is to give direction, to create teamwork and to inspire people to do their best (Senarte & Samaraweera, 2013). Within the client team this leadership role is performed by its leader, who is also entrusted with the responsibility of interpreting and defining the settings of team procedures.

The roles performed by the client leader are critical in the delivery outcomes of projects and the leader is appointed to be held accountable for project outcomes. There are specific functions for which he or she is appointed and they include (a)owning the business case of the project for the client so that there is no ambiguity in terms of who is acting in the client role, (b)setting the team up for successful delivery and also removing obstacles to progress, (c)directing the project in such a manner that the value proposition that is expected at the end of the project is realised as far as possible and also (d)performing an oversight and governance role in providing effective and strategic leadership within the client team, which permeates through all levels of the supply chain (Client Guide for improving infrastructure Project Outcomes, 2018). The way in which the client team is structured, and the leadership performance role by the client team leader drives the delivery outcomes of projects.

Two successful infrastructure programmes have been delivered in South Africa in the past ten years. The first one is the case of the Wits Capital Projects Programme (2008 – 2014) in which a portfolio of 40+ projects totalling 1.5 billion Rands of expenditure was successfully delivered within 5% of the controlled budget. Most of the project team members that delivered the Wits projects were appointed and assigned with the responsibility of delivering a new universities project which comprised the development of the Sol Plaatjie University in Kimberly, Northern Cape, and the University of Mpumalanga in Nelspruit, Mpumalanga. This team was known as the New Universities Project Management Team (NUPMT) and was led by an experienced client delivery manager who was the same person who was in the client's team in the case of the Wits projects. The NUPMT successfully delivered Phase 1 of the new universities between 2012 and 2016 within 1% of the control budget of 1.5 billion Rands. These two successful cases provided an opportunity to conduct a comprehensive study on the nature of the client teams in both cases, focusing particularly on the team structures and the critical role of the leader of the client's team, who happened to be the same person in both cases.

1.2. Problem Statement

Construction projects are built by people (Lichtig, 2006). These comprise people from both the demand and supply sides of the construction supply chain, those are, people from the client's side as well as people from the parties that provide professional services, works and goods required to deliver the requirements of client. Multiple teams are often involved in the delivery of a construction project (Hughes, *et al*., 2015). The way that such project teams are organised plays a critical role in the successful delivery of projects. However, there is currently little research that has been published on the structure of construction-project teams, particularly in the context of how successful teams are structured. A systematic understanding is needed of the structure of client teams in the construction industry and the nature of the interaction between the client team leader and other members of the client team. The focus of this study is on the client team. Little evidence has been found in the literature on the nature of client teams and the critical role of the leader of the team entrusted with the responsibility of delivering a project for the client. Therefore, the following questions are investigated in this study: how are successful client teams structured? What are the critical elements of the role of the client team leader in helping to deliver the intended objectives of a project and value for money? These key questions were investigated using a qualitative case study methodology. The answering of these questions revealed aspects of the client team development, where shortcomings exist, and the nature of those shortcomings, which will serve as a basis for addressing improvements.

1.3. Research Question

The main research question was: How are construction client teams structured and what primary roles are performed by the client team leader to ensure the successful delivery of infrastructure projects?

1.4. Research Aim

The aim of the study was to examine the nature of the client team structure in the two successful infrastructure projects and to examine how the client team leader performed his role to ensure successful delivery.

1.5. Specific Objectives

In addressing the research aim, the following research objectives were established;

- To ascertain the structure of the client team that delivered the infrastructure programmes successfully;

- To examine the role of the client team leader in the successful delivery of infrastructure programmes; and
- To discuss the impact of the client team structure and role of the client team leader on the project outcomes achieved.

1.6. Brief overview of the research methodology

In addressing the specific objectives, access to fieldwork/data collection setting, access to respondent and research instruments was necessary. The respondents were the client team members, including their leader who was responsible for the selection, structuring and performing the leadership and management roles of the team. Table 1 highlights the specific objectives, research design, main variables for the study and their measurement and the data analysis method.

Table 1: Brief overview of the research methodology

Specific Objectives	Research Design	Main Variable(s)	Measurement of Variable	Data Analysis Method
To ascertain the structure of the client team which delivered the infrastructure programmes successfully	Mono method methodological choice-qualitative	Team structure.	Semi-structured Interviews	Qualitative
To examine the role of the client team leader in the successful delivery of infrastructure programmes		Team leader's role.	Semi-structured interviews	Qualitative
To discuss the impact of the client team structure and role of the client team leader on the project outcomes achieved.		Impact of team structure and team leader's role on project outcomes.	Semi-structured interviews and documentary analysis.	Qualitative

The sampling frame was the client team in the two programmes. Semi-structured interviews were used to achieve the specific objectives, where participants for the interviews were identified.

As interviews were conducted, documents were obtained where the delivery outcomes of projects were observed in the cases examined. These documents included the project reports and project close-out report where the projects were analysed to see the time, quality specifications and cost performance of the infrastructure projects.

1.7. Scope of the study

The research study was based on the client team within the Wits Capital Project Programme and the two new universities (Sol Plaatjie and Mpumalanga) in the South African construction industry, specifically the team which was responsible for advising and managing activities associated with the initiation of projects, the formulation of the client's specific requirements during the initial stages of the project and a range of technical matters and advising whether the project was feasible or not. The reason for these case studies is due to the fact that they were both delivered successfully in that there was a relatively small deviation between the expected and the actual outcomes.

The study looked at the nature of the team structure of the client team and also examined the role performed by the leader of the team and how this role was performed to ensure successful delivery of infrastructure programmes. The team leader's role was analysed in terms of interpreting formulation of team procedures, making necessary decisions and applying problem solving techniques to the problems that accrue and any other leadership factors which enabled the team to successfully delivery the construction projects. Data collection was done using semi-structured interviews, documentary analysis and the listening to one detailed presentation by three key members of the client team, where the participants were the project team leader and client team members.

1.8. Structure of the dissertation

This dissertation is structured as follows:

Chapter 1: This chapter is introducing the context of the study looking at the roles and responsibilities in construction projects; team structure; the role of the client; the client

advisory team which are the members of the client team; role of the team leader; and rationale of the study.

Chapter 2: This is the literature review chapter where aspects of team structure, role of the team leader, team leadership, team selection, team chemistry, project outcomes and studies conducted on the areas in which the study is based.

Chapter 3: Research design and methodologies is where different methodologies and approaches are elaborated, as is the research design of the study.

Chapter 4: Data collection, presentation, analyses and results where the data collection method is explained, presented, and analysed.

Chapter 5: Discussion of results which were analysed and they are discussed according to findings relating to team structure, roles and qualities of the team leader, and lastly the possible relationships between team structure, role of the team leader and delivery outcomes.

Chapter 6: Conclusion, recommendations and aspects of further research of the above findings on Chapter 5.

CHAPTER 2: LITERATURE REVIEW

The objective of this literature review chapter is to establish a theoretical framework for the research study which includes definition of concepts, terminologies and knowledge around the area in which the study is based. The study is titled ‘nature of client team structure and role of the project team leader in successful infrastructure project delivery’. Therefore the objective of this literature review is to understand how teams are selected, structured and composed from the general management literature in relation to the construction management literature. The other objective is to understand the concepts of the role of team leaders within teams and how this role is performed, and lastly to briefly look at the possible relationship between team structure, role of the client team leader and delivery outcomes of infrastructure programmes.

The literature review was done from the general management literature and then to the specifics in the construction industry. Specifically looking at the following key concepts;

1. Teams: definition, selection, structure, composition, leadership, teamwork and performance, team chemistry, team effectiveness
2. The role of the client in the construction industry
3. Project outcomes and project success
4. Construction project teams: selection, structure and composition, chemistry, teamwork and team effectiveness, roles and responsibilities
5. Studies conducted on roles and teams in the construction industry

In conducting of the literature survey; data bases called SCOPUS, SCIENCE DIRECT, GOOGLE SCHOLAR, ARCOM & EMERALD were used in order to search for journal articles where literature was reviewed on the above mentioned aspects. The University of the Witwatersrand Library was also used in obtaining books for the research study. Many studies have been conducted on construction project teams and a few on client teams in construction projects.

2.1. Teams

Generally a team is defined as a group of people working collaboratively to achieve a common goal (Housel, 2002, p2). However, according to a study on Team-Based Organizational Structure: A case study of the Edmonton Public Library by Griener (2010), a team is defined as "a small number of people with complementary skills who are committed to a common purpose, performance goals, and approach to which they hold themselves mutually accountable''. This definition was provided by the well-known writer by the name of Katzenbach (1993) in the subject area of teams. Marriage and Kinnear (2016) argue that the principal features that makes the team is that they are made up of two or more people, there is a dynamic interaction and interdependency between individuals, there is a common goal, specific roles and functions and lastly a limited life span. .This definition is similar to those of Ancona et al. (2009), Mohrman el al. (1995), and Parker (2003); and (Dau, 2016).

The reason for the use of teams stems from the old adage of "two heads are better than one''. People have different abilities, experiences, strengths and talents which could yield much better results when they are integrated together within a team environment. When people join together to form a team, shared knowledge will occur where each person can learn from one another and this leads to a combined brain power which is more powerful than that of an individual (Housel, 2002, p3).

Different types of team exist in literature (Olson and Branch, 2006) and they can be classified as described Table 2.

2.2. Team selection and assembly

Team selection is a process where a team is developed, and selecting the right team members is a key element in building a successful team. Teams can either be assembled to solve problems, create something or rather execute a well-defined task. The successful team functioning is dependent upon proper selection of the team members and hence achieve the desired outcomes of the team performance (Sauer and Arce, 2004). There are key elements to adhere to while/when selecting team members and they include (Larson and Lafasto 1989; House 1989, pp. 12-17; Antoniadis, 2012);

- Identifying the purposes or goals of the team,
- Identifying and characterising the basic functions required for the successful performance of the team

- Undertaking a procedure(s) of the selection of team members that can effectively deliver the identified functions in the team
- The training of the players (team members) on the aspects needed by the position provided (this aspect is crucial even in most circumstances is absent)
- The need to understand the effective integration of the different functions when performing as a team
- Monitoring should then take place in order to ensure that was agreed on the second bullet point is realised (Sauer and Arce, 2004);

Table 2: Different types of teams

Type of teams	**Descriptions**
Self-contained/Self-managed teams/ Autonomous work teams/ self-directing teams	Teams that can manage and execute a portion of the organization's work flow. Self-organized teams enjoys high levels of autonomy, commit to, select, and accomplish their own tasks, to organize themselves.(Hoda & Murugesan, 2016)
Work teams	Teams that produces a particular product or service on a regular, on-going basis. Organizational work teams are by definition comprised of members that work interdependently and count on one another to make task-, goal-, and outcome-related progress (O'Neill & McLarnon, 2017) (Mankin, Cohen & Bikson 2000, p25) (Aranda, Aranda & Conlon 1998, p7).
Project teams	Teams that develops a one-time output, such as a new product or services, new information system, or new plant
Parallel teams	Teams that address special issues without fundamentally changing the structure of the organisation
Management Teams	Teams that provide higher-level coordination and integration of different units and to provide direction and resources to these units (Aranda, Aranda & Conlon 1998, p7) ;(Olson & Branch, 2006.
Ad hoc network	Teams that create informal collections of individuals and groups who share similar concerns, interests, and purposes from which other types of teams can later be found
Functional Teams	Teams in which people are grouped principally by discipline under the direction of a specialised sub-function manager
Lightweight teams	Teams in which members reside physically in their functional areas but each functional organisation designates a liaison person to represent it on a project coordinating committee to coordinate different function's activities
Heavyweight Teams	Teams in which the project manager has direct access to and the responsibility of the work of all those involved in the project, managed by leaders who may outrank the functional managers. The core members of the team may be dedicated to the effort and physically co-located
Autonomous team	Teams in which individuals from different functional area are

structure often called ‘Tiger teams’	formally assigned, dedicated, and co-located to the project team, which gives the team strong focus but can make it difficult to fold the team members back into the organisation when the project is completed.
Virtual team	Teams that do not assemble in a common location, or belong to the same organisation, but that communicate and collaborate across time, space and organisational boundaries (Mohrman et al., 1998)

According to a research report by Mckinsey (2017) on *the art of project leadership: Delivering the world’s largest projects* it was emphasised that the right team selection also influences the delivery outcomes of project and one should never start a project before the selection of the team is done. Consideration should also be given to ensuring that the team members ‘fit’ within the team culture and behaviours and the members also have the relevant experience (similar projects, contractual terms, culture and geography) in project delivery. The technical leadership skills should also be taken into consideration in ensuring that it is done in the early stages of the project.

The selection of the team members is a leadership function which has to be performed by either the leader of the team or person vested with the responsibility to do the selection in the organisation. This function comprises of the selection of cohort individuals who will be successful in accomplishing the team task outlined by the organisation. It also includes ensuring the combination or mixture of individuals is appropriate over time as the team develops and the environment changes.

The members who are selected are those with the requisite mix of knowledge, skills, abilities, and previous experience than enables task accomplishment not forgetting the values, interpersonal skills, and motivations that assists the team in effectively working together. In circumstances where the team is already in place or inherited this leadership function is carried out by assessing the attributes and capabilities of the individual team members, redistributing them as needed and replacing team members if required (Morgeson, DeRue & Karam, 2010).

According to Senaratne and Hapuarachchi (2011), the team has to undergo the four (4) stages based on the Tuckman & Jensen Model, namely forming, storming, norming and performing before it matures as an effective team. This team development is also supported by Housel (2002).

According to Larson and Lafasto (1989), when selecting the team members, consideration should be given to the type of people they are. A team which focuses on problem solving requires intelligent, street smart, sensitive and high integrity people. Teams which their purpose is creativity requires cerebral, independent thinkers, self-started and tenacious people. A tactical type team needs loyal, committed, action-oriented, sense of urgency, and responsive people who are always alert.

Team development often undergoes the generally known as the 'Tuckman and Jenson model (1977)' of team development. In the first stage which is forming is where team members form a team and they start to be aware of each other and they are highly motivated at this stage. The second stage which is storming is where conflicts and disagreements happen. The third stage is where the team agrees to start working together by consolidating their differences and setting norms for appropriate behaviours. The fourth stage which is performing is where the team is starting to perform effectively and there is proper integration of roles amongst the team members. The last stage according to the model is adjourning which is where the team ceases to perform; there market has changes (Burke 2006, p 306; Senaratne & Hapuarachchi (2011).

2.3. Types of teams and their organisational structures

The way in which the team is structured is influenced by the type of the team or the purpose in which the team is to serve. Different type of teams has different structures. Team structure refers to how the team is designed and the rationale behind its development within organisations.

Organizational structure refers to "the organizational and administrative patterns, such as the arrangement of departments and the division of labour. The distribution of authority is one of the more important issues related to organizational structures (Thomas, Keating & Bluedorn, 1984)''.

In nature, teams are challenging and time consuming and as a result require ways in which they can be put to order for them to perform at their best. The need for a fundamental structure in team creation is crucial since there are possible uncertainties and diversity in teams which requires a firm foundation and in this case is the structure. Appropriate structures must be identified and this will ensure that the specific performance outcomes of the team are achieved and it must also make sense to the team members.

Team structures can be looked at from two levels namely that within the organisation and within a team. Different organisational structures include functional, process, product, market, customer, geographic area, matrix and lastly the combination of these as already mentioned in the background of the study section. The structure in which teams are organised will be dependent upon the team type i.e. work team structure will typically include the vice president and the top of the hierarchy, followed by managers and lastly the customer service teams (Aranda, Aranda & Conlon 1998, p2).

Mankin, Cohen and Bikson (2000), summarised team structures in which different types of teams will fall under. The structures highlighted in their book called *Teams & Technology* include work teams, project and development teams, parallel teams, management teams and lastly ad hoc networks. All of these team structures are hierarchical except the ad hoc team structure which is process like in nature.

Work teams as mentioned above are teams in which most people refer to when they are talking about teams and their typical structure is depicted in Figure 1;

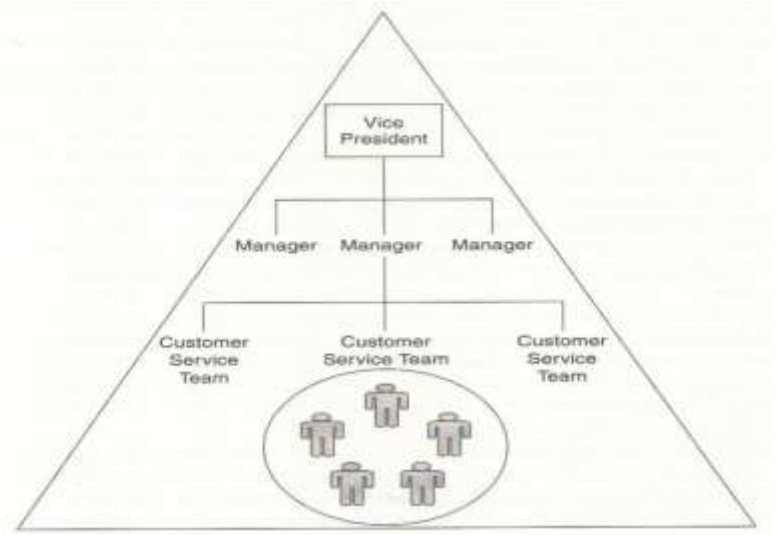

Figure 1: Work teams structure (Mankin, Cohen & Bikson 1996, p25)

The advantages of using a work team structure include performance is regular, membership is stable and well defined and the work done is on-going. Their key characteristics include permanent work units, produce products or provide services, and stable composition.

Project and development teams

Project and development teams are set up to produce a one-time output which can either be products or services. This team structure is illustrated in Figure 2.

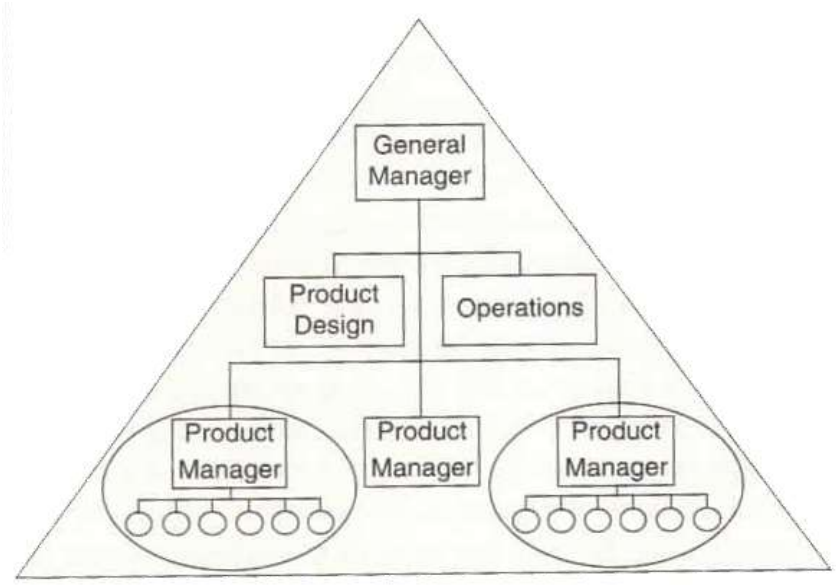

Figure 2: Project and development team structure (Mankin, Cohen & Bikson 1996, p28)

Due to the nature of the project teams being temporary, the organisations can use them to generate the right mix of knowledge and skills required for specific projects without giving up the advantages of functional organisations. These teams can be characterised as temporary structures, produce one-time outputs, diverse and specialised expertise, and broad decision-making authority.

Parallel team structure

Parallel teams share similar structures to project teams; however they literally exist in parallel with the rest of the organisation. The key characteristics of parallel team structures include separate and parallel structures, improvement or coordination of activities, clear boundaries, and make recommendations. Their structures can either be overlay or project structure and they are outlined by the diagram Figure 3;

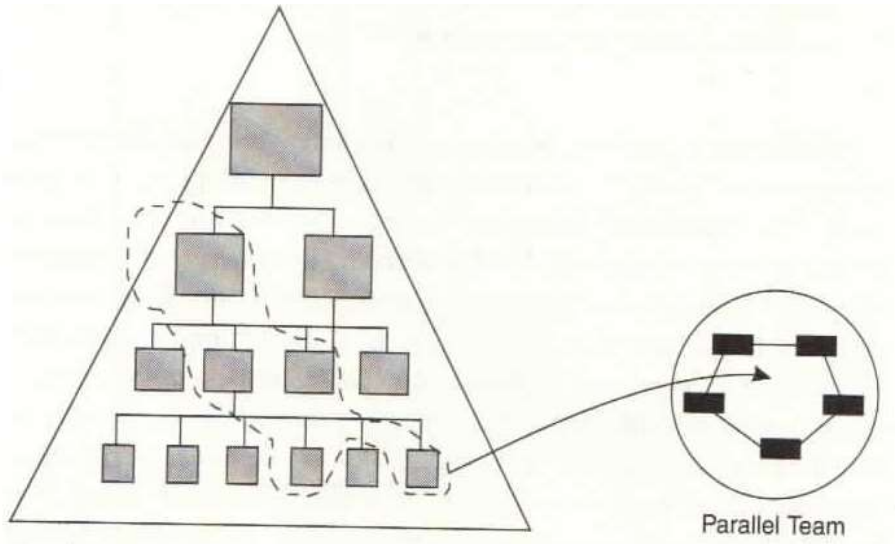

Figure 3: Parallel team structure (Mankin, Cohen & Bikson 1996, p28)

Management team structure

Management team structure is literally comprised of managers who are entrusted with the responsibility to integrate activities of the units they are assigned to. Management structure can also be characterised as having permanent structures, provide coordinated management of sub-units (provide direction and allocate resources) and lastly they have hierarchical authority. Their structure is shown in the diagram in Figure 4;



Figure 4: Management team structure (Mankin, Cohen & Bikson 1996, p31)

Ad Hoc networks structure

Ad Hoc network team structure is made up of persons who are joined by sharing the same purpose or interest which can either be voluntarily or part time and this structure is portrayed by the diagram in Figure 5;

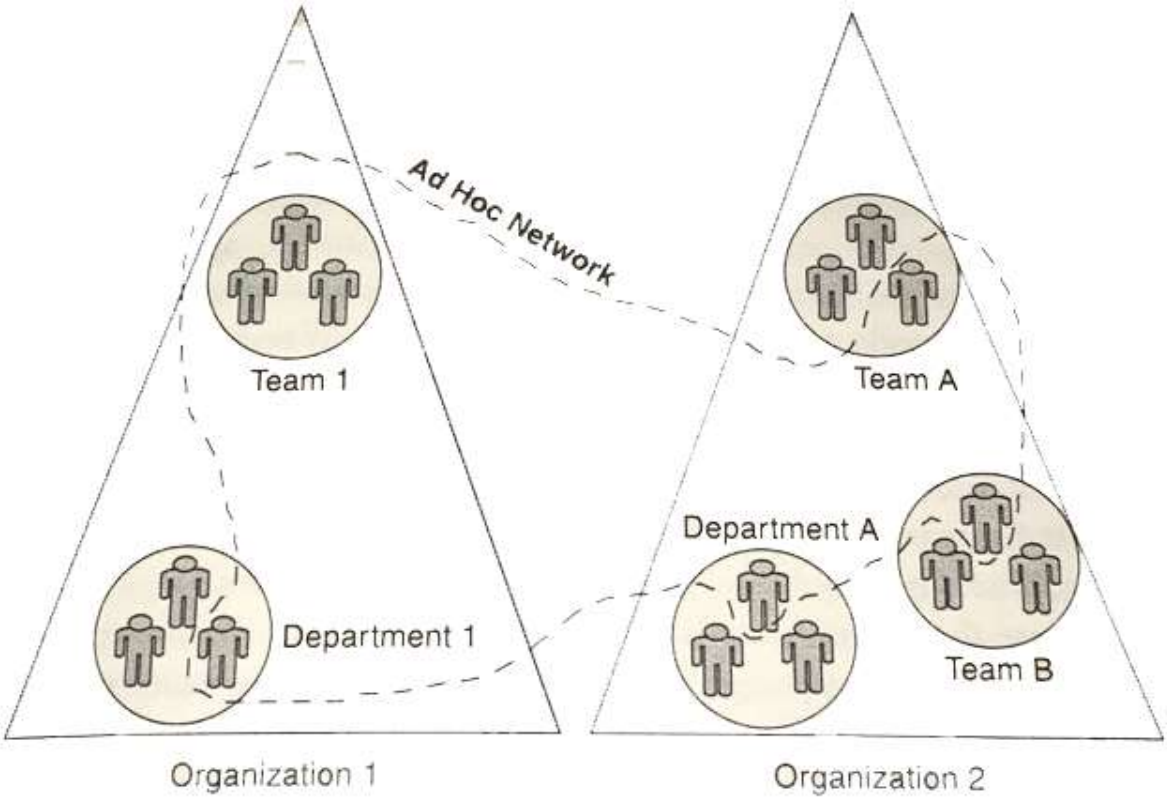

Figure 5: Ad hoc network team structure (Mankin, Cohen & Bikson 1996, p33)

The key characteristics of ad-hoc networks include temporary and collaborative forms, individuals and teams connected by shared interests, part-time, fluid and diffuse membership, and lastly they are loosely bound.

2.4. Team composition

Team composition is dependent upon the task in which the team is to perform or undertake. A key input into the functioning and behaviour of any team is the team's composition, which refers to the ''characteristics and attributes of the individuals who make up the team as well as how those characteristics and attributes are distributed within the team'' (Hsu et al, 2015; Bell, Brown and Weiss, 2017). This team composition is the crucial determinant of the processes of the team and its performance and yet again this is a leadership function which has to be performed by the leader of the team or person or organisation responsible for composing the team (Morgeson, DeRue and Karam, 2010).

According Senaratne and Gunawardane (2013), the composition of the team is a crucial factor in determining its performance therefore the managing team has to be well aware of the team-working principles and their roles within the team and interaction between these individuals in order to be able to work effectively and efficiently and avoid unnecessary conflicts. This approach was also supported by Dada (2014) and Ramalepe (2015). A balanced team in terms of the roles and responsibilities can be expected to perform well.

Team composition can either be homogeneous (similar expertise) or heterogeneous (dividing expertise/talent between teams (Hsu et al., 2015). Team composition in most cases is modelled by finding the best combination of experts to the required skills and taking into consideration various dimensions such as technical skills, cognitive properties, and personal motivation (Dorn et al, 2011). It can also act as a powerful tool to impact the effectiveness of the team. Configuration of specific variables in composing the team can predict the desired outcomes by the organisation. The knowledge of the relationship between team composition, team and organisation can assist in informing successful management of people resources i.e. composing team members in a configuration which increases the possibility of the team meeting its objectives (Bell, Brown and Weiss, 2017).

Having all the required resources such as money, materials, people etc. is not good enough to deliver projects without people being involved to carry out the appropriate functions for the project to be executed and completed as may be required by the client. The performance of the team has a huge impact on the performance of the project, therefore studying the performance, nature, composition and leadership requirements of the team will help reveal the nature of the contribution it has on the outcomes of the projects (Senaratne and Gunawardane, 2013).

The composition of the team is influenced by the nature of the responsibilities each one must take and also by the end goal that the team wish to achieve as well as the individual knowledge, skills and behaviours and the collective competence of the entire team (Marriage & Kinnear, 2016) .These individuals have to work together in order to be able to achieve the goals intended. The most important factors to be considered in a team formation are communication, cooperation and good working relationship (group cohesiveness) in order to maintain a harmonious working environment, free from conflicts and disputes (Ramalepe, 2015; Karagozoglu, 2016). According to Housel (2002), the typical roles which are found in teams include the leader, critic, implementer, specialist, diplomat, coordinator, innovator and

lastly the inspector. Each team member is given roles and responsibility to perform in order for the team to fulfil the task at hand.

Roles and responsibilities of the team members are dependent upon the purpose and contribution of each member. The overall team performance is considered, not just mere performances of individuals. This team performance is preceded by its composition which ultimately has an impact on the success of the project success. It can be seen that relationships amongst people responsible to deliver the projects has a lot of contribution on the outcomes of the projects. These teams are relied upon by organisations when projects are undertaken in order to be able to be effective with this delivery.

2.5. Teamwork and team performance

According to the study conducted by Ramelepe (2015), team work involves a gathering of a workgroup of individual experts with prescribed purposes. They communicate, cooperate, and make decisions together, and have the knowledge and ability to work together to make work plans to accomplish goals. Teamwork can also be defined as a process whereby individuals join together into cohesive group and function as a single unit to meet a common goal (Housel 2002, p6). This as a result makes tasks to be easier to handle since small tasks are broken down into smaller tasks in order to make it more manageable. The way in which teams form and perform to achieve the aims of the organisations is to be taken into consideration in order to understand the concept of team working.

Teams are building blocks of most organisations and industries in the sense that they are able to out-perform individuals acting alone especially in activities that require a lot of skills and decision-making. Teams are also used to satisfy the basic need of affiliation and belonging according to Maslow's hierarchy of needs (Baiden and Price, 2011).

Team performance within the construction industry is measured in terms of teamwork behaviours including how the members work together as one unit. According to Fransen et al, (2017) the skills found within teamwork behaviours can be divided into two categories namely cognitive or mental skills and social or interpersonal skills. Cognitive skills involves aspects of the team such as decision making, planning and situational awareness. The social or interpersonal skills include aspects such as teamwork, communication and leadership. These teams can be assessed in terms of their effectiveness of the outcomes achieved and behaviours or processes used to achieve those outcomes (Marriage & Kinnear, 2016; Liu and Cross, 2016).

Team performance does not only include how well the actual team performs, it is also about the team member confidence in believing that it will indeed perform well (Troster, Mehra and Van Knippenberg, 2014). This performance various upon different tasks in which the team is to perform be it technological process or provision of services or materials (Zawawi and Nasurdin, 2017).

The best teamwork happens when the team is faced with an important performance challenge and also when the team members view the outcomes of the project as equally important to each other (Housel, 2002, p6).

2.6. Team chemistry and team effectiveness

Team chemistry is considered as the aspect in which optimal performance can be achieved. Team chemistry is one of the most complicated keys to success of organisations. Effective teams are more than just a collection of talented members. To be effective a team has to be able to combine the efforts and abilities of members in the right manner. There are several factors that generate good team chemistry and they include; diversity, role taking, constructive norms, leadership, cohesiveness, and common vision. Teams with chemistry are better suited to achieve their set tasks or objectives. Team chemistry is in most cases used in the athletics or sports were the best teams often have consistency and chemistry (Filho, 2015).

Following team selection, composition and structure, the team has to now work together in achieving set tasks or goals. This integration takes place when different disciplines or organisations with differing goals, cultures and needs become a single unit of cohesiveness and mutually supporting each other with collaborative arrangement. This integration results in efficiency in the delivery processes and cost effectiveness by eliminating a surplus. Competitiveness and profitability are increased which permit organisations to better deliver value for money and meet the requirements of clients (Baiden and Price, 2011).

The study conducted by Andersson and Finnserud (2003) highlights certain factors leading to team failure and they include: lack of balance across team roles; lack of effective linking between roles; lack of effective relationship management within the team; lack of effective information management within the team; the existence of impoverished decision-making process; and lastly the tendency to want to take decisions too early in the process.

The opposite of team failure will be referred to as team effectiveness in this research study. According to Wiemann (2013), team effectiveness in a nutshell is a measure of evaluating and measuring teams and also the achievement of clear goals and objectives by the team. Performance of the team has a direct relationship with effectiveness.

The study (Wiemann, 2013) outlined three (3) criteria for team effectiveness which include; teams which its productive output meets or exceeds the standards of quality, quantity and timelines of the client in which the team is working for. The second criteria for effectiveness include of the member's capabilities to work together interdependently in the future is enhanced through social processes. The last criterion is creating an environment for allowing team members to learn new things for personal satisfaction and also contributing to the wellbeing and growth of the team members.

This was also supported by Latif and Williams (2017) who emphasised that the extent to which the team meets its requirements in terms of the primary objective (time, cost and quality), improving the ability of the members to work as a group and also having experience that contributes to individual satisfaction refers to team effectiveness (Kwofie et al, 2015).

2.7. Team leadership

Leadership has been a discussed subject from the earliest ages of the epoch of mankind and it can be defined as "the ability to influence the behaviour of others, in particular, the followers" (Senarye, 2015). In leadership, individuals have to be inspired to give it their all in order to achieve the intended objectives. It is also about gaining the commitment of the followers and also motivating them in achieving the aims. It is also about team work. Since the delivery of services in the construction industry requires team efforts then leadership has to have a great impact on the performance of the work in the construction industry. Inspiring individuals to co-operate and stirring all the project team members in order to perform at their best is one of the major key success factor as far as the management of a construction project is concerned (Senartne, 2015).

Specific team member(s) within a team has to be responsible for the leadership of the team and this is a matter of relation with the other team members. In most cases, the formulation of teams follows the functional leadership approach which is mainly about the main job that the leader has to undertake, or achieve and handle anything that the team needs in an adequate manner. It can be said that the leader has done his/her job well when s/he ensures that all the

critical tasks to be performed by the team/group are adequately undertaken and the team itself is well maintained and appropriately taken care of (Zaccaro, Rittman and Marks, 2002).

According to a study conducted by Zaccaro, Rittman and Mark (2002), a functional leadership approach defines leadership as "social problem solving, where leaders are responsible for (a) diagnosing any problems that could potentially impede group and organizational goal attainment, (b) generating and planning appropriate solutions, and (c) implementing solutions within typically complex social domains''. The above definition of functional leadership differentiates critically when coming to team leadership. The distinctions are as follows:

Leadership is a boundary role linking teams to their larger environment. The role that leaders undertake is that they are vested with the responsibility to interpret and define the settings of the team procedures. The leadership role itself includes making necessary decisions and applying problem solving techniques to the problems that accrue. The individuals in a team are sometimes supposed to make choices in order to solve problems within their spheres. The functional leadership approach is defined by generic responses and not a specific set of behaviours, it moves away from the dictation of what should leaders do, to what needs to be done and this is the main emphasises of functional leadership approach. This approach is different from other leadership approaches (relationship orientated, task orientated) that specific leadership behaviours in the sense that it doesn't.

The definition that governs functional leadership is that it can be said that the leader is effective when the team is successful. This continues to emphasize that the performance of the team is depended upon the effectiveness of its leader and hence the leader is required to undertake processes that will eventually cause the group to succeed. This effectiveness is possessed by the leader who has particular set of skills which can be of good use within the team. The effectiveness of the leader does not in most cases mean that the team is effective as teams can still fail regardless of the efforts of the team leader so this also rests upon the individual members in the team. The capabilities of the members in a team also contribute to this. There are also other factors that might contribute to this failure namely the team composition and environmental or resource constraints (Zaccaro, Rittman and Marks, 2002).

There are seven factors that drive the leadership processes and they are cognitive, social, personal, political, technological, financial, and staffing. These factors require specific

leadership activities and responses which will aid the success of the team through the performance of the team.

There are specific performance functions to be performed by the leader and they include Information search and structuring, Information use in problem solving, managing personnel resources, and managing material resources. (Zaccaro, Rittman and Marks, 2002)

The primary purpose of a leader in every area and level is to give direction, create team work and also encourage the people to do their best in what is required of them. In a construction project, this role of leadership is given to a project manager since his/her role is to coordinate the project team members in order for them to ensure that the intended objectives of the project are achieved. Therefore the project manager takes the liability to ensure fulfilment of such objectives.

2.7.1. Leadership Theories

There are different theories in leadership which exist and they include; trait theories, style theories, contingency theories, path-goal theory, and Fidler's theory.

Trait theories hold that leaders are born and not made. This is specifically in relation to superior qualities that differentiate them from their followers.

Style theories follow the assumption that behind the theory is that the team members will be motivated to work harder (and therefore more effectively) for leaders who employ appropriate styles of leadership than they will for leaders who employ other styles. The styles are usually compared along the directive and participative continuum. The major differences between these styles is the decision making process.

Contingency theories hold that in general, the effectiveness of the leader will depend upon its contingent or situational factors which also include the leadership styles.

The path-goal theory was initially proposed by House and Mitchell in 1974. It revolves around the four specific kinds of leadership behaviour which include directive, supportive, participative, and achievement-orientated leadership. Directive leadership is when the leader gives subordinates firm guidance and clear instructions wherever he or she can. Supportive leadership is when a leader tries to be as friendly and approachable to his or her subordinates as possible. Participative leadership is when the leader tries to leave options as open as

possible, solicits his or her subordinates' suggestions and takes these suggestions seriously into consideration before making a decision. Achievement orientated leadership is when a leader tries to get his or her subordinates to assume full personal responsibility for their work, sets challenging goals, expects them to perform as well as possible.

Fidler's contingency theory proposed by Fred Fiedler (1967) posits effective group performance depends upon the proper matching of a personality variable in the leader with three contingency dimensions. The dimensions include leader's member relation, task structure and leader's power position. Leader member relation is refers to a measure of the acceptance of the leader by the subordinates (The most influential dimension). Task structure is about how the task is structured or unstructured. Leader's power position refers to the critical power influence in which the leader possesses.

However, in the construction industry, different leadership styles are needed in different situations and as a result there is a need to understand the variables of the leadership styles in the construction activities. The variables are as follows;

The personal characteristics of a leader: this refers to the kind of a person the leader is, his/her values of management, self-confidence and competence and also his/her trust that his/her followers will cope with stress.

The individual: the personality and temperament of individual as leaders will have to adapt and influence the behaviour of their sub-ordinates.

Subcontracting: the firm will have to adjust their leadership styles in the sense that it will allow dealing with subcontractors as more control will be needed.

Type of the project: The type of the project operation is significant whether it is well defined or unclear, important or unimportant as this may require tight supervision which has to be done in a particular manner.

Variation in time perspective: some projects within the construction industry may be urgent while other might not and hence the leadership style has to accommodate such.

2.8. Role of the client

The key role to be performed by construction clients is to initiate the project. A client is an individual or organisation that executes construction of projects for them or on behalf of somebody else. The responsibility of the client is to ensure that the needs of the end-user are achieved and also financing the projects. S/he also ensures that there is compliance with the rules and regulations governing such projects. An active role is required to be played by the client which includes understanding what makes successful projects. Clients are the major influencer of the construction processes and delivery outcomes of projects (Lindahl & Ryd, 2007). According to the *Standard for Infrastructure Procurement and Delivery Management (SIPDM, (2016),* the primary role of the client is to initiate commission and pay for the infrastructure project. "The client own the business case of the project and needs to provide effective leadership of the project throughout the project life cycle, commencing at a strategic level ending at the close out of a project after the beneficiary of the project has accepted and operates the delivered infrastructure'' and this is according to SIPDM (p.32). The role performance of the client has to be done with the use of in-house resources, however at times clients do not have the necessary resources to be able to perform their roles; and hence the need for external technical resources. These external resources include technical advisors which advice on or inputs for or manage activities associated with the initiation of projects, the formulation of the client's specific requirements during the initial stages of the project and a range of technical matters. These advisors act as client's representatives and functions within a team environment.

Other responsibilities of the client include:

- Overseeing the preparation of the business case and budget for the project, ensuring the proposals are realistic, meet the business objectives and submit them to the investment decision maker for approval;
- Establishing an appropriate organisation structure and the necessary communication processes;
- Ensuring the users and other stakeholders are involved in and committed to the project;
- Appointing a project sponsor and provide the terms of appointment, adequate resources and necessary support;
- Ensuring that a brief is developed which reflects the project objectives clearly and is agreed by the users;

- Establishing a progress and reporting procedure, ensuring that any changes in circumstances affecting the project are evaluated and that appropriate action is taken;
- Acting as an arbiter on any disputes which occur on the client side;
- Approving any changes to the scope of the project, ensuring that any which impact on time, cost or objectives are assessed and reported to senior management as appropriate; and
- Ensuring that a post completion evaluation is carried out and considered by all users and key stakeholders in the project (*H.M Treasury: Procurement Guidance Note 1, 2011*)

2.9. Client team

Studies have been done which reflects the need for an external adviser in the early stages of construction projects. Procurement guidance Note 1, the Latham report, Macaulay and Ramsey (2002), Telford (1997) and the Construction Industry Board (1997) give definitions and roles to be performed by the client adviser who is responsible to assist the client in determining whether the project is feasible or not and carrying out initial stages of the project. This adviser is to carry out its roles and responsibilities in the most effective way as this affects the outcomes of the project.

The adviser has to be an appropriately qualified individual or a team appointed as early as possible after project inception in order to assist non-technical project clients. The choice of whether the client appoints an individual or a team depends on the nature of the project procured. Small projects often require individuals whereas large projects require a team of relevant people.

The client team can be defined as a team that provides advice on or inputs or manage activities associated with the initiation of projects, the formulation of the client's specific requirements during the initial stages of the project and a range of technical matters. Within the client team there is the client, the delivery manager and technical advisors.

The advisor has to be an appropriately qualified individual or a team appointed as early as possible after project inception in order to assist non-technical project clients. The choice of whether the client appoints an individual or a team depends on the nature of the project procured. Small projects often require individuals where as large projects requires a team of relevant people. This team is to be referred to as the 'Client Team', and it is to be defined as

the team that possesses substantial technical expertise in the field of construction; which is responsible for providing advice on the project and construction matters in the early stages of a project before the appointment of a project manager (H.M Treasury: Procurement Guidance Note No 1, 2011; Latham Report, 1994; Macaulay & Ramsey, 2002 & Telford, 1997). According to the Construction Industry Board (CIB, 1997), the Client is defined as the "independent adviser with a knowledge of construction and able to understand the client's business needs and objective, including any special needs of the users. Engaged very early in the project to give impartial guidance on the best way to proceed'' (Murdoch & Hughes, 2001, p.82). The *Standard for Infrastructure Procurement and Delivery Management* defines it as the team that provides advice on or inputs for or manage activities associated with the initiation of projects, the formulation of the client's specific requirements during the initial stages of the project and a range of technical matters'. The team does not take the role of the client; the client will still need to be involved.

The role of the team is to act as the client adviser in the preparation of the strategic brief and also assist the client with a preliminary feasibility study and determining whether to proceed with the project or not (feasibility consultant) (Murdoch and Hughes, 2008). It also has to perform roles such as formulating the project strategy which must involve needs assessment and giving consideration to the resources available as this influence the procurement strategy.

According to the *Code of Practice for Project Management for Construction Development (2014)*, the roles of the Client Team are to assist with:

- Project Mandate and Business case development
- Investment appraisal
- Designing and planning sustainability
- Understanding the need for a project
- Deciding the type of project that meets the need
- Generating and appraising options(when appropriate)
- Selecting an appropriate option(when available)
- Risk assessment(when appropriate)
- Advising the client on the choice of procurement route
- Selecting and appointing the project team
- Measuring and monitoring performance (when appropriate)

In undertaking the above roles, the client team is to remain independent and objective when giving the client the advice, while keeping in mind the requirements and objectives of the client.

However, according to the Latham report on constructing the team (1994) “any client who wants external advice over project strategy and need definition should only retain an adviser on the express understanding that the role will terminate once the decision has been formulated on whether or not to proceed’’(1994, p13). From then onwards, the only advisers retained will be the ones who will be most appropriate for the selected procurement route, but according to the H.M Treasury: Procurement Guidance Note No 1 the adviser should be retained by the client even after the appointment of a project manager, as needed for ‘’ personal advice’’ during the later stages of a project. The retained advisers will play a crucial role in assisting the client with the brief and this should be an iterative process and it also requires adequate time to be allowed. If the brief is inadequate, the project will face avoidable difficulties throughout its life the client should then in fulfilment of its role ‘’sign off’’ the approval of the brief.

The independent advisers which form the client team are lawyers, financial advisers, insurance consultants, architects, engineers, quantity surveyors, project planners, planning supervisors, town planning consultants, and land surveyors and geotechnical engineers (Blackwell, 2014). The literature review is more detailed in terms of the roles performed by these advisers. These advisers have different or various discipline which them come together to execute their roles within a team environment. This team often have a leader who is responsible for exercising authority and providing direction for the team members to ensure successful delivery of the project.

2.10. Portfolio, Programme and Project management

Project portfolio management which can be abbreviated as (PPM) is a commonly employed technique to align a project portfolio with strategic goals. The portfolio management concept stems from modern portfolio theory. It is used to keep the ratio of existing and new projects in the best state as possible. It is also critical in terms of implementing the strategies which were formulated across organisations (Kaiser, El Rabbi and Aleman, 2015). According to Alketbi and Gardiner (2014), a ‘’Portfolio management can best be described as the science

that best describes the process of management through centralized system of methods and technologies as used by project managers in the process of data collection analysis in order to effectively manage aspects of a project (p.611).

The main function of PPM is to ensure that resources are optimally mixed in relation to the delivery quotient they are expected to produce'' (PPM is also a method used for the selections and management of projects across organisations. The industry in which PPM is used includes IT and Construction where it is specifically used for composition of project portfolios. It also governs around selection of projects with the use of original portfolio theory factors of the risk of return (RR), but with addition of broader activities such as continuous risk management, controlling and report.

A portfolio is different from a program or large-scale projects with subprojects in that its projects need not have a shared goal, but simply compete for the same resources. The typical activities in PPM's scope are the gathering of possible projects, their prioritization and selection according to available resources, and the evaluation of running projects concerning their continuing fit with the portfolio. The project does not leave the project portfolio management's scope after it is selected for execution. Even though often neglected, the continuous evaluation of running projects, using the same criteria as for their selection, is of importance (Kaiser, El Arbi & Ahlemann, 2015)

Companies should align project portfolio with their strategic business objectives, combining performances of its components in order to maximize the shareholders' value while balancing resource allocation and risks. Some of the main objectives of the project portfolio management are the identification, the ranking, the prioritization, the selection and the authorization of projects or programs. Uncertainty and unstableness are increasing day by day and managers take strategic decisions on project portfolio under unpredictable conditions. Only through the definition of accurate project selection criteria, any organization can reach its targets (Costantino, Di Gravio and Nonino, 2015).

Project portfolio management extends the objective of realizing successful projects to the alignment with strategic business objectives, but expected project success remains the main determinant for projects selection, if success means the maximization of the shareholders' value while balancing resource allocation and risks. Therefore, project selection is a process of strategic importance aimed at evaluating individual projects or groups of projects and then choosing to implement a set of them so that the objectives of the primary organization are

achieved. However, too often it fails due to complexity in project portfolio management caused by many factors, such as uncertainty, interrelationships among projects, changes over time and success factors that are difficult to measure targets (Costantino, Di Gravio and Nonino, 2015).

A programme is a defined milestone which is done by the portfolio manager when delivering projects within a portfolio. Organisations that deliver large projects organise projects into programmes in order to be able to govern portfolios and also meet the budget of these portfolios. This organisation of projects into programmes ensures efficiency across the delivery of these. The theory on programme management is based solely on how to organise the portfolio of projects and gives much less information on the facts regarding behaviouristic projects (Eik-Anderson, Landmark and Johansen, 2015).

Project management is done when the projects within various portfolios are managed individually. Projects within the portfolio last for a long time or even years and this could be due to governance acquisition and other factors. All the projects are governed or either one or many external contracts and within the same set of rules, they also follow the same decision making processes, project documentation, risk assessment and reporting system. The client and the project manager are responsible for deciding who takes the responsibility of functionality and other future needs of the project (Eik-Anderson, Landmark and Johansen, 2015).

2.11. Project Outcomes and Project Success

Generally, a project is said to be successful when it has achieved the primary objectives namely time, cost and quality. According to a study conducted by Thi and Swierczek,(2010) on the critical success factors in project management: implication from Vietnam, it was highlighted that a project can be considered successful if it meets the internal performance measures of cost, time and technical performance, but this also includes ensuring that the project is accepted or satisfactory to the client. In order for the project to be successful, it is important to understand the requirements of the project right from its early stages and undertake the project planning which provides the right direction to project managers and their teams in order to implement the project as required. All the people/professionals entrusted with the responsibility to deliver the project have to work at ensuring that the project achieves its intended objectives. According to Babu and Sudhakar (2016), there are success factors which are critical within the project life cycle and they are as follows;

- The project scope has to be prepared in a detailed manner
- Top management support (provision of necessary resources and authority)
- The project manager should be competent
- There has to be a detailed project schedule/plan
- The client should be consulted on regular basis
- The project team members should be competent as well
- Quality of suppliers and contractor
- Required technology should be available in order to perform specific tasks
- Client acceptance
- Monitoring and feedback
- Constant communication
- Troubleshooting

The measure of the project success should at the end of the day lead to the achievement of stakeholder satisfaction. When the project stages are carried out by various competent people, the goal is to achieve the intended objectives and stakeholder satisfaction.

2.12. Construction project management teams

The teams used in the construction industry are not different from the general teams by management literature journals in terms of features and characteristics. It is just that they fall more on the technical aspects due to the nature of the industry in which they are set to perform. In definition a construction project team is "a collection of two or more people with complementary skills, who come from different disciplines and organisations, to perform a common objective, but with individual objectives and, operating from different locations with multiple reporting relationships, whose accountability and leadership are significantly governed by the contractual arrangements"(Senaratne and Hapuarachchi, 2009, p 223). Based on the above-mentioned type of teams, teams used in the industry are mostly project teams and functional teams (Cornick and Mather 1999; Senaratne and Hapuarachchi, 2011). The teams consist of different types of people from different disciplines of design and production and they come together to ensure that the objectives of a construction project are realised.

The purpose of a construction project management team is to ensure that the delivery is done within cost, quality, and time and also to the required specifications. Each project delivered within the industry requires people according to their disciplines, knowledge experience, professionalism and coordination with people from different backgrounds. These people have to work together as a team; and hence teamwork is dominant in the industry.

According to Kwofie et a1(2015) , a typical construction project include participants such as the client; project manager; financier; legal consultant; design leader; other design consultants; main contractor; subcontractors; cost consultants; other consultants depending on the project's needs; and lastly the end-user of the project. These participants are dependent upon the size and the nature of the project (Senaratne and Hapuarachchi, 2011). However the focus of this study is on the people entrusted with the responsibility to deliver construction projects in the early stages just before the construction phase commences.

The team in which this research study is based is the client project teams in which there is a specific one-time output in this case it will be a specific project in which the team will be providing the construction services starting from the planning phase of a project through to its completion. However according to Zhou, Cheung & Hsu (2017) there are 15 different types of project teams namely; construction project team; Construction Management (CM)/General Contracting (GC) project team; Design & Build project team; Build Operate Transfer project team, infrastructure project team; Megaproject team; Construction management team; Engineering project design team; Onsite and virtual design team; construction operative team; Ancient construction project team; Multicultural construction project team; Geographically dispersed construction project team; BIM-enabled construction team and lastly the green project team.

Hapuarachchi and Senaratne (2011) argued that team within the construction industry is classified into 3 types namely, virtual, cross-functional, and, inter organisational teams. Virtual teams shares the same definition as explain above whereas cross-functional teams are teams that works together for a specified period and there are cross-functions where team members are also members of other teams reporting to functional managers and project leaders. Inter-organisational teams are teams which comprise representatives from several organisations that share the same goal of delivering outcomes.

Each of these teams has a specific purpose, composition and the method in which they are to function or operate. The purpose of these construction teams is determined by the client for

whom the services will be rendered to. There has to be a selection or composition of individuals who will form the team. The composition across organisations will differ, but the main aim of such a combination will be to achieve the intended objectives of the project. The method of working will be stipulated before and during the project in which the team members will carry out the project (Cornick and Mather 1999).

2.13. Studies conducted on Roles in the Construction industry

A study was conducted by Anyauwu (2013) on The Role of Building Construction Project Team Members in Building Projects Delivery and the sole purpose of the study was for clarifying the confusion and misinterpretation of roles that are supposed to be played by the building construction project team members of a project delivered in Nigeria. A documentary analysis was used for the clarity, and the opinions of the stakeholders in the building construction industry were also used in order to achieve the objective of the study. It was concluded that there was a major difference between the supervision and management of the projects and there were different team member roles that have been identified in the delivery of the building project. These roles are also dependent upon the procurement method specific to a project.

Another study was conducted by Kabiri, Hughes and Schweber (2012) on the role conflict and role ambiguity in construction projects. The aim of the study was to investigate the effects of incompatible and/or unclear role expectations (role conflict and role ambiguity) in construction design teams. Qualitative research design was followed where interviews were conducted with the professionals that are in practice for the fulfilment of the purpose of the study (findings of this paper)

Nikumbh and Pimplikar (2014) conducted a study on the Role of Project Management Consultancy (PMC) in construction projects and the purpose of the paper was to provide the analysis or breakdown of the role of project management consultancy and study problems faced by PMC in implementing the project. A case study research strategy was used in realising the objectives of the study. The main research methodologies used were descriptive, explanatory and quantitative (questionnaires). It was concluded that project management consultants manage the project by application of their knowledge, skills and experience and different stages. PMC has to face several challenges like design issues, constructability, long lead material issues, inter contractor coordination issues, engineering issues, safety issues etc.

2.14. Studies conducted on teams in construction projects

A study was conducted by Baiden and Price (2011) on the effect of integration on project delivery team effectiveness. The purpose of the study was to investigate the impact that the integration can have on team work effectiveness within construction industry delivery teams. Interviews (semi-structured interviews) were used as a data collection method in order to understand the perspective of the respondents in order to fulfil the purpose of the study. It was found out that teams with different levels of integration had the same or similar levels of teamwork effectiveness. From the findings it was suggested that the role and value of integration in project teams is unclear relative to other performance enhancing approaches. And the results also showed that teams have significant potential for increasing productivity and consequently resulted in improvement in performance and this is solely because better results can be obtained in a team environment rather than working as individuals.

Another study was conducted by Albanese (1994) on Team-Building Process: Key to better project results. The research statement for the study is that significant improvements in project results (Cost, quality, safety and improved working relationship) can result from effective use of a team-building process with inter-organisational teams. The data collection methods used was personal interviews and questionnaires and this was done on 41 projects over a three year period. It was found out that there were two major factors that influenced the decision to use an inter-organisational team and they include previous experience with inter-organisational teams and team buildings the other reason was having a team building advocate which is a person who supports the use of team-building.

A study on constructing relationally integrated teams was done by Kumaraswamy et al (2005), and the aim of the study was to identify and analyse facilitators and deterrents of integrated team building and also to consolidate the overall findings from the questionnaire survey. Questionnaire survey was carried out in Singapore, since it was particularly interesting to gauge the perceptions of the contractors in the country, where functional integration had been emphasised more than team-working, in their industry report. It was found out that there was a generation appreciation of the need for relational integration, as against mere structural integration that was envisaged for example through integrating the design and construction functions and operations.

Another study was done by Baiden, Price and Dainty (2006) on the extent of team integration within construction projects and the purpose of the paper was to investigate the extent of integration achieved by construction project teams managed by award-winning construction managers within successfully completed projects. Data collection method used was interviews (In-depth interviews) in order to attain the aim of the study. It was found out that construction project teams existed as individual competent units within their organisationally defined boundaries.

A study by Ochieng and Price (2010) was also conducted on managing cross-cultural communication in multicultural construction teams: the case of Kenya and UK. The purpose of the study was to examine the cultural factors that influence communication and explores how communication can be made effective in the multicultural project environments. Interviews were used as data collection method and they took place in Kenya and UK. It was found out that communications within multicultural project environments can be effective when project managers demonstrate an awareness of cultural variation. The study was conducted in Kenya and UK.

In conclusion, the literature review shows limited research on how team structure and the role played by the project team leader influence successful delivery of construction projects. Teams within the construction industry play a vital role of actually carrying out the processes into reality, however the construction management literature provides little knowledge into how to fully develop these teams as an organisation wishing to deliver infrastructure projects within the primary objectives it being cost, quality and time. Teams are in most cases assembled to just fulfil the requirements of the client and not being suited to deliver such requirement and this is why the gap in literature exists. As a result there is a need to understand how construction project management teams have to be structured to be best suited to successfully deliver the objectives of clients including what role the team leader performs to the realisation of this.

This research study is important due to the fact that a team is human resource in which construction projects are carried out, understanding these teams, structure, composition, selection, teamwork and performance will help the construction industry to better deliver their outcomes when looking from the construction project management perspective since this is currently not the case with infrastructure project delivered in South Africa.

CHAPTER 3: RESEARCH DESIGN AND METHODS

A comprehensive research design is needed to be able to practically carry out the research and achieve the specific objectives and also answer the research question of the study. The research onion developed by Saunders (2009) was used as a framework for the development of the research design.

This section also seeks to address the following aspects;

a. Research question
b. Operationalization and measurement of variables
c. Research design
d. Research instruments
e. Execution plan

This aspects enables better answering of the research question and hence the need to be explored and understood.

3.1. Research question

How are construction client teams structured and what primary roles are performed by the client team leader to ensure successful delivery of infrastructure projects?

3.2. Operationalisation and measurement of variables

Appropriate variables need to be studied and measured in order to determine the following;

1. Structure of the client team
2. Role(s) played by the team leader
3. Discussion of the impact of team structure and the role of the leader on the delivery outcomes

A definition or operationalization of the following concepts is necessary:

Client team is operationally defined as a team that is responsible for defining the best approach for achieving the intended objectives of the project (i.e. the procurement strategy) and a plan for delivery management of projects which includes the high-level feasibility plan in the initial/early stages of construction projects.

The measurement of variables first started by identifying the actual members of the client team, including their roles within the team. This included identifying the skills, knowledge, competencies, level of experience and background of each member.

Identification of who put the team together was done as this is where the line of reporting and relationship between the team members was identified which brings us to the first variable to be measured in answering the research question.

Team structure is operationally defined as an organisational arrangement of, and relations and network between, individual members of the client's project management team.

Team leader is operationally defined as the organisation or person entrusted with the authority and responsibility to direct all other members of the team. This leader was first identified in terms of who they are and the role they play.

Team leader's role is operationally defined as set of activities performed by the leader in the exercise of their authority and responsibility.

Project delivery outcomes is operationally defined as the degree of achievement of the intended objectives (which may be in relation to time, cost and quality) of construction projects.

The measurement of these concepts are summarised by Table 3:

Table 3: Operationalisation and measurement of variables

Concepts	**Definition/Operationalisation of the concept**	**Indicators of the concept**	**Variables to be measured**	**Measurement of variables**	**Control for other variables**
Client's project management team	A team that is responsible for defining the best approach for achieving the intended objectives of the project (i.e. the procurement strategy) and a plan for delivery management of projects which includes the high-level feasibility plan in the initial/early stages of construction projects.	1. Working together 2. Common goal 3. Productivity 4. Selection 5. Team purpose 6. Roles and Responsibilities	1.Team purpose and nature 2. Selection of the team members 3. Roles and responsibilities performed by the team members	These variables were measured over a series of interviews with the client team through semi structured interviews.	The team is to focus on the delivery of construction projects specifically in the early stages of projects. Contractors etc. do not fall part of this team.
Team structure	An organisational arrangement of, and relations and network between, individual members of the client's project management team.	1. Functional 2. Relationship network 3. Communication 4. Hierarchy(layout) 5. Composition 6. Reporting relationships	1. Relationship network 2. Composition of the team members 3. Reporting relationships	These variables were be measured through interviews by reviewing the organisational goals against each variable	The team structure only involved the team members and its leader and not the entire organisation's members.
Team leader's role	A set of activities performed by the leader in the exercise of their authority and responsibility.	1. Leadership 2. Directing 3. Problem Solving 4. Team Performance 5. Authority 6. Ability to Influence 7. Pro-activeness	1. Team performance 2. Leadership effectiveness 3. Team interaction	This variables were measured with reference to the specific team leader outcomes, and the team outcomes	The age and gender of the leader remained fixed only the leadership functions were looked at.
Project delivery outcomes	The degree of achievement of the intended objectives (which may be in relation to time, cost and quality) of construction projects.	1. Time performance 2. Cost performance 3. Quality Specifications	1. Time performance 2. Cost performance 3. Quality Specifications	This variables were measured against what was initially planned and what was actually achieved	The variables were controlled by analysing or giving consideration to any aspects such as extension of time, variation orders and any changes which were made in terms of quality performance of the projects.

3.3. Research design

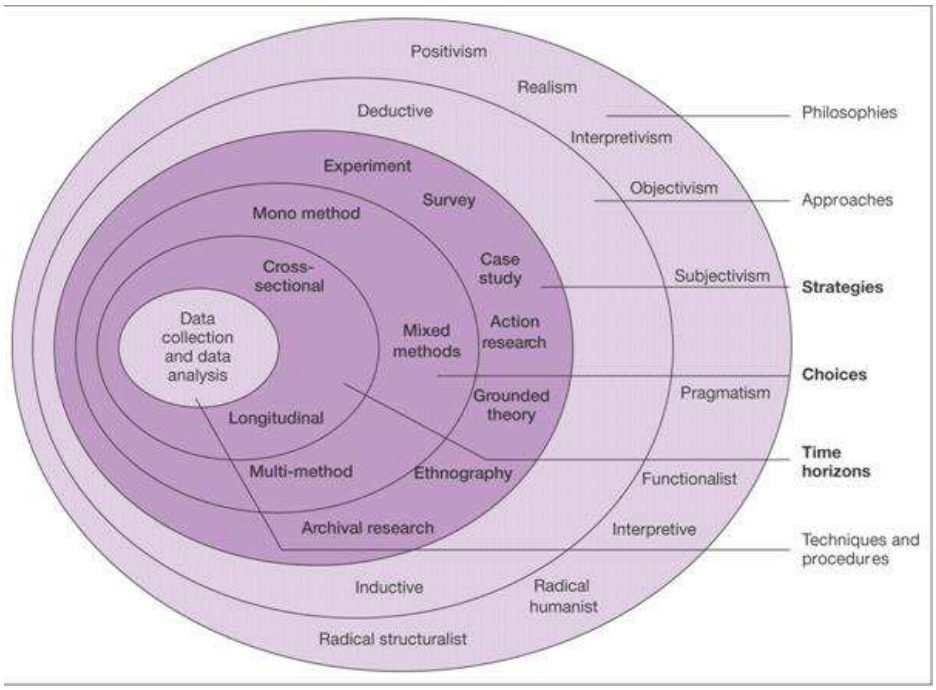

Figure 6: Framework for developing the research design (Sunders, Lewis and Thornhill, 2009)

3.4. Research philosophies

The research philosophy in which the study was based gives a notion about the assumptions in which the world is viewed. The most important aspect to be considered in determining the research philosophy is the research question. According to the research onion in Figure 6, there are ten (10) research philosophies namely positivism, realism, interpretivism, objectivism, subjectivism, pragmatism, functionalist, interpretive, radical humanist and radical structuralist.

Positivism holds the tradition of a natural scientist and it is where social reality is observed and the conclusions drawn will be in a form of law-like generalisations the same way a natural scientist will do. Under this research philosophy an existing knowledge is used in order for the hypotheses to be generated. Realism research philosophy holds that what the senses shows us in reality which can be through sight, smell, touch etc. is actually true. It also holds that objects exist regardless of the mind of human beings. Knowledge is also developed through scientific approach under this philosophy. Interpretivism research philosophy is solely based on understanding the differences between humans as social factors. Objectivism research philosophy is solely based on the existence of social entities independent of the

social factors. Subjectivism research philosophy is about understanding the meanings that individuals attach to social phenomena. Specifics of situations are to be studied in order to be able to understand the reality governing them.

The pragmatism philosophy holds that the most determinant of the research philosophy to select is the research question. This philosophy allows variations in the philosophies and works well with the mixed methods methodological choice. The research philosophy which was used for this study is the pragmatism approach because the research question is the most important matter to be considered in this research design as it has to be answered as mentioned earlier (Saunders, Lewis and Thornhill, 2009).

3.5. Research approaches

There are two research approaches according to the onion which is deductive and inductive. Deductive approach follows the scientific approach and it is about testing theory. It includes deducting a hypothesis, expression of the hypothesis in operational terms, testing the hypothesis, examining the results, and theory is modified if necessary. In this approach a causal relationship between two variables has to be established which will then help in formulating the hypothesis. Inductive approach is the opposite of the deductive approach in the sense that theory is formulated not tested. In the inductive approach data is gathered or collected, and then from findings a theory will thus be generated. This research study followed the inductive approach; since data was collected in order to be able to generate theory in teams of client team structure and the role of the team leader and his role performance in ensuring successful delivery of infrastructure programmes

3.6. Research strategies

According to Saunders, Lewis and Thornhill (2009), there are seven (7) research strategies namely experiment, survey, case study, action research, grounded theory, ethnography, and archival research. The experiment research strategy is based on the natural sciences and it is concerned with studying causal links by analysing whether one variable causes a change in the other variable and this link is normally done within two variables; the independent and dependent variables. They are conducted in laboratories rather than fields. Survey research strategy is normally carried out if the research study follows the deductive approach and it answers questions of who, what, where, how much and how many. Given the nature of these questions answered within the strategy it covers exploratory and descriptive research.

Another research strategy that exists is case study, in which a certain occurrence is investigated by gathering empirical data. The actual reality of the occurrence is investigated using different type of sources in order for the empirical data to be obtained. The use of a case study as a research strategy will be very useful if the aim of the research study to be undertaken entails the need to understand different processes. Action research is another form of strategy which can be used and it involves promoting change within an organisation through action and the research is also part of the action in the organisation. In grounded theory, theory is built through inductive and deductive approaches and it is effective if the research study is about predicting or explaining behaviour.

Ethnography research strategy can be associated with anthropology and it works well with an inductive research approach. This strategy is time consuming as it involves researching topics/concepts in the way in which they occur and there is also extended participant observation that takes place which may take long.

The other research strategy that Saunders, Lewis and Thornhill (2009) identified is archival research, which entails using documents (which can be historical) and records as source of data.

3.7. Research choices

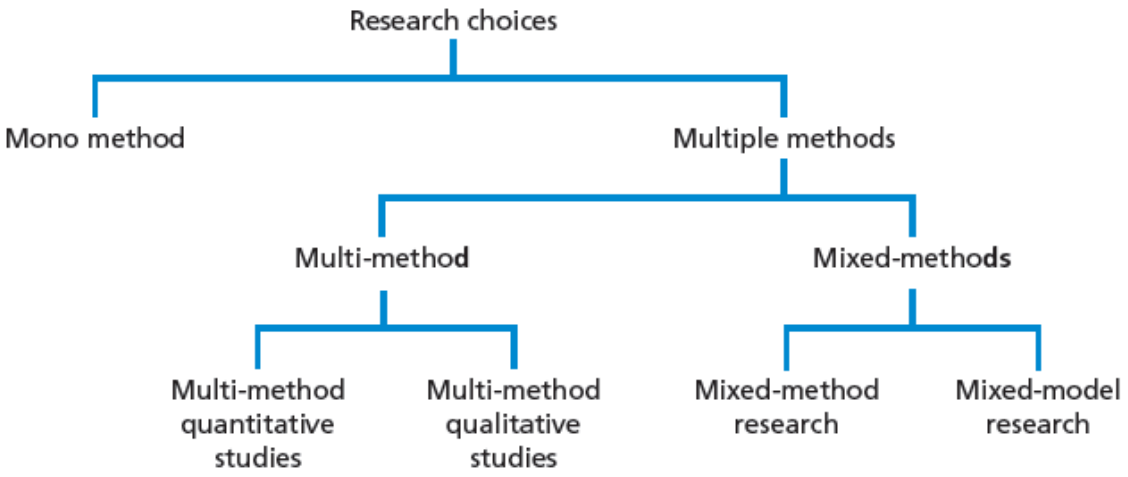

Figure 7: Research choices (Saunders, Lewis and Thornhill, 2009)

Figure 7 classifies the research choices into two main categories namely Mono method and multiple methods. Mono methods are use of single research choice, which can be either quantitative (numbers) or qualitative (words) where data analysis will be quantitative and qualitatively respectively. Qualitative research approach is defined as ‘’an approach for

exploring and understanding the meaning individuals or groups ascribe to a social or human problem (Creswell, 2013).

A Quantitative research approach is an approach for "testing objective theories by examining the relationship among variables. These variables, in turn, can be measured, typically on instruments so that numbered data can be measured using statistical procedures''(Creswell,2013 ; Sunders, Lewis and Thornhill, 2009, p194).

The multiple methods research choice is classified into 2 divisions, namely multi-method and mixed-methods. Multiple methods are where more than one research choice is used, which can be a combination of qualitative and quantitative methods in order to be able to answer the research question. Multi methods "refers to those combinations where more than one data collection technique is used with associated analysis techniques, but this is restricted within either a quantitative or qualitative world view'' (Saunders, Lewis and Thornhill, 2009).

The mixed method approach is where both qualitative and quantitative research choice is used in a single case study with their respective data analysis methods.

3.8. Time horizons

Time horizons is about determining whether the research study will take place over a particular point in time or over a series of time within a period. There are two types of time horizons according to the above *framework for developing the research design* namely, cross-sectional and longitudinal. Cross sectional time horizon refers to studying phenomena over a particular point in time and often works well with the use of a survey research strategy. Longitudinal time horizon refers to studying change and development in series over a certain period of time. A cross-section time horizon was adopted for the study since the nature of client team structure and role of the client's team leader in two successful infrastructure programmes were examined over a particular time.

3.9. Summary of the research design crafted for the study

The main focus in selecting the research design for the study is the research question which is what the study needs to answer at the end of the day. The research philosophy used for the study is pragmatism, because it allows variations in the research approach and it also holds

that the most determinant factor of this approach is the research question which is what the study has to answer.

Research inductive approach was used for this research study, since the data collected on team structure and role of the project team leader client team in infrastructure projects including the team member's experience, background, competencies and skills was used to build theory around the nature of client team structure and the role performance of the client team leader.

The research strategy adopted was the case study approach as two (2) cases were analysed on a particular point in time.

To specifically address the research objectives, a mono-method approach (qualitative) was used as the methodological choice where semi-structured interviews and documentary analyses were adopted for collecting data. Semi-structured interviews were used to achieve the specific objectives, where participants (the Client Team which was involved in the implementation of projects within the Wits Capital Project Programme and the two New Universities-Sol Plaatjie and Mpumalanga) for the interviews were identified to uncover who carried out the initial stages of the project, nature and structure of the team and role of the project leader and factors which enabled the successful delivery of the programmes.

The semi-structured interviews were recorded upon permission by the participant and then later transcribed in order to be able to analyse the data collected qualitatively. As interviews were conducted, documents were obtained and then analysed qualitatively and hence the use of a documentary analyses as a secondary data collection technique. Both the Semi-structured interviews and documentary analyses were analysed qualitatively. A cross-sectional time horizon was adopted for the study since the nature of client team structure and role of the project team leader in successful infrastructure project delivery was analysed over a particular time.

Figure 8 illustrates the summary research design which was adopted for the study.

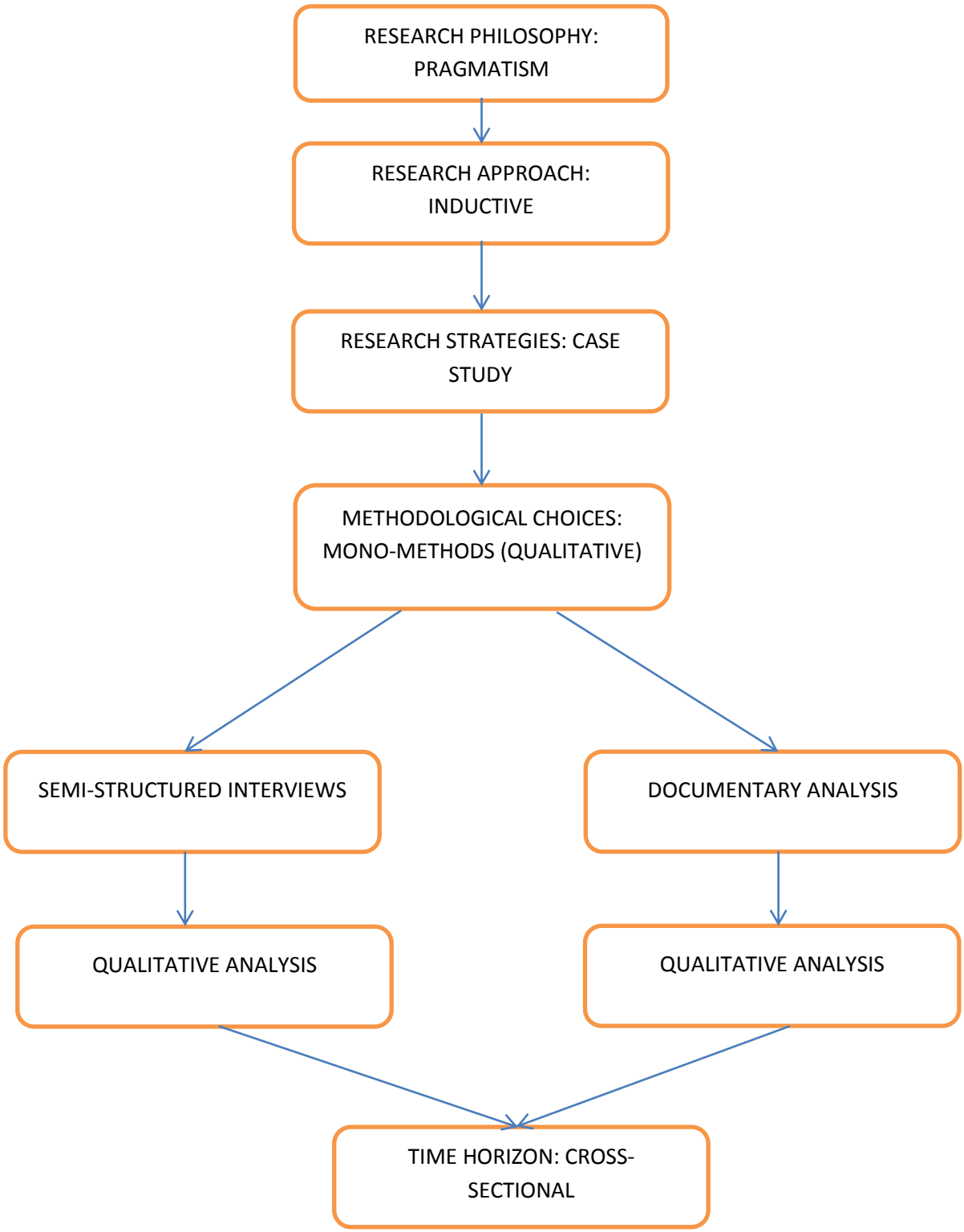

Figure 8: Research design for the study

3.10. Techniques and procedures

Data can be collected in various ways which includes interviews, observations questionnaires and secondary data.

Interviews can be defined as a dialogue between the interviewer and the interviewee. Interviews can be structured, semi-structured and unstructured. Structured interview is where the interviewer controls the questions being asked in the interviewing process and questions have a formal structure in the way in which they are asked. Even though there might be open questions asked in the beginning phase of the project, the interviewer has specific questions wishing to get definite answers for them. The semi-structured interview is where there is a mixture of open and closed questions, so the focus is on getting more on both sides rather than focusing on the questions structured as the experience of the interviewer might give more information. Unstructured interview is where the respondents have freedom or flexibility when responding to the questions asked, but the interviewer prepares questions prior to the interview in order to be able to guide the interviewing process. Interviews are analysed qualitatively depending on the data obtained.

Observation is the systematic observation, recording, description, analysis and interpretation of people's behaviour. The two types of observation include participant (qualitative) and structured (quantitative). Participant observation is where the researcher becomes part of the group, participating in the activities which are done in the area. The research is able to share both what they observed and what they felt while there. The purpose of structured observation is to quantify behaviours on how often they happen, not why they happen.

Questionnaires are defined as a ''general term to include all techniques of data collection in which each person is asked to respond to the same set of questions in a predetermined order" (Saunders et al, 2009). In selecting questionnaires for the research study much caution should be given to whether its use will yield accurate information. The types of questionnaires include self-administered questionnaires and interview-administered questionnaires. Self-administered questionnaires are internet-mediated, intranet-mediated, and postal or mail and lastly the delivery and collection questionnaires whereas interview administered questionnaires are done via telephone or in a structured interview.

Secondary data includes reanalysing raw data and published documents which were collected for other purposes. Secondary data can be analysed both quantitative and qualitatively and the

types are raw data and compiled data. Raw data is the one which has little processing or not processed at all and the opposite is true for complied data. There is also document secondary data which includes written data or no written documents.

3.11. Population

The population of the research study is the infrastructure programmes delivered within the Wits Capital Project Programme and the two New Universities (Sol Plaatje and Mpumalanga) in the South African construction industry.

3.12. Sampling

The sample includes the client team and the team leader who were entrusted with the responsibility to assist the client in formulating the procurement strategy and advising in terms of determining whether the projects were feasible or not.

3.13. Details of the case study

Two successful infrastructure programmes have been delivered in South Africa in the past 10 years. The first one is the case of the Wits Capital Projects Programme (2008 – 2014) in which a portfolio of 40+ projects totalling 1.5billion Rands of expenditure was successfully delivered within 5% of the control budget. Most of the project team members that delivered the Wits projects were appointed and assigned with the responsibility to deliver a new universities project which comprised the development of the Sol Plaatje University in Kimberly, Northern Cape Province; and the University of Mpumalanga in Nelspruit, Mpumalanga Province. This team was known as the New Universities Project Management Team (NUPMT) and was led by an experienced Client Delivery Manager who happened to be the same person who was in the client's team in the case of the Wits projects. The NUPMT successfully delivered Phase 1 of the new universities between 2012 and 2016 within 1% of the control budget of 1.5billion Rands. These two successful cases provided an opportunity to conduct a comprehensive study on the nature of the client teams in both cases, focusing particularly on the team structures and the critical role of the leader of the client's team who happened to be the same person in both cases.

3.14. Research instruments

Data collection was done using semi-structured interviews, documentary analysis and listening to a presentation done be the key members of the client team. The participants were project team leader, and client team. The aim of the study was to examine the nature of the

team structure and how the client's project team leader performed his role to ensure successful delivery of the infrastructure programmes.

The variables the study investigated include team structure, role of the team leader and project delivery outcomes. In measuring these variables semi structures interviews, documentary analysis and a sit in at a presentation were used for data collection. Where data were analysed qualitatively. Other research instruments include informed consent which was given to the identified participants in order to request their permission to collect data. Documentary analysis sheet was also prepared prior to the data collection process in order to record the type of document received and how they relate to the research question. Participant information sheet was also given to the identified participants in order for them to have the knowledge of the research they are about to participate in, an interview schedule was also be prepared by the research which had the questions in which the researcher asked the participants. All the research instruments used in the study are attached in the appendices.

3.15. Ethical considerations

The ethical consideration taken into account is that data collection was done in adherence of the ethical application form as the application form was submitted. An informed consent form was obtained from the participants in order to request their permission to collect data. Participation is voluntary and no participant was forced in collecting data. The data collected from the participants is confidential and was used for the research study purposes only and afterwards it will be stored in the archives. The researcher conducted this research study in an ethical manner giving consideration to the aspects of reliability and validity. All participants were treated with respect and data was only used for the purpose of the research.

3.16. Validity and reliability issues

In answering the research question, the aspects of validity and reliability had to be taken in cognisance to prevent or reduce the possibility of getting the wrong answers from the participants in which data were collected from. The variables which were measured in the research study had to be as clear and precise as possible to avoid ambiguity during the data collection process .This measurement was only considered sound or adequate if it fulfils the tests of validity and reliability and this included checking for possible errors such as subject or participant error, subject or participant bias, observer error, and observer bias.

According to Saunders et al (2009) validity is about whether the findings are really about what they appear to be. In testing for validity, there is a validity test which can be used as a criterion which indicates the degree to which the instrument measures what it is supposed to measure. There are six aspects of validity which must be taken in cognisance of when testing the data collection findings and they include history, testing, instrumentation, mortality, maturation, and ambiguity about causal direction.

Reliability can be defined as the extent to which the data collection techniques will yield consistent findings or results. There are two aspects to take into consideration when testing reliability. These are stability aspect and equivalence aspect. Stability aspect is about maintaining consistency in results with repeated measurements of the same person with the same instrument. Equivalence aspect is about the degree of error which may be introduced by different investigators or different samples on the research study (Kothari, 2006). Therefore in order for the researcher to collect data which satisfies the validity and reliability test, consideration had to be given to the above-mentioned threats.

The variables measured in this research study were the team structure, role of the team leader and how they contribute to successful delivery of construction projects. The methods in which data was collected are semi-structured interviews, documentary analysis and a sit in at a presentation by the team members.

CHAPTER 4: DATA COLLECTION, PRESENTATION, ANALYSIS AND RESULTS

4.1: Data Collection

The data used in this study were collected through semi structured interviews, documentary analysis and non-participant observation. The interviews were conducted with the client team members who were responsible for delivering the Wits capital projects programme and the new universities since it was the same team. The members included individuals from various disciplines namely the client team/delivery management team leader, procurement specialist, spatial planner, development and stakeholder engagement, programme and project management, wits governance and oversight, and project administration. The data collection process started in December 2017 where a semi-structured interview was held with the client team leader to get the overview of the nature of the team structure, the roles and responsibilities of the team members, the role of the client team leader and the project outcomes and success factors. This interview was followed by a sit in presentation in January 2018 were the team members were presenting on the success stories of the new universities to government officials and the lessons learnt with such a delivery. This is where the opportunity arose to take the contact details of the identified participants and schedule interviews for data collection for the research study. Interviews were scheduled from February 2018 to April 2018. During data collection the researcher was able to identify other research participants through the interviews which were initially not identified. The primary reason for interviewing the client team members and its leader was to get their professional perspective on the roles and responsibilities of the client team members, nature of the team structure used, role and qualities of the team leader, roles and qualities of the team members, and the project outcomes and success factors. Eight (8) respondents were interviewed which were individuals from different firms who were part of the client team, specifically the delivery manager, procurement specialist, Wits governance and oversight, spatial planning advisor, development and stakeholder engagement advisor, and the project administrator. Various documents were received from the respondents which were about five (5) in number during interviews as part of the data collection process and this is where the researcher ensured that aspects of ethical consideration was to be adhered to in terms of publishing the received documents. One of the challenges faced was that none of the respondents agreed to give the researcher a copy of the close out report for the new universities and all of them referred the researcher to the research supervisor for the copy.

One of the challenges faced during the data collection process was setting appointments with the identified participants; some of them took long to respond to the appointment due to them having busy schedules. One participant who was initially identified to be part of the data collection has never responded to the appointment to date. The other challenge was that the interviews were semi structured and the researcher would ask a specific question only to find that the respondent goes on and on to aspects which are off the topic and therefore the researcher had to come up with a strategy to limit going off topic by the respondent. The other challenge experienced was that the researcher set an appointment for 10 am in the morning and the respondent forgot about the meeting and made other arrangements so the researcher had to wait until 2pm so that the interview can take place. The programme and project manager could not be interviewed because he stays in Durban and didn't respond to the interview appointment.

4.2: Data Presentation

Table 4 highlights how data was collected in terms of the interviews held, date of the interviews, place, duration of the interviews, transcription and lastly the documents received.

Table 4: Interview conduction summary

Respondent	Date of interview	Place	Duration of the interview	Transcription	Received documents
R1	05th December 2017 16th February 2018	Campus Planning and Development, Parktown	01:07:25 00:05:48 01:08:13	Complete	Higher Education Infrastructure Expansion: The Case of Wits Paper
Presentation by the key client team members		Fair city Roodevallei Conferencing & Meeting Hotel	08:00 to 16:30	N/A	Presentation document
R2	08th March 2018	Campus Planning and Development, Parktown	00:54:56	Complete	-
R3	26th March 2018	Infrastructure Option offices in Randburg	00:22:48 00:51:15 00:18:30 00:24:11 00:08:57	Complete	>The extraordinary history of Civil Engineering Management by Martin Barnes >Case study on the strategic application of the SIPDM in the

					delivery of the two new universities (SIPS 14 project)
R4	25th April 2018	Campus Planning and Development, Parktown	00:33:41 00:01:54	Complete	-
R5	16th April 2018	Ludwig's office, Wits School of Architecture	00:23:30 00:07:02	Complete	-
R6	09th March 2018	Development at work offices, 34 Gerard Street, Observatory, Johannesburg,	00:12:10 00:33:43	Complete	-
R7	15th February 2018	The Hillman building, boardroom-Wits University	00:13:22 00:04:43	Complete	Capital Projects Governance Structure
R8	28th April 2018	1 Grace Road, Observatory, Johannesburg	00:05:30 01:18:56 00:25:21	Complete	-

4.3: Data Analysis and Results

Data was collected through the use of semi-structured interviews, sit-in at a presentation and documentary analysis. The semi structured interviews were recorded upon receipt of permission from the participant thereafter they were transcribed in order to be able to analyse the data collected. The transcribed data were then prepared in order for analysis to take place this included cleaning (removing and trimming data to prepare it for analysis), anonymising it according to the respondents, ensuring that there are no typing errors and storing it in different files and databases to avoid the loss of data. The data analysis method used was the categorisation of data into themes which were in line with the research objectives and this was where the transcribed data and documents were highlighted in order to identify aspects relating to the research aim.

The method for analysing data also included firstly preparing the data collected so that the analysis can take place and thereafter coding the data in terms of activities, objectives, meanings, participation, relationships, consequences, constraints, and the researchers' own reflections. The third step was checking on the credibility of the data collected which was

done by asking the participants and clarifying aspects which were vague, this was then followed by interpreting the results and presenting the data. The Data were presented in a tabular format according to the themes identified which are in line with the research objectives (Theron, 2015). This method can be referred to as content analysis.

Content analysis is a ‘’method of analysing written, verbal or visual communication message’’ (Elo & Kyngas, 2007). It is also a method for making replicable inferences from data to context, with the purpose of providing knowledge, new insights, a representation of facts and a practical guide to action. This method leads to categorisation of themes on the collected data which is how the analysis on this research study was done.

Theories used for the data analysis was based on the Fifth Edition Business Research for students book (Saunders, Lewis & Thornhill, 2009) for qualitative research analysis. An inductive approach was followed where theory was to be built from the data collected. The research is mainly descriptive since it is to describe the nature of the team structure, the role of the team and also describe the project outcomes and key success factors using the two cases. The variables were identified and themes were used for analysing data with the aim to discuss the impact of team structure, team leader on the achieved outcomes. The variables measured were the client team, team structure, team leader’s role, and project delivery outcomes.

The analyses involved the process in which the researcher implied her understanding of the data collected and how it makes sense to the researcher in addressing the specific objectives. The perspective of the client team members in terms of their roles and responsibilities, team structure, the quality and role of the team leader and also the project outcomes and success factors of the two cases was analysed. The analyses classified into four sections which are roles and responsibilities of team members, client team structure, role and qualities of the team leader, and lastly the project outcomes and success factors and these are the themes which were identified in analysing the transcribed data.

The documents received during the interviews were related to the governance structure used at Wits for capital project delivery, the entire delivery of the new universities document from the presentation done by the team and team structure. These documents were also analysed using the themes mentioned above.

4.3.1 Roles and responsibilities of the team members

The first research objective was to ascertain the nature of the team structure used in the delivery of infrastructure projects, and in addressing this team structure we first needed to understand the roles and responsibilities of the team members and the nature of their interaction between each other.

The identified members of the team were interviewed to explain what is meant by the client team, who were the members of the team, and to also describe their roles and responsibilities; this included the team leader himself.

The keywords that were used to explain what the client team was as follows according to Table 6:

- ‘’The client team is made up of advisors who specialises in various disciplines, but come together to solve any problems that may arise’’.
- ‘’The client team are technical advisors which can be the organisations (or people) who advise on financing, planning, architecture, regulations and who shape the project in its initial stages, helping to formulate the client’s requirements’’.
- ‘’The client team is not responsible for the business case’’

These responses were made by the members of the client team themselves including the leader.

In terms of identification of who the team members were, the following were the responses of the participants:

- The client team included ‘’spatial planning finance management, procurement’’ advisors
- ‘’Dean Barnes was the project manager, Monica, Ludwig spatial advisor under Ludwig there was Christine who was responsible for architectural services advisor and there was Willie Potgieter responsible for engineering services advisor and Martin Gobbler ICT’’.
- ‘’Emmanuel’s role was that he was head of camps planning and development’’
- ‘’Monica’s role included ‘’keeping all records of contracts’’
- ‘’Ron Watermeyer did the procurement’’
- ‘’The development stakeholder advisor who was Mark Burke’’

- ‘’Craig was doing institutional planning’’
- ‘’Engineering services advisor was Willie Potgieter ‘’
- ‘’ Professor Fitzgerald had management responsibility, Professor Ballim had governance responsibility’’

Based on these responses the conclusion of the results is done as follows;

For the Wits Capital Projects programme the core team was made up of few individuals as work was done on an existing university and the expertise included the following:

- The delivery manager (Client team leader),
- Procurement specialist and advisor,
- Spatial planning advisor,
- Programme and project manager,
- Project administrator and lastly the
- Wits executive team which was called the Wits project steering committee.

However these functions were grouped from a broader perspective and they included the following parties;

- The Vice Chancellor (ex officio) and the Director Special Projects in the Vice Chancellors office as well as the three Deputy Vice Chancellors (DVC), namely;
- DVC: Academic (Chairperson)
- DVC: Advancement and Partnerships
- DVC: Finance and operations
- Director: Campus Development and Planning
- Director: Capital Projects Programme’
- Director: Development and Fundraising office.

There were also other advisers who came into the team every now and then such as the furniture specialist, however the core team was only made of the six aforementioned people.

The Two New Universities which are in Kimberly and Mpumalanga were of different story due to the fact that the team was given the responsibility to establish the universities which were not in existence before, and therefore more advising was required especially since the programme involved two streams one being the actual infrastructure and the other stream was institutional/academic planning. The use of this core team in the new universities was

because the team had previously delivered the Wits capital project programme successfully. Table 5 represents members of the team:

Table 5: New Universities Project Management Team (NUPMT)

Name	**Name**
Wits Governance and Oversight: Emmanuel Prinsloo, B.Ing (Civil) (RAU)	**Procurement and Delivery Advisor** Dr Ron Watermeyer, BSc(Eng) DEng (Wits) PrEng PrCPM PrCM CEng FSAICE FIStructE FICE FSAAE
Client Delivery Manager Spencer Hodgson, MSc Arch (Weimar) PrArch FCIOB	**Procurement Advisor** Alain Jacquet, BSc.Eng (Civil)(Wits) PrEng PrCM PrCPM CEng FSAICE MICE
Programme and Project Manager Dean Barnes, BSc Hons (Natal) PrCPM Pr Sci Nat	**Development and Stakeholder Advisor** Mark Burke, B.Proc (Law); BA (Hon); MM (Wits)
Project Administrator Monica Reuben	**Institutional Planning** Craig Lyall-Watson, Dip O&M, Dip T&D
Spatial Planning Advisor Ludwig Hansen, B.Arch (UP), M.UrbanDesign(KU Leuven) PrArch)	**Academic Planning** Prof Gina Buijs, BA (Hons), MA(Natal), PhD(UCT), HEMC (Wits
Architectural Services Advisor Christine-Anne Paddon, B.Arch (UCT) PrArch	**Engineering Services Advisor** Willie Potgieter, BEng (Hons) Pr Eng FSAICE
ICT Services Advisor Martin Grobler	**Administrative Support** Gill Scott, BSc, HDipEd, MEd (Wits)
Furniture Project Management Nigel Branken, B.Soc.Sc	**Management Accountant** G M De Kock CA(SA) ACMA, CGMA, RA

The role performance of each individual was in relation to their expertise. Emmanuel Prinsloo was responsible for Wits governance and oversight and this was about ensuring that interests of Wits as the implementing agent were addressed. The delivery manager was responsible for understanding who the client was and knowing what to do to act in the best interests of the client. He was also responsible for recognising, internalising, analysing and processing demands from the external environment and computing, framing and structuring the work of the team. The programme and project manager was responsible for setting up the programme management system and authorising payments. Monica who was the project administrator was to ensure that the programme runs smoothly in terms of administration and

keeping all records of contracts. The spatial planning advisor was entrusted with the role of locating projects within a long term spatial strategy and developing the spatial framework and the architectural services advisor was working under the spatial planning advisor. Martin Grobler was responsible for ICTs (Information and Communication Technologies). Due to the vast need of furniture within the universities, a furniture project manager was appointed to deal with the procurement of the furniture. The other key individual who played a critical role in the delivery of the projects was the procurement and delivery advisor who was entrusted with the responsibility to advice on a range of procurement strategies and drafting the procurement documents for procurement of service providers and addressing all the procurement related aspects. The procurement advisory also engaged in the evaluation of tenders in assisting the tendering committee. There was also the development and stakeholder advisor who was responsible for looking at the development goals and was involved in communicating with the stakeholders. Academic and institutional planning advisors were responsible for ensuring that the vision and mission of the universities are established and also coming up with programs or courses to be taught in the universities. There was also an engineering advisor who was involved with all the local authorities to try to find out the bulk services and bulk services contributions. Gill Scott was responsible for providing administrative support which included taking minutes in meetings with the Department of Higher Education and Training. Due to the fact that the buildings built in the new universities are assets, a management accountant was appointed in order to deal with the asset registers and the balance sheets.

The Wits capital project programme only had the delivery manager, procurement and delivery advisor, programme and project manager, project administrator, spatial planning advisor and architectural services advisor as well as the furniture project manager. It also had the project steering committee that was responsible for oversight. The members of this committee were fewer in number as compared to the New Universities due to the nature of the work that was required at Wits.

Table 6: Summary and content analysis of interview responses relating to roles and responsibilities of the client team (cross referenced to Appendices 5.1 – 5.8)

Respondent	**Data Collection Results**
	Who were the client team members and what roles did they perform?
R1	> There's the delivery manager, and the delivery team is where there's the project manager, professional team, the contractors and the operator who operates maintenance > Dean was responsible for setting up the program management system or authorising payment. > The client team is made up of advisors who specialises in various disciplines, but come together to solve any problems that may arise. The leader doesn't tell the advisors what to do, but when there are challenges he would attend the matter, the delivery manager also contributed to project success by selecting the team members. > The leader selected the team and when he was called for the New Universities he put the names of Ron, Ludwig and Dean down along with his name. > The client team is the delivery manager plus technical advisers so as a client you always need people that you can trust to advise you about spatial planning finance management, procurement an all these things so the team was appointed. > Emmanuel was critical to all the things that had to happen within wits; managing, the tender committee had to meet, wits tendering committee Emmanuel was the key person managing all that and there's was the delivery manager and Dean Barnes was the project manager, Monica, Ludwig spatial advisor under Ludwig there was Christine who was responsible for architectural services advisor and there was Willie Potgieter responsible for engineering services advisor and Martin Gobbler ICT. >The project manager: who can be part of the client team or supply team, and who delivers the project development implementation. > The client team are technical advisors which can be the organisations (or people) who advise on financing, planning, architecture, regulations and who shape the project in its initial stages, helping to formulate the client's requirements.
R2	>The team members are people that like accountability and that do not shy away from that responsibility, problem solvers, but they are also people that you need to support and you need to get out of their way so that they can do the job.

R3	> The delivery team is the built environment professionals and contractors that are doing what they know best, time, cost, quality, now time, cost, quality needs to respond to values, whether they can they deal with values of what the client wants. >They get directed, they don't have the vision for the project, they doing the work, client needs the vision, so the client initiates, commissions, pays for the project, owns the business case and leads the project now leading the project is not doing the day to day work, it's giving the strategic direction to allow to come to the end result. >The client team is not responsible for the business case; it is not its business case. > The way the team was assembled, it was done in a way that there were no affiliations. > Dean Barnes was from enhanced projects, Monica worked for enhanced projects, spatial developments is Ludwig Hansen and associates, urban design, all have their own practices, architectural advisor etc. > All of the members were individuals and we were not interested in their companies, so this is taking a client function and outsourcing it to a team of individuals that come together. > It comes down to relationships because the team worked collaboratively for years so when the leader came to wits the first thing he did was to get Dean and Ron appointed due to previous working relationships. >Emmanuel's role was that he was head of camps planning and development so he was taking overall accountability from the university point of view so he was wearing the university's hat, governance, linkage, how systems work in the university, what structures need to be followed, so he was looked at looking after the university's interests. >Monica's role was under dean, she worked for dean, but she was responsible for keeping all records of contracts. Things like the contract register and also authorisation for expenditure, procurement plan, she would keep it updated. The critical things that she managed were the procurement plan, the contract registers, and all the payments that were made. > The core team was Emmanuel, spencer, Dean, Ludwig, Ron and Mark, the rest provided support, in other words if you get Spencer, you get his team. > Ron Watermeyer did the procurement so the team came as a core team to support the leader, but have their own operational functions, but also would collectively come together at team meetings with the consultants to come pick up where the issues were. >The development stakeholder advisor who was Mark Burke looked at the development goals and was involved in communications with the stakeholders; he had a very good way with them in communicating with people. > Craig was doing institutional planning in other words he was putting in place how does council work, what are the standard operating

	procedures if you have an HR section what are the requirements. >The engineering services adviser was Willie Potgieter he was former director of BKS, very solid civil engineer extensive, auto, township services all the rest of it so Willie got involved with all the local authorities to find out about the bulk services and bulk services contributions because now you putting massive facilities on and you got to connect with the bulk services. > Jill supported the secretariat in the fortnightly, monthly and quarterly meetings with stakeholders. > Dean had a good back record good relationship with the team leader and had worked with the leader before in CIDB and also Ron.
R4	-
R5	>The team was responsible for overseeing the whole variety of streams of work as a core responsibility.
R6	-
R7	-
R8	> Professor Fitzgerald had management responsibility, professor Ballim had governance responsibility and then council approved that structure and they both reported to council accordingly >Spencer and Emmanuel reported to Prof Fitzgerald. > There was another team which was the actual senior management team led by, Loyiso vice chancellor who actually backed the client team. >The core of the core, the inner core of the team was simply Emmanuel and Spencer. >Then there were certain people who were responsible for managing aspects of the projects on contracts, there were people who had 6 months or annual contracts that was providing support to the core team. >There were also consultants such as Ludwig who is an architect, he was never working for Wits he was always a consultant but there was never a key decision taken without him being there. > In that core team only Emmanuel was formerly employed by Wits hundred percent permanent employment. >Emmanuel was not selected he was inherited due to having a good working relationship with Professor Fitzgerald, Spencer was an accidental perfect person. >Professor Fitzgerald's responsibility is exercising management control and checking on governance.

4.3.2 Team structure

Table 7: Summary and content analysis of interview responses relating to structure of the client team (cross referenced to Appendices 5.1 – 5.8)

Respondent	Question: How was the client team structured
R1	> For a long time they didn't have a structure it was only when the project managers were appointed for each universities, they demanded a structure so eventually the team put up a structure. >So the leader was reporting to Emmanuel, was working with Emmanuel who was head of PIMD > The team generally didn't work in a very formal manner, it had some formal meetings and minutes of those meetings, but each member knew what each other's role was. >The team would come together as the project management team to discuss where they are going, what's next, how they are doing, where are the problems and who needs help with what and everything. > There's the department of higher education and training, the project steering committee which was set up in terms of a memorandum of agreement between Wits and DHet. >The Wits project management team was acting as the delivery manager for the new universities on behalf of the Department of higher education and Training, there was also a technical integration committee designed into the memorandum of agreement which was simply because so it was between wits team and the DHET team. > The technical integration committee would meet at least monthly for approximately 60 times throughout the duration of the programme. > At wits the structure wasn't so formal, it was more casual it didn't always use the same advisors, but Ron was the one who was consistent throughout the entire delivery. **>Professor Ballim's set** up a capital projects steering group and so the project team leader was reporting and so is the deputy vice chancellor we were consulting through that steering group to get key decisions taken to brief everybody where the team is and get key decisions taken
R2	>There was internally a flexible flat structure arrangement, so there was a program where quarterly reports was given to the capital works programme steering committee, Ballim and them > There wasn't really a formal structure the delivery manager was permanently based in the office and there was an open door policy between the team members.
R3	>It was more very informal and very flexible if the leader had an issue he would assemble the team if there wasn't an issue what's the point of having a standing meeting.

	>It was more functional in every ways the team leader never had a formal diagram because the team members knew what we were doing
R4	> There was a form of reporting to Spencer and project manager and all those people.
R5	>There's quite a formal structure in terms of how the team operates, what roles they had and what they looked after in a diagrammatic chart. > There were very specific reporting structure as well and the team would then and report back at what we call an exact meetings. >The team was not necessarily reporting to Spencer in a report format, but reports would be compiled for the client. > The governance structure was more hierarchical. They would be a team leader, but within the team the people would have equal say, there was no one superseding the other.
R6	> The team worked on a team basis and what would happen is that the team members will lead their particular expertise of work. > It was a flat structure, reports were submitted on a monthly basis
R7	> The nature of the reporting lines from that time was that spencer and Emmanuel were the ones reporting to Yunus Ballim. The rest of the team members were reporting to Emmanuel and Spencer
R8	> The structure of that team was complex, in that the team didn't necessarily meet every week all in one room, it was a complex structure. > There was a matrix arrangement. > Spencer who was now hundred percent dedicated to the best interest of the project and he normally reported to Emmanuel. >there was an oversight project governance body setup. > The oversight governance body was headed by Professor Yunus Ballim. Now Professor Yunus Ballim is now vice chancellor Sol Plaatjie University. > Professor Fitzgerald was the line manager of the project and was the chief manager of the project. >Spencer led the team, reported to Emmanuel who reported to Professor Fitzgerald and that is where the management decisions were taken then from time to time that team would report to the committee chair by professor Ballim for purposes of the project governance. > It's very matrix and portfolio orientated. >The structure of the project was structured from top to bottom it came out of the process which Yunus Ballim, Professor Fitzgerald, Emmanuel and spencer sat around the table and said how are we going to structure this and the 2 people that maybe contributed most was spencer and Yunus Ballim. > Spencer and Emmanuel did regular reports to Prof Fitzgerald

Based on Table 7 the keywords used by the client team to describe the nature of the team structure were as follows;

- ‘’For a long time they didn’t have a structure’’ and this was for the case of wits
- ‘’Very formal manner’’
- ‘’At Wits the structure wasn’t so formal’’
- ‘’A flexible flat structure arrangement’’
- ‘’Wasn’t really a formal structure ‘’
- ‘’very informal and very flexible’’
- ‘’more functional in every ways’’
- ‘’There was a form of reporting to the team leader’’
- ‘’Quite a formal structure’’
- ‘’Very specific reporting structure’’
- ‘’The governance structure was more hierarchical. There would be a team leader, but within the team the people would have equal say, there was no one superseding the other. ’’
- ‘’It was a flat structure’’
- ‘’The structure of that team was complex’’
- ‘’There was a matrix arrangement.’’

In terms of team structure and how it was organised the following observations can be made from data based on the responses of the team members;

1. The client team was made up of five core working groups for the case of Wits, but for the case of the New Universities it was made up of 16 team members from various disciplines as shown in Table 5.The team comprised the team leader (client delivery manager), then there were built environment consultants which were responsible for various disciplines such as spatial planning, procurement, stakeholder development, engineering services, and programme and project management.

2. There was a clear hierarchy in terms of the way the team was organised and the reporting lines

3. Although there was a clear hierarchy, various team members referred to structure of the team as ‘’Flat structure’’ this implies that although there was a hierarchy in terms

of leadership and membership of the team, they operated much as equals within the team and there was an open door policy in terms of the interactions among the team members.

4. For the case of Wits the client team didn't have a structure for a long time it was "a develop as you go'' type of setting.

As interviews were conducted documents were received in relation to team structure and the diagrammatic arrangement of the team members including the nature of the reporting lines.

For the case of Wits; The Capital Projects Programme reported to the steering group which was made up of the Vice Chancellor and his deputies, the group met three to four times a year in order to monitor project budgets, design briefs, implementation timeline and project fundraising progress. There were also additional groups and committees which included the individual technical advisors and their support staff and they included the following;

- Campus Planning and Development Working Group
- Capital Projects Finance Working Group
- Space Allocation Committee
- Infrastructure for teaching Working Group
- Energy and Sustainability Working Group.

The formation of this client team originated from the case of Wits. Even though there was a structure governing the team member's role, the team had an open door policy where there were meeting every now and them. The structure is illustrated by the diagram shown in Figure 9.

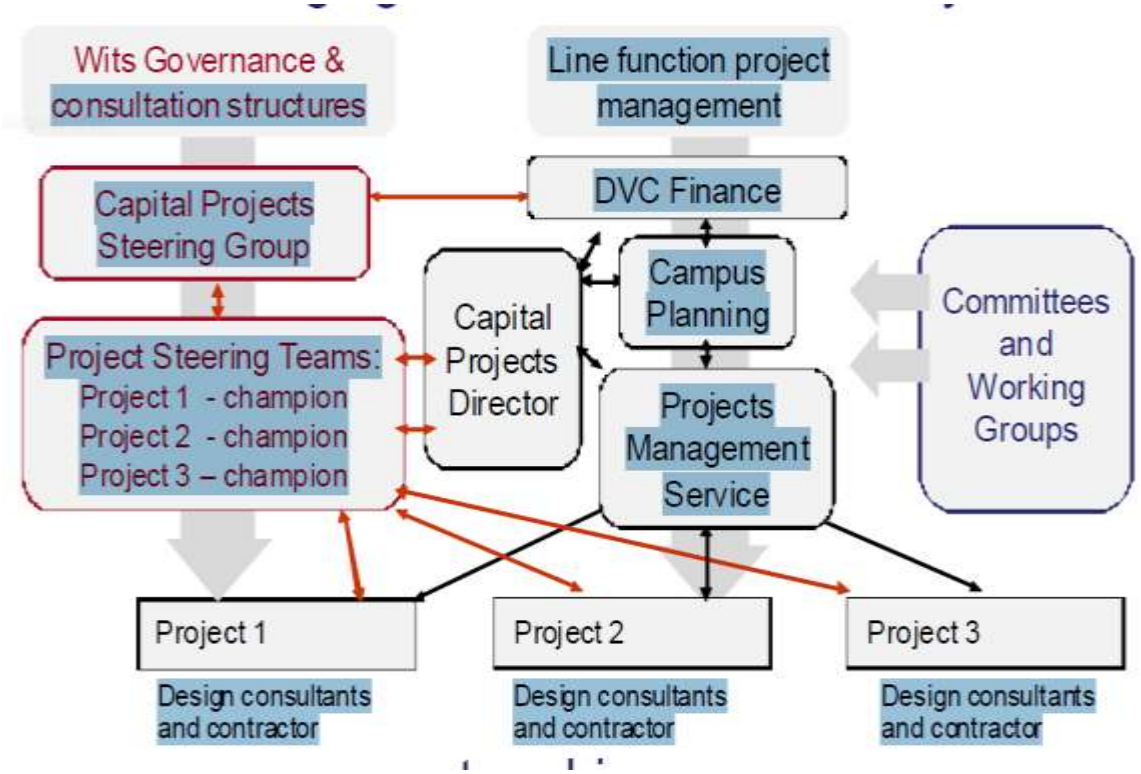

Figure 9: Wits Capital Project Programme Team Structure

The primary factor that was taken into consideration when establishing the team structure was the key relationships between the team members. There was team leadership role which was performed by the team leader who in this case was called the delivery manager. However with the new universities (Sol Plaatjie and Mpumalanga) a formal hierarchical structure which is similar to the development and project team structure identified in the literature review on the characteristics was established to depict the nature of the working relationships between the team members. On top of the hierarchy is the delivery manger followed by technical advisors in different disciplines. The other team members were leading in their respective disciplines with the end goal of reporting to the team leader. There were also project managers who were part of the delivery team and sometimes the project manager can be part of the client team or outsourced team which then makes the team structure a matrix nature somehow at times which for the this case it was not. The structure is illustrated by Figure 10.

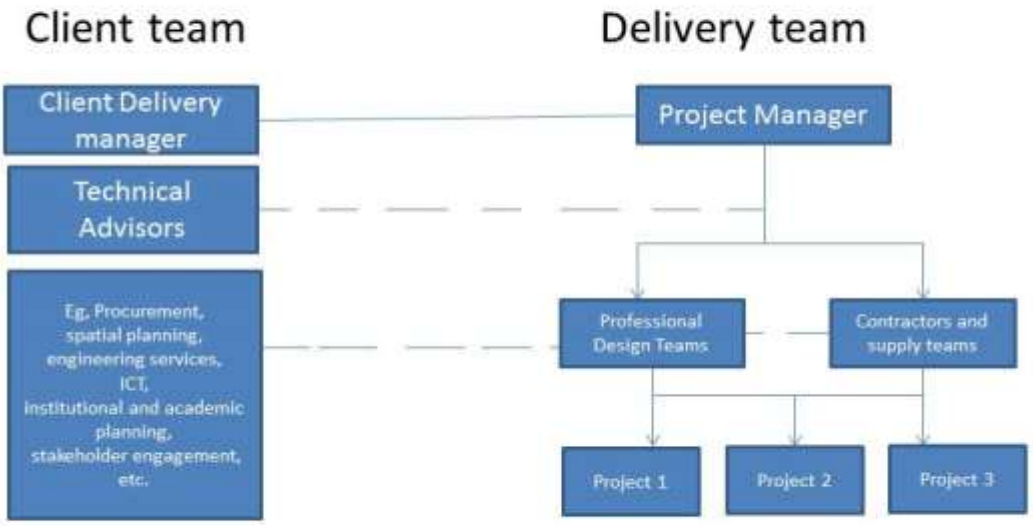

Figure 10: New Universities team structure

The delivery team was the one that is responsible for delivering the development and implementing the project for construction and during construction, however the focus of the study is on the client team.

4.3.3 Roles and qualities of the team leader

Table 8: Summary and content analysis of interview responses relating to roles and qualities of the client team leader (cross referenced to Appendices 5.1 – 5.8)

Respondent	Roles of the team leader	Characteristics of the team leader
R1	>Looking ahead for what's coming and what's going to be. > leading the project and the people; but leading the people doesn't mean telling them what to do it just means that they knew what they were doing the leader was aware of all their responsibilities. >listening to whatever the problems that the team was having and to try to help people understands where to or how we are going to get around these problems. >Management of competing interests and competing priorities so you're always managing competing priorities. > The nature of decision making, the quality of decision making, drawing on the inputs of the team and anticipating the future > The nature of control, being okay with uncertainty so it's the principal of progressive elaboration >To always make sure that the client's interests, the client being the DHET and also the 2 universities as the client delivery manager I had to make sure that we never lose sight of what is the client's priorities. The leader's ability to make sure that the team basically stay in budget.	>He has a very pushy character; how do I solve, I have a problem, this is what I want to do with the vision how can I link it to it and his job was to bring technically narrow minded people to tell him how he could achieve his vision by thinking out of the box. >He is a strategist and able to analyse problems and possible solutions to them. >Spencer is quite innovative so he used the wits project to introduce all kinds of new things like the procurement and tender methodology. >He really seized it with enormous commitment because he was capable of work 13 hours per day; he's capable of working on weekends. >The leader was capable of most inferable efforts, his leadership in terms of focus, commitment in a sense led the whole project, he was absolutely determent that this project was going to happen and it was going to be an exemplar. >He was highly motivated, not only by sense of duty, because you know he has a sense of duty to do things right. >Spencer is quieter and he's more like he pushes where it needs to be pushed professionally.
R2	> Production, quality, safety, time and cost. > Spencer's job was to ensure that the project managers deliver and also make sure that he gets the input from the university.	

R3	>Spencer is a visionary; his background is architecture even though he hasn't really practiced architecture. >The integrator or spencer owns the key planning and management processes that coordinate design, manufacture components the integrator has to have an expertise or has to be an expert in his functions from owning the integrated engineering planning all the way through now he assembled experts around him all of them. >So spencer comes from collective decision taking, but making use and taking advice from experts. >He described his role as being like a conductor in the orchestra, look at it like this the violists know exactly what to do, the saxophonist knows exactly what to do everybody knows what they doing, but someone had to pull them together to get the end product. > His key role was to get rid of blockages > Spencer's role was to look for the blockage, solve it, so that this team can work as effectively as possible. > So the role of a delivery manager is to get rid of the blockages, to orchestrate the team, give them a vision, and give a direction >The leader believes that working collaboratively gives a better outcome. >To create a conducive environment for delivery to take place. >So spencer's role is extremely difficult to pin down, but it comes down to what values do you want to see, so he wanted to see collaboration, he wanted to see projects designed to a budget, not pay as you go or pay for what is designed, he wanted products that were aesthetically pleasing, he wanted environmentally sustainable buildings.	

R4	>The team leader was strict in character. >Checking up on the team members even though they knew what to do. >Foresee what problems the team could run into and already working on that now to avoid those problems.	
R5	>Leading the overall team structure.	
R6	>The leader led the team by playing the client delivery manager on behalf of the client. >To recognise, internalise, analyse and process demands from the external environment and compute that and frame and structure the work of the team. >Always anticipating the future he had to peep his eye on what's happening now and what is being delivered. >Understanding who the client was and what he had to do to act on the interest of the client.	
R7	> Responsible or entrusted with the role to bring people together to form the project management team only he knows what he wanted and who to bring on bought >The leader's role was more around blockages, if there's a blockage in the legal aspect of side he'll go unblock it, if there's a blockage caused by the project champion he'll go address the matter and sort it out.	
R8	>The leader's abilities to know where everyone fits the puzzle.	

The team members who were interviewed were asked about what they think about the aspects of the team leader (roles and qualities). The leader was also solely interviewed about his role. The team leader is represented by R1 in Table 8, the rest of the team members are R2-R8. Based on the data collected in relation to the role of the team leader, the following keywords were used by the participants;

- ‘’Looking ahead for what’s coming and what’s going to be’’
- ‘’Leading the project and the people’’
- ‘’Listening to whatever the problems that the team was having and to try to help people understands where to or how we are going to get around these problems’’.
- ‘’Management of competing interests and competing priorities so you’re always managing competing priorities.’’
- ‘’Anticipating the future’’
- ‘’Never lose sight of what are the client’s priorities’’
- ‘’Ensuring that the team basically stay in budget’’
- ‘’To ensure that the project managers deliver and also make sure that he gets the input from the university’’.
- ‘’Checking up on the team members’’
- ‘’Foresee what problems the team could run into and already working on that now to avoid those problems’’.
- ‘’To recognise, internalise, analyse and process demands from the external environment and compute that and frame and structure the work of the team’’.
- ‘’Always anticipating the future’’
- ‘’Understanding who the client was and what he had to do to act on the interest of the client’’.
- ‘’Responsible or entrusted with the role to bring people together to form the project management team’’
- ‘’The leader’s role was more around blockages, if there’s a blockage in the legal aspect of side he’ll go unblock it’’

In terms of the team leader's role and how it was performed, the following observations can be made from the data.

1. The role of the client leader was in relation to the nature of his interaction between the team members in the sense that his role was to listen to whatever problems the team was having and try to help people understand how they are going to be solved. He was also responsible for leading the team by ensuring that the team members came together (selection of the team members) and always checking up on the team members.

2. The role performance of the leader was also done in relation to the specific roles he had to play in terms of leadership of the team and they included; anticipating the future, never losing sight of the client's priorities, getting rid of blockages and recognising, internalising, analysing and processing demands from external environment.

3. The other aspects which was taken into consideration in terms of the role performance of the leader was the characteristics of the leader himself and according to Table 9 he had a pushy character and pushes where it needs to be pushed professionally; innovative; he is a strategist and he is able to analyse problems and come up with possible solutions; enormous commitment; and highly motivated.

4.3.4 Project outcomes and success factors

Table 9: Summary and content analysis of interview responses relating to project outcomes and success factors (cross referenced to Appendices 5.1 – 5.8)

Respondent	Success Factors
R1	>Good project managers with good experience. >Support from the council executive >A relationship of great trust and respect >Ensuring that the control budget is not violated. >A culture of not exceeding the control budget was introduced. If one finds themselves getting to a point where the control budget is exceeded then measures should be put in place to solve this. > Continuously challenging the team to move beyond their comfort zones so delivering a project within budget >Another aspect that leader to project success is ensuring that the safety regulations are adhered to.
R2	>The team has achieved what the team achieved because they were trusted, their input was valued, people were treated as professionals within their field and they were accountable for delivering professional services and outcome. > Self-driven individuals, it is not easy to manage all the strong leaders straight in the field.
R3	> Governance, second procurement strategy, third putting in place the super client team, strategic brief, upfront planning, implementation plans. >Constant communication >Now the performance of the team is a reflection of the performance of the individuals. >Understanding of delivery management, procurement, portfolio, programme and project management, risk and change management and governance, those are sort of the key things that are needed to be understood.

	> Having a working knowledge because if you're representing the client you put its interest first. >Having the working knowledge if you don't know how to, you bring the people to do that for you. > Long term framework agreements. >A belief that if we structure ourselves we'd have a greater project outcome. >Tight tolerances for deviation > Experience, chemistry, background relationships that you trust that person to can deliver what you need to do.
R4	>Dedication, the team's absolute knowledge of the industry and professionalism in what they do. >Absolute professional attitude and drive to get it done. >Team honesty
R5	> The team worked on a methodology of how to execute things so there was a clear path as to what the team is going to do.
R6	> The leader's ability to manage stakeholder demands, anticipate the future, manage the risk, but also the fourth one would be his ability to get the best out of the teams, out of team members. > The most important thing was the ability to monitor the expenditure.
R7	>Tough talk was expected from each other and everyone took accountability for their roles.
R8	> Trust between the members of the team > I'm not a believer in personal chemistry because if it doesn't happen, it doesn't happen and you must do the job anyway, you don't have to get on with the people you don't have to like the people that you work with, in this case there was a lot of empathy, a lot of solidarity, there was a lot of common purpose. > Where the team won prices for the buildings the buildings came in time were always on time on cost or more or less on in cost , got buy in from many stakeholders ,got recognition by government saying the Wits team is the Rolls Royce, ask Wits to build the new universities , so there was a

	lot of affirmation and what you should know is that it wasn't always like that, when we started the project there was scepticism , people were worried that the team was too ambitious and idealistic that were out of our depth , that the team wouldn't be able to see it through , that it was being too experimental. >The team was always completely confident and looked like it knew what it was doing > Built up trust > Industry knowledge and innovation >Mutual respect for each other.

Table 10: Project outcomes

Case study	**Initial budget (R billion)**	**Actual final cost (R billion)**	**Deviation (%)**
Wits Capital Projects Programme	1.5	1.65	10%
New Universities	1.77	1.62	1% below the control budget

The team members were interviewed on what they thought were the success factors in terms of the delivery of the two programmes and the following were their responses as illustrated in Table 9:

- Good project managers with good experience.
- A relationship of great trust and respect
- Ensuring that the control budget is not violated.
- A culture of not exceeding the control budget was introduced
- Continuously challenging the team to move beyond their comfort zones
- Ensuring that safety regulations are adhered to.
- Governance, putting in place the super client team, planning, implementation plans.
- Constant communication
- Understanding of delivery management, procurement, portfolio, programme and project management, risk and change management and governance, those are sort of the key things that are needed to be understood.
- Having a working knowledge because if you're representing the client you put its interest first.
- Having the working knowledge
- Long term framework agreements.
- A belief that if we structure ourselves we'd have a greater project outcome.
- Experience, chemistry, background relationships that you trust that person to can deliver what you need to do.
- Dedication, the team's absolute knowledge of the industry and professionalism in what they do.
- Absolute professional attitude and drive to get it done.
- Team honesty
- There was a lot of common purpose.
- The ability to monitor the expenditure.
- Trust between the members of the team
- The leader's ability to manage stakeholder demands, anticipate the future, manage the risk, but also the fourth one would be his ability to get the best out of the teams, out of team members.

In terms of project outcomes and success factors, the following observations can be made from the data collected;

1. The roles performed by the team which influenced the delivery outcomes of projects included appointing good project managers with good experience, a relationship with great trust and respect, a culture of not exceeding the control budget and always adhering to the safety regulations.
2. The other principles which the team held in relation to the delivery outcomes, was to ensure that the leader continuously challenges the team to move beyond their comfort zones, constant communication between the team members, having a working knowledge that when working for the client you need to put their interest first, and having a team with experience and chemistry.
3. In terms of the delivery outcomes; Wits achieved a relative deviation of 10% between the initial budget and the actual final cost, whereas the New Universities achieved 1% below the control budget.

4.3.5 Summary of the chapter

Data collection was done in a way that the specific objectives were addressed and hence the presentation was done in terms of roles and responsibilities of the team members, team structure, roles and qualities of the team leader and delivery outcomes. In relation to the roles and responsibilities; it was found that both of the cases investigated had client teams set up for project delivery. The Wits Capital Project Programme had a client team which included the delivery manager (client team leader) , procurement specialist advisor, spatial planning advisor, programme and project manager, project administrator, and the Wits executive team which was called the Wits project steering committee.

The New Universities had a client team which was made up of different specialists which included Wits governance and oversight, client delivery manager, programme and project manager, project administrator, spatial planning advisor, architectural services advisor, ICTs advisor, furniture project management, procurement and delivery advisor, procurement advisor, development and stakeholder advisor, institutional planning, academic planning, engineering services advisor, administrative support and management accountant.

These team members worked within a team environment. Each team member performed his or her role in terms of their various disciplines, so each team member knew what she or he was doing since they were experts/advisors in their various fields.

For a long time they didn't have a structure in the case of Wits, but with the New Universities they had a structure from the beginning of the programme. The keywords the team members used to describe the structure was very formal manner; flexible flat structure arrangement; very informal and very flexible; there was a form of reporting to the team leader; the governance structure was more hierarchical, there would be a team leader, but within the team people will have equal say, there was no one superseding; another very specific reporting structure; it was a flat structure there in a nut shell the nature of the reporting lines between the team members was not so formal for the case of Wits, but formal in the New Universities. There was also a clear hierarchy and most of the team members referred to the structure as 'flat' this implies that although there was a clear hierarchy in terms of leadership and membership of the team, they operated much as equals within the team and there was an open door policy in terms of the interactions between the team members.

In relation to findings regarding the team leader; his role was to listen to whatever problems the team encountered and come up with a way to resolve them. He was also responsible for selecting the team members and setting them up for successful delivery of projects. The team leader also performed the role of removing obstacles or blockages to progress. The other specific roles in his leadership was anticipating the future; never losing sight of the client's priorities; recognising, internalising, analysing and processing demands from external environment. The leader was also a link between the team members and the Universities. The Role performance of the leader included understanding the requirements and interests of the client and aligning the team members to ensure that they are achieved.

In terms of the project outcomes and success factors, it was found that Wits Capital Projects Programme achieved a relatively small deviation of 10% between the initial budget and the actual final cost. The New Universities achieved a relative smaller deviation of 1% below the control budget. The factors which enabled success included putting in place a client team which had great trust and respect between the team members; having good project managers with good experience; ensuring that the control budget is not violated, having a team leader who is always challenging the team members to move beyond their comfort zones; having the working knowledge and ensuring that the client's interests are put first; dedication by the

team members; having common purpose; the team leader's ability to manage stakeholder demands; understanding delivery management, procurement, portfolio, programme and project management, risk and change management and governance as these are the things which need to be understood in infrastructure delivery; and experience, chemistry and background relationships that you trust the person will deliver what they said they will.

CHAPTER 5: DISCUSSION OF RESULTS

5.1: Discussion of findings relating to structure of the client team

Team structure refers to how the team is designed and the rationale behind its development within organisations. In literature there are different types of structures which exist in a team and they include work team structure, project and development team structure, parallel team structure, management team structure, and ad-hoc network team structure as highlighted above in table 2 on the literature review (Aranda, Aranda and Conlon 1998, p2; Mankin, Cohen and Bikson (2000).

The formation of the team structure is dependent upon the values and the interests of the client and also the nature of the work to be carried out by the team. Roles and responsibilities of the team members are key to determining the type of structure is to be adopted within a team environment (Aranda, Aranda and Conlon 1998, p2).

According to the findings from the literature review, the different types of structures that exist include the following:

- Work team structure
- Project and development team structure
- Parallel team structure
- Management team structure Ad hoc network team structure (Aranda, Aranda and Conlon 1998, p2; Mankin, Cohen and Bikson , 2000).

Each team structure has its own distinct characteristics, but all of the team structures are hierarchical in nature except the ad hoc network team structure. The characteristics for each team structure include the following;

Work team structure includes the following characteristics:

- Performance is regular,
- Membership is stable and well defined
- Work done is on-going.
- Key characteristics include permanent work units,
- Produce products or provide services,
- Stable composition.

Project and development team structure are set up to produce a one-time output which can either be products or services and is made up of the following characteristics:

- Project teams have temporary structures,
- The organisations can use them to generate the right mix of knowledge and skills required for specific projects without giving up the advantages of functional organisations.
- Produce one-time outputs,
- Diverse and specialised expertise,
- Broad decision-making authority.

Parallel team structure share similar structures to project teams; however they literally exist in parallel with the rest of the organisation.

The key characteristics of parallel team structures include;

- Separate and parallel structures,
- Improvement or coordination of activities,
- Clear boundaries, and make recommendations.

Management team structure is comprised of managers who are entrusted with the responsibility to integrate activities of the units they are assigned to.

- Management structure can also be characterised as having;
- Permanent structures,
- Provide coordinated management of sub-units (provide direction and allocate resources)
- They have hierarchical authority.

Ad hoc network team structure is made up of persons who are joined by sharing the same purpose or interest which can either be voluntarily or part time.

The key characteristics of ad-hoc networks include:

- Temporary and collaborative forms
- Individuals and teams connected by shared interests,
- Part-time,
- Fluid and diffuse membership;
- They are loosely bound (Cornick and Mather, 1999)

While the structure of project teams is generally characterised in the management literature as hierarchical; temporary structures; used to generate the right mix of knowledge and skills required for specific projects; produce one-time outputs; have diverse and specialised expertise; and also have a broad decision-making authority:

Out of all these five team structures, the case of the Wits team structure fall more on the project and development team structure because the team structure was temporary, produced one-time output which is the programme itself. It had diverse and specialised expertise by

the members of the team, was used to generate the right mix of knowledge and kills which is where different members were assembled who had different expertise or disciplines. However the decision making authority vested in the people entrusted with the responsibilities to make decisions in this case it was the Wits steering committee and sometimes the leader of the team.

The client team was made up of five core working groups from the case of wits, which comprised of the team leader (client delivery manager), then there were built environment consultants which were responsible for various disciplines such as spatial planning, procurement, programme and project management and executive council members.

The Wits Capital Projects Programme had clear hierarchy structure, various team members referred to structure of the team as ''Flat structure'' this implies that although there was a hierarchy in terms of leadership and membership of the team, they operated much as equals within the team and there was an open door policy in terms of the interaction between the team members.

For the case of Wits the client team didn't have a structure for a long time it was "a develop as you go'' type of setting.

The delivery manager was in most cases leading the team and giving them direction for the realisation of the client's objectives and values. However different members where leading in their various disciplines for example the procurement specialist will lead all the procurement and delivery associated functions. The Wits client team structure included the Vice chancellors (ex officio), Deputy Vice Chancellors for Academic, Advancement and partnerships, Finance and operations, Campus Planning and Development Director, Capital Projects Programme Director, and Development and Fundraising Office director. This was then followed by technical advisors who had various working groups according to their disciplines.

In the case of the New Universities, was made up of 16 team members from various disciplines which included the delivery manager, procurement and delivery advisor, programme and project manager, project administrator, spatial planning advisor and architectural services advisor, the furniture project manager, wits governance and oversight, academic and institutional planning, development and stakeholder advisor. They were structured to work as the client team. The aim of the team was to deliver the infrastructure project within the delivery constraints and to achieve the required value.

The New Universities client team was organised within a structure which was a combination of hierarchy and matrix arrangement and here the roles changed; the team structure adopted is similar to the case of Wits in terms of the formation of the structure and the nature of the interaction between team members, but it had more role players due to the nature of the work which was to be done in the New Universities. Wits was the implementing agent for another university and had more advisors within the team since the universities was first to be established in teams of institutional and academic planning and land had to be acquired and

hence the need for more advisors from various disciplines. There was clear reporting lines and meetings were held on regular basis where reports were done and submitted to the leader.

5.2: Discussion of findings relating to roles and qualities of project team leader

According to the literature on team leadership, leadership is ability to influence the behaviours of others in particular, the followers. Due to the nature of the services delivered in the construction industry, team efforts and leadership are required in realising the projects within the industry. Inspiring individuals to co-operate and stirring all the project team members in order to perform at their best is one of the major key success factor as far as the management of a construction project is concerned (Senartne, 2015).

In examining the role played by the team leader the research looked at the characteristics of the leader and the role he performed in the nut shell and how the leadership role was carried out. According to the management literature, the typical role and qualities of the leader includes the following (Zaccaro, Rittman & Marks, 2002; Senarte, 2015).

- Inspiring individuals to cooperate and stirring all the project team members to perform at their best in line with the interests of the client.
- Information search and structuring
- Information use in problem solving
- Managing personnel and material resources
- Making problems that accrue
- Diagnosing any problems that could potentially impede group or organisational goal attainment
- Generating and planning appropriate solutions
- Implementing solutions within typically complex social domains
- Responsibility to interpret necessary decisions and applying problem solving techniques to
- and define the settings of team procedures
- Giving direction and guidance to the team members.

However, from the data collected in this study, the leader's characteristics were strong commitment, driven by results, concern for people, influencing others, developing strategies, problem solving and managing change. These characteristic contributed to the successful performance of the leadership function.

- The roles performed by the leader included the following;
- looking ahead and looking for what's going to be,
- leading the project and the people,
- solving problems and showing the team how they are going to be addressed,
- management of competing interests and competing priorities,
- ensuring that there's production, quality, safety, time and cost,
- ensuring that the project managers deliver,
- bringing technically narrow minded people to help him achieve his vision,
- being the integrator, owning the key planning and management processes that coordinate design and manufacture components,
- being like a conductor in an orchestra,
- pulling the team members together to achieve the intended objectives, ''identifying & solving blockages'',
- to get rid of blockages, orchestrate the team, give vision and direction,
- fostering collaborative working with the belief that collaboration gives better outcome,
- creating a conducive environment for delivery to take place,
- continuously challenging the team to move beyond the comfort zones,
- foreseeing possible problems which may be experienced and deal with them now,
- to recognise, internalise, analyse and process demands from the external environment and compute that and frame and structure the work of the team,
- always anticipating the future,
- understanding who the client is and knowing what to do to act in the best interests of the client,
- Assembling and bringing people together to form the project management team.

The roles and qualities of the leader identified on the literature review are similar to the ones found in the data collected in this research , however, the data collected on roles and qualities of the leader were more specific to the two cases and the uniqueness came from the role performed by the leader being to get rid or blockages, recognising, internalising, analysing and processing demands from external environment, acting in the best interests of the client and also anticipating or foreseeing the future.

The ability of the leader to perform the above-mentioned roles leads the achievement of the intended objectives of the project. The roles performed are also part of the factors that contributed to the successful delivery of infrastructure projects. The team on its own will not be able to deliver the objectives of the project without a person to pull them together to the main goal and also ensuring that there's no conflicting roles and all the team members are clear on what their roles are.

The project leader's background is strategic management and a belief that working together as a team in a collaborative manner will assist in achieving greater outcomes. It takes great skill to be able to anticipate the future and work towards ensuring that the problems that may be anticipated in the future are dealt with in the present. The project team leader for both of the case studies emphasised that the performance of his leadership role included trusting that the team members will be able to deliver as they are supposed to and the previous working relationships between him and some of the project team members assisted in the selection process. The previous working relationship made the process easier since he knew that the members are able to perform as expected.

Looking at the literature and the data collected, the role of the leader is similar in terms of the tasks the leader is expected to perform, and however the data collected shows that the leader had more roles he performed due to the nature of the 2 cases. The other roles which were not elaborated in literature review included looking ahead and foreseeing the future, getting rid of blockages, foreseeing collaborative working, and recognising, internalising, analysing and processing demands from external environment, understanding who the client was and acting in the best interests of the client.

5.3: Discussion of relationships between effectiveness of the client team and project outcomes; success factors

Generally, a project is said to be successful when it has achieved the primary objectives namely time, cost and quality. In order for the project to be successful, it is important to understand the requirements of the project right from its early stages and undertake the project planning which provides the right direction to project managers and their teams in order to implement the project as required. All the people/professionals entrusted with the responsibility to deliver the project have to work at ensuring that the project achieves its intended objectives (Thi & Swierczek, 2010).

The delivery of construction projects is about relationships since it is the people that deliver these construction projects. The relationships are carried out throughout all the stages of the project. The main party to these relationships is the client whom team provides services to (Hapuarachchi and Senaratne, 2011; Conick and Mather, 1999).

The success factors found in the management literature reviewed in this report from the data collected from the case studies are illustrated in Table 11:

The focus of the research study is on the structure and roles to be performed by the team members including how well they work together to deliver the intended objectives and the leadership function to be played by the leader in such a delivery.

The team success factors illustrated above link the team structure, team leader and the delivery outcomes of the project from the client team structure and the role performance of the leader. The nature of the interaction between the team members impacts the delivery outcomes achieved by the team. The structure provides clear governance which is founded on principles of honesty, accountability and integrity. Ensuring that the control budget is not violated or exceeding also assisted the team members to achieve the said project outcomes. The ability of the team leader to select the right team members based on skills, experience, industry knowledge impacted positively on the delivery outcomes. His ability to unblock blockages and anticipate the future also contributed to the success factors

The experience assisted the team leader to be able to establish governance structures that have proved extremely effective in integrating the necessary stakeholder consultation processes with the line function responsibility for project development delivery.

Table 11: Success factors

Literature review success factors	**Data collected success factors for both cases**
The project scope has to be prepared in a detailed manner	> Governance > Choosing the right procurement strategy > Clear path of what is expected of the team members > Adopting innovative procurement and contracting strategy
Top management support (provision of necessary resources and authority)	>Buy in from many stakeholders
The project manager should be competent	>Good project managers with good experience > Belief that if we structure ourselves we'd have a greater outcome'
There has to be a detailed project schedule/plan	> Strategic brief, upfront planning and implementation planning' > Understanding of delivery management, procurement, portfolio, programme and project management, risk and change management and governance.
The client should be consulted on regular basis	> Shared vision upfront >Tough talk from each other
The project team members should be competent as well	>Relationship of great trust and respect >Trusted team which had accountability for delivering professional services outcome >Self-driven individuals > Putting I place a super client team > Experience, chemistry, background relationship and trusting that the person will deliver what they need to. > Team member's dedication and absolute knowledge of the industry and professionalism in what they do. > Professional attitude and drive to get it down > Honesty of team members > Respectful relationship
Quality of suppliers and contractor	>The use of long term contracts which were called framework agreements
Required technology should be available in order to perform specific tasks	>Working on a methodology of how to execute things and there was a clear path.
Client acceptance	>Having working knowledge since you're representing the client > Building a culture around the client and leader of the team (his values)
Monitoring and feedback	>Culture of not exceeding the control budget >Tight tolerances for deviation > Managing the primary objectives (time, cost and quality) > Ability to monitor expenditure during the project.
Constant communication	Constant communication
Troubleshooting	>Ability of the team leader to manage stakeholder demands, anticipate the future and manage risk

The constant communication between the team members and the team leader also enabled the ability of the team to work effectively together and always being part of where the project is

this was confirmed by the literature review which highlighted the need for constant communication between the team members (See Table 11 on success factors).

Effective working of the team is also influenced by the belief that what the team members set for themselves to be achieved will be indeed achieved. The case studies achieved relatively a smaller deviation between the expected and the actual cost, and since the aim of the client team was to ensure that the delivery of the project was done within the delivery constraints through advising the client on the range of portfolio, programme and project management the outcomes speak for themselves.

The primary purpose of a leader is to give direction in exercising his/her authority and responsibility. The leader has fully performed his or her role when the team fulfils its objectives whereas team structure ensures specific performance outcomes of the team (Zaccaro, Rittman & Marks, 2002). This was achieved in the case of the Wits Capital Projects Programme and the new universities.

These success factors are similar in both cases since the nature of the work done was similar and the value of the two programmes was approximately R1.6billion for both cases as seen on Table 10 of the project outcomes for the two cases. The difference between the success factors on the literature review and the data collected is that the success according to data collected was specific to the programmes and what the programmes required from the client team, but generally the two success factors are similar.

CHAPTER 6: CONCLUSIONS, RECOMMENDATIONS AND FURTHER RESEARCH

6.1: Conclusions relating to structure of a client team

The aim of the research study was to examine the nature of the client team structure in the two successful infrastructure projects and to examine how the client team leader performed his role to ensure successful delivery, and the specific objectives included the following:

- To ascertain the structure of the client team that delivered the infrastructure programmes successfully;
- To examine the role of the client team leader in the successful delivery of infrastructure programmes; and
- To discuss the impact of the client team structure and role of the client team leader on the project outcomes achieved.

The nature of the team structure developed for the two successful cases had a clear hierarchy in terms of the way the team was organised and the reporting lines. Although there was a clear hierarchy, various team members referred to structure of the team as ‘’Flat structure’’ this implies that although there was a hierarchy in terms of leadership and membership of the team, they operated much as equals within the team and there was an open door policy in terms of the interaction between the team members.

However, with the New Universities Project Management Team (NUPMT) the project manager who was on the delivery team can at times also be part of the client team. Both of the team structures used fall under the development and project team structure. This type of team structure is used to generate the right mix of knowledge and skills required for specific projects without giving up the advantages of functional organisations. This structure can be characterised as a temporary structure, produces one-time outputs, diverse and specialised expertise and also has a broad decision-making authority.

Therefore organisation wishing to structure client teams for delivery of infrastructure project should structure them in a clear hierarchical manner in terms of the roles and responsibilities to be performed by the team members, but this is only applicable to projects of similar scale of the ones investigated. The interaction between team members should be kept flexible and informal in nature so that it can foster a working environment which is collaborative in nature

to effectively delivery the intended objectives of the infrastructure projects and this is for both cases.

6.2: Conclusions relating to critical elements of the role of the client team leader

The roles and qualities of the leader identified on the literature review are similar to the ones identified in this study, , however, the data collected on roles and qualities of the leader was more specific to the two cases and the uniqueness came from the role performed by the leader, including getting rid of blockages, recognising, internalising, analysing and processing demands from external environment, acting on the best interest of the client and also anticipating or foreseeing the future. The focus of the study was to establish key principles performed by the leader in ensuring successful delivery of projects.

The ability of the leader to perform the above-mentioned roles leads the achievement of the intended objectives of the project. The roles performed are also part of the factors that contributed to the successful delivery of infrastructure projects. The team on its own will not be able to deliver the objectives of the project without a person to pull them together to the main goal and also ensuring that there's no conflicting roles and all the team members are clear on what their roles are. The other leadership role which impacted on the delivery outcomes is challenging the team members to move beyond their comfort zones.

In conclusion, the delivery of infrastructure programme requires the leader who is able to get rid of blockages, anticipate and foresee the future, understand and act in the best interests of the client and also to be able to manage competing interests from the demand of the stakeholders It also need a team leader who leads the team in such a way that the expected delivery outcomes of the project are achieved as far as possible by aligning the team members to ensure that this is achieved.

6.3: Conclusions relating to discussion of the impact of client team and client team leader on project outcomes

The two case studies achieved their intended objectives which mean that the client team delivered within its mandate. There is a need for clients to establish good governance structure in which responsibility is delegated effectively. The team leader influenced the team structure used to deliver infrastructure programmes in the sense that he selected the team members giving consideration to the interests and the value of the client. The selection was also done in a way that the team members were aligned to achieve the intended objectives. His characteristics (strategist and a visionary) made it easier to perform his leadership functions. The way the team is structured influenced their nature of the working relationships and how the leadership function was performed, including trust, chemistry, and previous working relationships between the team members and this was one of the factors which enabled the successful delivery of the programmes.

The aim of the research study was not to come with a recipe on how other organisations should deliver their projects, the aim was based on roles and responsibilities, nature of the client team structure and the role of its leader and how it contributed to the delivery outcomes. In conclusion the roles and responsibilities of the team members contributes to the type of structure to be adopted in infrastructure delivery, the selection of the team members is done by the team leader who had a role to give direction in exercising his/her authority and responsibility. The leader has fully performed his or her role when the team fulfils its objectives whereas team structure ensures specific performance outcomes of the team so since this is the case with the two case studies, it can be said that the leader effectively carried out his leadership function.

6.4: Recommendations

In order for projects to be delivered successfully there are various aspects to be taken into consideration one of which may include selecting the right procurement strategy and team for such delivery. It is recommended that organisations wishing to deliver their projects successfully should consider looking at the people related aspects which are of great contribution to infrastructure projects delivery and establish team structures that foster collaborative working between the team members. The selection of the team members should be done giving consideration to the requirements and interest of the client. Such a selection

should be done by the client team leader as he or she is best suited to perform an oversight and governance role by providing effective and strategic leadership within the client team. It is also recommended that such delivery requires self-motivated, industry committed, inspired, honest, trustworthy, and consistent project teams because the client team that was set in place for this study had previous working relationships which made it easier for the team to work effectively together. It is also recommended that the structure to be developed for client teams should take into consideration the experience, skills, background and competencies of the team members.

6.5: Issues or questions for further research

Further research is required to investigate the possible relationship between team structure, the role of the team leader and project outcomes; the need for trained, appropriate or experienced leaders for construction projects delivery. Further research should also be done on using Universities as implementing agents since Wits was the implementing agent for the new universities. The focus of the study was on cost alone in terms of the delivery outcomes therefore further research can be conducted on the time aspects of the delivery outcomes specifically looking at how long do projects with client teams which are set up as identified in the study take in relation to the expected duration and the actual duration of the project.

4. REFERENCES

1. Albanese, R. (1994). Team-Building Process: Key to Better Project Results. *J. Manage. Eng.*, 10(6), pp.36-44.
2. Ancona, D., Backman, E. and Bresman, H. (2009). ‘’X-teams: New ways of leading on a new world. *Ivey Business Journal Online*, Vol. 72 No. 3
3. Andersson, J. and Finnserud, M. (2003). ‘’The Process Of Selecting Team Members In A Matrix Organization With Multiproject Environment’’
4. Archibald, R. Filippo, I. & Filippo, D. (n.d). The Six-Phase Comprehensive Project Life Cycle Model Including the Project Incubation/Feasibility Phase and the Post-Project Evaluation Phase.
5. Baiden, B. and Price, A. (2011). The effect of integration on project delivery team effectiveness. International Journal of Project Management, 29(2), pp.129-136.
6. Baiden, B., Price, A. and Dainty, A. (2006). The extent of team integration within construction projects. *International Journal of Project Management*, 24(1), pp.13-23
7. Bell, S.T., Brown, S.G. and Weiss, J.A. (2017). ‘’ A conceptual framework for leveraging team composition decisions to build human capital’’.
8. BS 8534, (2011) Construction procurement policies, strategies and procedures-Code of Practice.
9. Cornick, T. and Mather, J. (1999). Construction project teams: making them work profitably. Thomas Telford Publishing, pp.1-33.
10. Creswell, J. (2013). *Research Design: Qualitative, Quantitative, and Mixed Methods Approach*. 4th ed. SAGE publications.
11. Dada ,M. (2014),"The influence of project team relationships on cost growth", Journal of Financial Management of Property and Construction, Vol. 19(1), pp. 76 – 94
12. Dau, L.A. (2016). ‘’ Biculturalism, Team Performance, and Cultural-faultline Bridges’’. Journal of International Management. Vol. 22. pp. 48-62
13. Dorn, C., Skopik, F., Schall, D. and Dustdar, S. (2011). ‘’ Interaction mining and skill-dependent recommendations for multi-objective team composition’’. Vol. 70. pp. 886-891.
14. Flyvbjerg, B. (2005). Policy and Planning for LARGE Infrastructure Projects: Problems, Causes, Cures.
15. Fransen, A.F., De Boer, L., Kienhorst, D., Truijens, S.E, Van Runnard Heimel, P.J. and Guid Oei, S. (2017). ‘’ Assessing teamwork performance in obstetrics: a systematic search and review of validated tools’’.
16. Griener, J. (2010). ‘’Team-Based Organizational Structure: A Case Study of the Edmonton Public Library.
17. H.M Treasury: *Procurement Guidance Note No 1*
18. Hoda, R. and Murugeson, K (2016). ‘’Multi-level agile project management challenges: A self-organising team perspective’’, Journal of Systems and Software, Vol. 117. pp. 245-257

19. Hsu, S-C. , Weng, K-W., Cui, Q. and Rand, W. (2015). '' Understanding the complexity of project team member selection through agent-based modeling''. International Journal of Project Management. Vol. 34. pp. 82–93
20. ISO 12500, (2013). *Guidance on Project Management, A pocket guide*.
21. Kaiser, M., EL Arbi, F. and Ahlemann, F. (2015). Successful project portfolio management beyond project selection techniques: Understanding the role of structural alignment. *International Journal of Project Management*, 33, pp.126-139.
22. Karagozoglu, N. (2016). '' Antecedents of team performance on case studies in a strategic management capstone course''. The International Journal of Management Education, Vol. 15. pp. 13-25
23. Katzenbach, J.R., and Smith, D.K. (1993). ''The discipline Teams''. Harvard Business Review, Vol. 71 No 2. pp.111-120
24. Kumaraswamy, M., Ling, F., Rahman, M. and Phng, S. (2005). Constructing Relationally Integrated Teams. *Journal of Construction Engineering and Management*, 131(10), pp.1076-1086.
25. Kwofie, T.E., Alhassan, A., Botchway, E. and Afraine, I. (2015). '' Factors contributing towards the effectiveness of construction project teams. International Journal of Construction Management, Vol.15 No.2. pp. 170-178
26. Latham, M. (1994). *Constructing the team.*
27. Latif, K.W. and Williams, N. (2017). '' Team effectiveness in Non-Governmental Organizations (NGOs) projects''. Evaluation and Program Planning, Vol.64. pp. 20-32
28. Lichtig, W. (2006). The Integrated Agreement for Lean Project Delivery. *American Bar Association*, 26(3).
29. Lin, J., Er-shi, Q. and Bo, D. (2008). Study of the characteristics of large-scale construction projects with the viewpoint of complexity.
30. Liu, W-H. And Cross, J.A. (2016). '' A comprehensive model of project team technical performance''. International Journal of Project Management. Vol. 34.pp. 1150–1166
31. Macaulay, M. & Ramsey, L. (2002). Construction and Procurement Law.
32. Marriage, B. and Kinnear, J. (2016). '' Assessing team performance e Markers and methods''.pp. 11-16
33. Mohrman, S., Cohen, S. and Mohrman, A. (1995). ''Designing team-based organisations.
34. Morgeson, F.P., DeRue D.S. and Karam, E.P. (2010). ''Leadership in Teams: A Functional Approach To Understanding Leadership Structures And Processes''. Journal of Management, Vol. 36 No.1. pp.5-39
35. Murdoch, J. & Hughes, W. (2008). Construction Contracts. 4thed. London: Spon Press.
36. National Energy Regulator of South Africa (NERSA). (2014). Second South African Economic Regulators Conference (SAERC).

37. O'Neill, T.A. and McLarnon, M.J.W. (2017).'' Optimizing team conflict dynamics for high performance teamwork''.
38. Ochieng, E. and Price, A. (2010). Managing cross-cultural communication in multicultural construction project teams: The case of Kenya and UK. *International Journal of Project Management*, 28(5), pp.449-460.
39. OferZwikael, (2009),"Critical planning processes in construction projects", Construction Innovation, Vol. 9 Iss 4 pp. 372 – 387
40. Olson, J. and Branch, K.M. (2016). ''Teams and Project and Program-Based Organisations.
41. Orgen N.K., Ahadzie D.K., Ayarkwa J, Badu E. (2012).'' An integrated supply chain relationship management theoretical framework for improving engineering and design service delivery (EDSD) to building contractors in Ghana''. In: Laryea S, Agyepong SA, Leiringer R, Hughes W, editors. Proceeding of the 4th West Africa Built Environment Research (WABER) Conference; Jul 2426; Abuja, Nigeria.
42. Parker, G. (2003). ''Cross-functional Teams; Working with allies, enemies and other strangers''
43. PROJECT MANAGEMENT INSTITUTE. (2013). *A guide to the project management body of knowledge.* Newtown Square, Pa, Project Management Institute.
44. Rahman, I., Memon, A. and Karim, A. (2013). Significant Factors Causing Cost Overruns in Large Construction Projects in Malaysia. *Journal of Applied Sciences*, 3(2), pp.286-293.
45. Ramalepe, M. (2015). The Role of School Management Teams in Cultivating Moral Purpose in Limpopo Secondary Schools. *Mediterranean Journal of Social Sciences*, 6(3).
46. Sauer, S. and Arcre, P.E. (2004). '' Team Member Selection: A Functional-Based Approach''. *Proceedings of the 20014 American Society for Engineering Education Annual Conference & Exposition.*
47. Saunders, M., Lewis, P. and Thornhill, A. (2009). Research methods for business students. Fifth ed. Harlow, England: Prentice Hall.
48. Senaratne, S. &Gunawardane, S. (2015) Application of team role theory to construction design teams, Architectural Engineering and Design Management, 11(1), pp.1-20.
49. Senaratne, S. &Hapuarachchi A. (2011) Construction Project Teams and their Development: Case Studies in Sri Lanka, Architectural Engineering and Design Management, 5(4), pp.215-224.
50. Senaratne, S. &Samaraweera, A. (2015),"Construction project leadership across the team development process", Built Environment Project and Asset Management, Vol. 5 Iss 1 pp. 69 – 88
51. SumitMitra Albert Wee Kwan Tan, (2012),"Lessons learned from large construction project in Saudi Arabia", Benchmarking: An International Journal, Vol. 19 (3)pp. 308 – 324

52. Telford, T. (1997). Construction Industry Board, *Constructing Success*
53. The Department of National Treasury, (2016). ‘’Standard for Infrastructure Procurement and Delivery Management’’.
54. The South African Council for the Project and Construction Management Profession (SACPCMP). (2013). Scope of Services for CHS Agent.
55. Thi, C.H, and Swierczek, F.W. (2010). ‘’Critical success factors in project management: implication for Vietnam’’.Vol. 16 No 4, pp. 567-589.
56. Troster, C., Mehra, A. and Van Knippenberg, D. (2014). ‘’Structuring for team success: The interactive effects of network structure and cultural diversity on team potency and performance’’. Organizational Behaviour and Human Decision Processes, Vol. 124. pp. 245–255
57. Turner, J.R. (1999), The Handbook of Project-based Management: Improving the Processes for Achieving Strategic Objectives, McGraw-Hill, London
58. Watermeyer, R. (2011). A framework for developing construction procurement strategy
59. Weinmann, P., Pollock, M., Scott, E. and Brown, I (2013). ‘’ Enhancing Team Performance Through Tool Use: How Critical Technology-Related Issues Influence the Performance of Virtual Project Teams’’. IEEE Transactions on professional communication, Vol.56 No.4
60. Zaccaro, S., Rittman, A. and Marks, M. (2001). Team Leadership. *The Leadership Quarterly*, 12, pp.451-483.
61. Zawawi, A.A. and Nursurdin, A.M. (2017). ‘’ The impact of task characteristics on the performance of nursing teams’’. International Journal of Nursing Sciences. pp. 1-6
62. Zhou, Y., Cheung, C.M. and Hsu, S-C. (2017). ‘’ A dimensional model for describing and differentiating project teams’’ International Journal of Project Management, Vol. 35. pp.1052–1065
63. Zwikael, O. and Sadeh, A. (2007), “Planning effort as an effective risk management tool”, Journal of Operations Management, Vol. 25 No. 4, pp. 755-67
64. Theron, P.M. (2015), ‘’Coding and data analysis during qualitative empirical research in practical theology’’.
65. Lindahl, G. & Ryd, N. (2007),"Clients' goals and the construction project management process", Facilities, Vol. 25 Iss 3/4 pp. 147 - 156

APPENDICES

1. Ethics Clearance Certificate

SCHOOL OF CONSTRUCTION ECONOMICS AND MANAGEMENT RESEARCH ETHICS COMMITTEE

CLEARANCE CERTIFICATE	**PROTOCOL NUMBER** CEM/17/12/TM2/MSC
PROJECT TITLE:	Influence of team structure and role of the project team leader on infrastructure project delivery
INVESTIGATOR	Tsholofelo Mosalaesi (572980)
SCHOOL/DEPARTMENT	**SCHOOL OF CONSTRUCTION ECONOMICS AND MANAGEMENT**
DATE CONSIDERED	12/12/2017
DECISION OF THE COMMITTEE	Approved conditionally with respect to the declaration and attached feedback
EXPIRY DATE	4th December 2018
DATE	4th December 2017
CHAIRPERSON_____	Dr. Kola Ijasan

cc: Supervisor: Prof Samuel Laryea

DECLARATION OF INVESTIGATOR

To be completed in duplicate and **ONE COPY** returned to the Secretary Mrs. M. Sithole at the CEM reception desk.

I fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the committee. **I agree to completion of a yearly progress report.**

_____ _____/_____/_____

Signature **Date**

2. Informed consent

INFORMED CONSENT FORM
Faculty of Engineering and the Built Environment
School of construction economics and Management

I volunteer to participate in a research project conducted by Ms Tsholofelo Mosalaesi from the University of the Witwatersrand. I understand that the project is designed to gather information about academic work for her study. I will be one of participants selected for data collection of the study.

The topic of the research study is Influence of team structure and role of the project team leader on infrastructure project delivery

The aim of the study is to examine how team structure and role of the team leader influence successful delivery of construction projects specifically looking from the client's project management team who was entrusted with the responsibility to deliver construction projects using Wits Capital Projects Programme as a case study.

1. My participation in this project is voluntary. I understand that I will not be paid for my participation. I may withdraw and discontinue participation at any time without penalty.

2. I understand that most interviewees will find the discussion interesting and thought-provoking. If, however, I feel uncomfortable in any way during the interview session, I have the right to decline to answer any question or to end the interview.

3. The interview will last approximately 1-2 hours. Notes will be written during the interview. An audio tape of the interview and subsequent dialogue will be made. If I don't want to be taped, I will not be able to participate in the study.

4. I understand that the researcher will not identify me by name in any reports using information obtained from this interview, and that my confidentiality as a participant in this study will remain secure.

5. The data obtained from the interviews will solely be used for this research study and nothing else.

6. I understand that this research study has been reviewed and approved by the University of the Witwatersrand, and the Researcher has the authority to undertake this research study.

7. I have read and understand the explanation provided to me. I have had all my questions answered to my satisfaction, and I voluntarily agree to participate in this study.

8. I have been given a copy of this consent form.

_____ _____
My Printed Name

_____
My Signature

_____
Date

For further information, please contact:
Ms Tsholofelo Mosalaesi
Cell No: +2773 722 0280

3. Interview Questions

Research Title: Influence of team structure and role of the project team leader on infrastructure project delivery

The Specific objectives to be address by the interview questions are as follows:

- To ascertain the nature of the team structure used in the delivery of infrastructure projects;
- To Examine the role of the team leader in the delivery of infrastructure projects; and
- To analyse how team structure, and role of the team leader, influence project delivery outcomes

Questions:

Client's project management team

1. Who are the client's project management team members?
2. What is the role played by each member? Their competence, skills, background and level of experience?
3. How were they selected and who was responsible for their selection?
4. What factors were taken into consideration when selecting the team?
5. What was the nature of the chemistry between the team members throughout the project life cycle?

Team structure

1. How was the organisational structure of the team formulated?
2. What was the nature of the hierarchical structure?
3. What was the basis for such a structure?
4. What was the nature and dynamics of the relationship between team members?
5. How was the nature of the reporting lines and accountability processes?

Project team leader's role

1. Who was the leader of the team and what were his/her main roles outlined and agreed at the time of appointment?

2. What were the key objectives of the leader in performing the role?
3. What factors or attributes of the role enabled success?
4. What leadership functions were performed by the leader?
5. What was the primary role played by the leader and how was it done?
6. How was the performance of the team ensured and monitored?

Project delivery outcomes

1. What were the delivery outcomes of projects and how were they achieved?
2. How did the CPMT team members work together to successfully deliver the client's objectives?
3. What major aspects of the team work contributed to the outcomes achieved?
4. How did the team structure of the client's project management team influence the delivery outcomes of projects?
5. How did the role of the project leader influence the delivery outcomes of projects?

4. Documentary Analyses Form

DOCUMENTARY ANALYSIS TEMPLATE FOR DATA COLLECTION

Faculty of Engineering and the built environment

School of construction and economics



Topic: Specific Activities of the Client's Advisory Team in the early stages of large construction projects

1. TYPE OF DOCUMENT (Check one):

1. Newspaper
2. Map
3. Advertisement
4. Letter
5. Telegram
6. Congressional Record
7. Patent
8. Press Release
9. Census Report
10. Memorandum
11. Report
12. Other

2. UNIQUE PHYSICAL CHARACTERISTICS OF THE DOCUMENT (Check one or more):

1. Interesting Letterhead

2. Notations
3. Handwritten
4. "RECEIVED" stamp
5. Other
6. Typed
7. Seals

3. DATE(S) OF DOCUMENT:

4. AUTHOR (OR CREATOR) OF THE DOCUMENT:

POSITION (TITLE):

5. FOR WHAT AUDIENCE WAS THE DOCUMENT WRITTEN?

6. DOCUMENT INFORMATION (There are many possible ways to answer A-E.)

A. List three things the author said that you think are important:

B. Why do you think this document was written?

C. What evidence in the document helps you know why it was written? Quote from the document.

D. List two things the document tells you about life in the United States at the time it was written.

E. Write a question to the author that is left unanswered by the document:

5. Transcribed interviews

Audio recording R1 transcript-05-12-2017

Venue: Campus Planning and development Offices Boardroom

Time: 10:53am

Respondent: my view is that….I guess if had the skill it was in choosing the right team, understanding their strengths. In fact we chose a team that was already well tested under these projects and that had gone quite far with our experience.

Interviewer: so the basis of the selection of the team, how was it done? Did you do the research or you knew the people? How did it actually happen?

Respondent: Are you talking about new universities? Is that right?

Interviewer: Yes, I heard that it was the same team that was set up.

Respondent: well, it was pretty much but not entirely, not entirely. Maybe I should go back to the Wits thing. So when we started at wits, I was brought in, I was seconded. Did you know that?

Interviewer: No, I didn't know that.

Respondent: OK. So Brian Bruce is still a member of the Wits council, he up till long ago was deputy chair, but in 2007 he was on the wits council and he was also a board member at CIDB (Construction Industry Development Board).

Interviewer: Here in Johannesburg?

Respondent: No in Pretoria. So he had been the chair of CIDB when I was appointed chief executive, so we learned to trust and know each other for over 5 years or so working. He was there as the chair and he went to deputy chair and allowed a new person to take over the chair. So when I left the CIDB in 2007 I went to work for the minister of Public Works as the advisor and then that was around February, and then in October Brian Bruce approached me and he said that Wits is starting a major capital project and they need somebody like you to assist us and I think he emphasised particularly about the governance and setting things up so I then left the minister and came to work at wits in December 2007 seconded by Murray and Roberts and Brian Bruce was the CEO of Murray and Roberts at the time so he employed me at Murray and Roberts and I was paid by Murray and Roberts, and seconded to Wits University so I only went to Murray and Roberts once in a blue moon I had an office here at wits at the time we were at wits.

Interviewer: Here or East Campus?

Respondent: No West Campus initially then later we moved here. So I was reporting to, I was working with Emmanuel, Emmanuel was head of PIMD based down there at west campus near the law section there, but I was asked to take over as the head of the Wits Capital

projects programme and report to Emmanuel because Emmanuel had a bigger responsibility at planning and also maintenance and the whole lot was for Emmanuel at the time.

Interviewer: Throughout the entire campus or?

Respondent: both campuses so the interesting thing was that I was then reporting together with Emmanuel to professor Patrick Fitzgerald, professor Fitzgerald was the then deputy vice chancellor of finance and as you saw from that presentation I showed the structure so we were reporting to professor Fitzgerald. That was our line function, but we had the wits capital project steering committee group which was chaired by professor Ballim who was the deputy vice-chancellor for academic and he's also as you saw at the function he's also a specialist in concrete, he is an engineer by training, studied as an engineer so I think I was very fortunate because there was a wonderful leadership at wits then under professor Loyiso Nongxa. He was the vice chancellor and the people reporting to him was the two of them is Patrick and Yunus Ballim and there was a very good relationship of understanding so I then briefed them about my thinking at the time about the problems in the industry and that we should try and do something a bit different and they were amenable to that, by that time already, the FNB project was already on site when I arrived here it was already started and the principal agent there was the architects -Savage and Dodd a very good architect and the QS…you know AECOM took over this reporting on costs in the industry, they took it over from another company I'm trying to remember the name of the company because that was the QS on the job, a very well-known QS company, anyway they made a real hash of that FNB project perhaps you shouldn't quote me that way and that was the one I said we went over by over 20 Million on the budget and a big portion of that, we just discovered 6 months or so after the project was finished so it was a disaster for Wits Capital projects starting off on that note and then at the same time Wits tendered again or already tendered on the next project which is the Professional development hub and the same contractor won it Murray and Dickson and interesting enough when we tendered later on the first NEC the same contractor won it again so they were very competitive and they clearly wanted to work here at wits.

It's different from Murray and Roberts it's not the same as Murray and Roberts. So this project professional development hub also came in over-budget at the end despite the fact that on the first project we had on the FNB we had a principal agent an architect, we had already started discussing how to set about with a new approach. The first thing we decided we need is to have project managers so we advertised and we did a tender for project managers, Ron helped us, I brought Ron in. I knew Ron from my work at the CIDB we worked together there and we had as you know the CIDB had done quite a lot of work on procurement, procurement best practice and we had a roll out programme just across the country rolling out what we thought was best practice at the time and it was the best practice that was agreed within the industry so there were some compromises in the sense that industry wanted the JBCC, industry wanted the GCC so eventually we agreed on four contracts that were approved, before that there were about forty contracts being used in South Africa and we rolled out and said No use only these four that are approved. We also rolled out more than that, we rolled out how to go about to procurement etc. we rolled it out at provincial department level public works, we rolled it out in the municipality level so we had a team

rolling out procurement at that time. I'm talking about 2004 somewhere there 2005 and Ron had helped develop those best practices and that's how I knew Ron. Ron by the way was also involved in Public Works so I already knew him when I was in Public Works because he worked with the deputy director general for infrastructure at Civey Gordon(sp) and they developed together the affirmative procurement policy.

Public works was the first one to pilot preferential procurement. It was called affirmative procurement then and then later it was called preferential procurement and Ron assisted Civey to develop that policy and the programme and later it became the preferential procurement Act, but public works piloted its first round about 1996/1997 that period and I also brought in another colleague who had worked with me at CIDB Dean Barnes so Dean is a systems person. First of all he is a trained engineer, he is a geotechnical engineer by profession, but he is a systems thinker and he has set up at public works also the whole community based public works programme. He set up reporting and financial management because the community based public works programme was a programme that went into small villages. EPWP came in later but it was first called the community based programme and Dean had set up the management system, the programme management system so the funds could be allocated to a small dorp somewhere, but the reporting and management of funds and everything came through and central system which Dean helped to set up at the time so I knew that Dean was good at setting up those kind of systems so we brought Dean to come and help us set up our whole system for managing projects so that we have a solid system for that.

So those were the two people that came in to assist at the time when we were contemplating how to move forward. So what we did is that we went out to tender for project managers and eventually we got two project managers most of them are still here, but they came in as companies at the time subsequently we got rid of the companies and they are now here in the individual capacity and we said we want to outsource this we want to get good project managers with good experience they don't necessarily need to have experience in the NEC because very few would have had that, but they must have a good project management experience so we are getting away from the principal agent approach as you know as Tiger Woods says 'the thing is to do what you do, do it right and do it the same every time' so you have the same people doing the same thing over and over again practise and get good at it and we won't make mistakes that way. So that's what we did we got these two project managers one that had experience at public works national department which was very good in those days when I say good in those days I mean up until early 2000s and she went into private practice and the other one had some experience with the NEC I think at Eskom so we brought them into our office to work in our offices. It was the individual in a company, we were paying profits to the company and today we pay probably better because they've left the companies so we are not paying the profits to the company.

Interviewer: So was it like a secondment type of set up?

Respondent: No, we said, we went out to tender we said we want you to give us a person (I think we did it also on the framework contract) and we want you to give us a person and

tender the rates with that person and we want that person to come and work in our offices so that's what we did, we brought them into our offices and then we knew that we've got a system for managing the projects and we've got the financials and everything and we have a good person who can manage project which is a project manager and we sat with Ron and said should we or should we not go for the NEC.

Interviewer: So Ron was the procurement specialist?

Respondent: Yes, and we said okay because we have the project managers here let's take a chance let's try it and if it works we can roll it out because we will have the same people and if it doesn't we will go back to the old way of doing things so that's what we did. We put out the first tender for the NEC it was the chamber of mines fourth quadrant. So those were the key people at that time.

Interviewer: so in confirming the members of the team you set up it was yourself, Ron, Dean, and the project managers?

Respondent: Yes and Emmanuel, don't forget Emmanuel. He of course helped to navigate stuff I can tell you know we had a lot, don't forget that you are dealing with the university here so when you are designing a new project you have to engage the academics , the heads of departments, and they are very particular and Emmanuel helped us with that. He always says that I am an engineer, but I don't know why are they paying him as an engineer, but really I am a nursery school teacher looking after the children dealing with their tantrums all the time.

Interviewer: what was Emmanuel's role?

Respondent: Emmanuel knows the university inside out, he knew all the people, he knew the head of departments, and he knew what needed to be done which none of us knew. He had that knowledge of every building in the university and he still does, he is absolutely irreplaceable because of that knowledge. So together with Emmanuel we developed plan. We developed what were the priorities that needed to be done so alright the university had already identified big projects and remember that professor Ballim talked about the fact that DHET allocated its first allocation in 2007 so the FNB School of accounting was one of those, Chamber of mines was also already identified and the undergraduate science centre that's the science stadium was also identified as the third big project with the DHET. So those were the three university professor Nongxwa had what we call the big five projects it was those three, the Wits Art Museum and the school of public health. The problem with all of them was that funds had to be raised so there was a big fundraising campaign and there are some projects you can raise funds for and some easier than other, but none of them were easy, but some you could raise funds for and some not, but those were the 5 priorities and DHET contribution in terms of funding was a partial contribution, it wasn't a whole lot of amount so for example on the chamber of mines fourth quadrant it was 50 million but the total budget was 70 million so wits had to find 20 million so the university had to raise that and they did. They asked mining companies to contribute. On the school of public health that came later; DHET also put some funds, but the school of public health raised the rest of the

money that was 140 million rand and the Wits Art Museum there was no funding for that from DHET all had to be raised. Have you been to the art museum?

Interviewer: Yes I have been.

Respondent: so that's where we started so from the beginning I got immense support from professor Fitzgerald who was the line function manager and also from the capital project steering group professor Ballim and we have up to now a relationship of great trust and respect you know. I remember at the time hearing that Wits was not paying people on time and I went to visit the finance department and I said to them look I'm not prepared to work at wits if you don't pay people on time and one of the things we did….you know Wits has a policy of paying people in 30 days and that is what it commits to, so we undertook with the NEC projects to pay within 21 days and wits agreed. So we had two policies. Everybody pays within 30 days and we pay within 21 days so it's part of the fact that I managed to persuade professor Fitzgerald who was head of finance then and he was the deputy vice chancellor responsible for finance and operations at the time and we managed to persuade them that in this industry if you don't pay on time the whole industry doesn't function and people are going to charge you interests and not only that they also going to when they tender, they going to already say ooh okay these guys work like government they don't pay on time so we'll charge extra because we know that we going to have to finance this somehow so they understood that and agreed to that. So we had a number of successes after those first 2 projects which let us down. We brought in the chamber of mines fourth quadrant on budget. The next project after that was the under……Oh let me tell you on that project we had quite a challenge because the school of mining engineers the faculty of engineering is based in that building so because the chamber of mines building was left unfinished as long ago as somewhere in the 80s they have been living in an unfinished building with lot of problems. They really were bitter, they were very bitter, the people there were so bitter and they didn't believe anything that came from the eleventh floor of what was then called the senate house. So they were trying to get everything they could get and one of the things they wanted was a large lecture venue for 250 students. A raked venue and they wanted to put it into the ground floor and of course that is expensive because there is rock there and so when the project went out to tender we warned them that you are not going to bring this in for 70 million and it had that in it, but they also had things that they couldn't fit in like those will be left in for future projects like a computer centre for the students. By the time the tenders came in we had already planned the undergraduate science centre earlier on we didn't know where to put the undergraduate science centre it was thought that it had to be on the east campus because all the science buildings were there. I came up with a very good idea and pleased to take credit for this. I am the one who said put it here on the science stadium because it was an old sports field there which was hardly used, do you remember it?

Interviewer: Yes I remember.

Respondent: Skein stadium. And so I came up with the idea to put the big lecture venues there and the laboratory building there. The science people at wits were complaining because they have to walk now from east campus to west campus so what I am saying is that when the

tenders came in we already knew that was planned and now working so we were going a have 5 big lecture venues right there and they didn't need to have a big lecture venue in there so when the tenders came in it was way over and we said to them that please let's take this out and if we take it out we can put in your computer laboratory and we'll still come in within 70 million and I can't remember how much we were over budget. We might have been 80 million I don't know and they resisted because although the plan was there they were not sure if those lecture venues will really materialise so I think eventually professor Ballim has to put his foot down and say no we are taking that out now. Now in academia as an academic you don't put your foot down it's not a done thing and even if you are a senior so it was quite a big thing for him to do that, but anyways that's what happened so we then changed the plans, the builders and the engineers were furious especially the engineers not that much the builder. The engineers say what? We going to have to redesign this we have already designed that lecture hall, it was a very expensive lecture hall they said you going to have to pay us for redesigning and I said okay we'll pay you for redesigning so we did that. It caused a short delay but we were able to still come in and I think that project came in within 69 million. The next project like I said was the undergraduate science centre and that was very big. We started with a much higher budget and we eventually came in 1 million rand over budget at the end, but I think the very first estimates were over 220million rand so I remember the next price was 201 million so we were working to get down from there and we had to continuously try to find ways but we brought the cost down. and finally the one I would like to just tell you about is the Wits art museum because that was I think the third project and that project was estimated at the time at 69 million and wits had only raised 28 million rand so I think we are talking about 2009 and we said let's bring the architects and the quantity surveyors and contractor to see if they can find a way to reduce the cost and they came up with a plan eventually for 39 million so they probed 30 million of the cost we got the price at 39 million. December 2009 where they were keeping the artwork in the basement in senate house they were sewerage floating so everybody was frighten that the precious artwork was going to get damaged and the council wanted a report and we told them that this is the price we've got 39 million you've got 28 million in there raised, in terms committed raised and there was somebody in the council who said well, will it help you to get started if I contribute 10 million?

Interviewer: which makes it 38 million now?

Respondent: yah ooh sorry our budget was 38 million not 39, contributed 10 and we had the budget. That's what happened she…. wits had to find another 1 million it had to do with the air-conditioning. So by that time I think we had developed a fair amount of confidence in what we were doing, it was working. We had a framework contractor on a three year framework, we had been using the NEC target cost contract, we had project managers who were pretty much knew what they were doing and it was working like a well-oiled machine and we went on to do a number of other projects and as you know it ended up at about 1.5 billion I think by 2012 and that's when I think end of 2012 professor Ballim left and professor Fitzgerald.

In 2011 somewhere around the middle of 2011 the DHET was looking on how they are going to try and take the 2 new universities forward. And they Dr Parker who is the deputy director general for the new universities and DHET spoke to professor Ballim and professor Ballim said we've got a very good team so why don't you talk to them, so we met with Dr Parker that's how at the end of…she then asked me what sort of the team we would have and I put forward a number of names from myself, Dean BARNES, Ron Watermeyer and Ludwig. Ludwig had assisted with spatial planning he developed a framework plan spatial development framework plan for Wits, a long term development plan which was very valuable and he's now helping the DHET he's been giving some lectures to other universities onto how to go about developing a long term development framework so those were the 4.

Interviewer: so those were the 4 key people?

Respondent: Myself, Ron, Dean, Ludwig and Emmanuel as us all reporting though Emmanuel. Emmanuel was then responsible for Wits governance and he played a vital role in relation to all the mechanics. I mean all the governance that has to take place you know it had to be a wits person so I was regarded as a wits person up until the end of 2012 I was a wits person because I was member of the staff of wits paid for by Murray and Roberts, but at the end of 2012 Brian Bruce was no longer the CEO and the new CEO didn't want to continue this arrangement so I worked for a year on the new universities as a wits person and we had to ask DHET do they want to continue with me leading this project we'll have to form a company and be paid as a consultant and that what they decided to do. So nothing changed except that I was paid by through the project for my time the same as other consultants, the same as Ron, Dean, Ludwig before that I was simply paid a salary by Murray and Roberts. Murray and Roberts were paying for me from the end of 2007 up until to the end of 2012.

Interviewer: So was Wits paying Murray and Roberts?

Respondent: No, Murray and Roberts CEO said this is my contribution, I am going to help you guys get this big programme of infrastructure going and my contribution is Spencer. Remember that Brian was in the council of Wits at the time. So I was the gift; their donation.

Interviewer: So I want to understand that it's you, Dean and others, what was the nature of the working relationship? Was there any structure? Were you all reporting to one person or how was reporting done?

Respondent: well its very funny because I remember quite a long time afterwards when we were at Mpumalanga and there was already a vice chancellor there and some staff members it must have been 2015 early 2015 or something so I was there with Dean and Ron and Ludwig so these new staff members at the university were trying to understand how we operate and what we do so then one chap says now Spencer listen now I know what Ron does, I understand what Dean does and Ludwig, so what do YOU do? I said I'm the makhulu bass!!! I don't know what I do. You see Dean was our project manager so he took care of all the payments that had to be made all the contracts, he managed all the contracts. Obviously when we went into construction we appointed a project manager for each university, but we still

had Dean managing as the project manager and Monica because she is a wonderful project administrator and we would have never managed without Monica.

My job was to always look ahead and look for what's coming and what's going to be. So for example if you speak to Mark Burke he reminded me that when I said we going to need a project manager at Sol Plaatjie University and we going to need to appoint a project manager University of Mpumalanga all of them said why do we have to appoint because we have Dean, I said no no no we have to appoint. We can't do all this work we not going to manage. We can't manage from here. So I remember also you that at Mpumalanga there's two campuses. There's Mbombela Campus and there's a college they took over at Siyabuswa. Siyabuswa is way out, it's closer to Pretoria than it is to Mbombela, and it's about 2 hours from here. It's about 3 or 4 hours to Mbombela so they have existing buildings and they also were doing some renovations and doing some adding some new buildings. You know in both provinces before there was a university, because they are the only provinces that do not have a university they had what we call institute of higher education they are the only provinces which had this and that institute was there to facilitate access to higher education for people like yourself who were in that province which there was no university. Once the university was established, those national institutes were disbanded, they were closed down, but the institute in Mpumalanga was looking after the construction work that was taking place when it was decided that this college Siyabuswa teacher training college was going to become part of the university so when we went to visit it, we thought we going to take it over and we'll manage the construction and we'll manage design and everything and we got there we went with Mark Burke, I'll tell you about Mark Burke just now. We went with Mark Burke, Ludwig and Dean I think to have a look at the place and we met with the people from near there, one was a mechanical engineer and they told us one of the problems they were having with the construction is that there is a local community there and of course they want to be involved and everything, contractors from outside blah blah blah all those problems so I immediately took a decision. My colleagues were just dumb struck and I said I think you people must carry on with this, we'll help you with the procurement of the new contractor on a framework contract so that you can manage it so we got Ron, Dean and Me to help them to do that and then we appointed a contractor, in fact Murray and Dickson won that tender we had nothing to do with that except helping them, but the point is that I knew as soon as I saw that we going to spend 80% of our time worrying about this project here because it's so far away from us and we all have these extra programmes we had to do so I said No, we are not going to take this one and for quite a while they didn't understand why Spencer took this decision and even without discussing it with them so those were the kind of things, I ,because of my experience I have a sense for some of those things.

We generally didn't work in a very formal manner, we did have some formal meetings and we had minutes of those meetings, but I think each knew what each other's role was but we would come together as the project management team to discuss where we going, what's next, how are we doing, where are our problems and who needs help with what and everything and of course there were lots of challenges that we came up against as we went along.

Mark Burke by the way came into the project team, Mark Burke was a very interesting person because he's got a degree in law I think and he got into social development work and he works in the development field and he's done a lot of work with higher education and when we were trying to draft a vision for the new universities somebody reminded me that there was this chap called Mark Burke who we could bring in to help with that as he understood the sector so he approached him and brought him in I think professor Ballim and professor Firtz-Gerald knew Mark for work that he had done for Wits and so on. So we brought him in to the system and he helped us and between him and myself and Dr Parker drafted that vision, but once I got to know him I saw other opportunities for him to play a useful role so we brought him to manage some of the communication work, stakeholder relations work and he indeed played a very valuable role. So mark became a valuable member of the project management team and then we then developed provincial participation for local labour and suppliers and so on and so forth, subcontractors so we brought in Mark to assist with those things. In fact Mark helped us at Sol Plaatjie to establish the incubator programme for some of the sub-contractors.

At different times we had some different people coming onto the project team so right from the beginning the project was not just about the construction, it was about…..that's why I brought it Ludwig in the beginning because we had to actually find land where to put these new universities, there were lots of options that we had to look at. In the Northern Cape we went as far as Coalsburg, Upington we went to look for pieces of land in Mpumalanga we went to Barberton up near the white river. Then we needed to look at the academic we had to help on what was going to be the first academic programme so we brought in an academic professor Bays was recommended by the department for a while she was on the project management team we also had to establish the two new universities.

So what does it mean to establish? The minister has to proclaim these new universities and he has to do it in terms of the higher education Act. To proclaim the university you need to have an address and that's where the land became a critical thing, you have to have the name of the new university, you have to have an interim council of 5 members into the council, if you don't have that you don't have a new university. So we had to advertise for the right people and the other thing is that as soon as the university is launched….the other thing is that the university has to have a whole of lot of policies, policies on students, policies on this and that, policies on staff, policies on procurement etc. etc. so we brought in a retired person from DHET who understood this world and he put together a whole team of academics to develop the draft regulations for the universities so when we established the universities all they had to do is to adopt this first set of regulations and later they can change them as they wanted. So we brought in another member of the team Craglor Watson who was the academic. I think one thing that helped me in this is my experience is CIDB because CIDB is a public entity and it functioned with a board of 2 members so there is a lot of governance involved in the sense that the board has to meet and there has to be minutes the board has to approve a whole lot of things, policies etc. So I was used to that, I worked with the CIDB for 6 years so I was used to all that governance and working at wits with the wits capital projects steering group I treated it exactly the same way I treated it as my board and when we then had a steering

committee on the new project I treated it the same so I had to make sure that the minutes I checked the minutes every meeting I made sure that they were okay.

Interviewer: so in the nutshell, what would you describe your role as?

Respondent: I suppose I would describe it as leading the project and the people, but leading the people doesn't mean you tell them what to do it just means that they knew that I was taking care of certain things and I knew they were taking care of certain things. So I remember when people were asking me what you do because he's the project manager I actually couldn't put my finger on it so I think you should ask some of the other people what they think. I don't think I was that conscious so I was trying to listen to whatever the problems that we were having and to try to help people understands where to or how we are going to get around these problems. There were certain things that could become problems I think you should meet with some of the other colleagues so that you get another perspective because my perspective is not the only one.

For a long time we didn't have a structure it was only when we appointed the project managers for each universities, they demanded a structure what is the structure, show us and eventually we had to put a structure together.

Interviewer: so there is a structure?

Respondent: Yes there is a structure and I can show you what it was that we put together, but I don't think you'll see my name in there anyway on that structure it's just a structure. I'll show you next time or I'll send it to you.

Interviewer: I heard you talking about the selection of the team members, did you know from the beginning that this was going to be the outcomes that will be achieved by the team? Did you base the selection on any factors? I know you said they were based on the roles they were to perform and having different people playing certain roles, were they any factors that you considered that this will be the factors I consider into setting up the team members? And how the factors will help you achieve these objectives?

Respondent: I knew that if I get Dean Barnes in we'll have good governance systems for managing the projects we called it the programme management system and Monica can tell you about it and she then managed it in detail and Dean also had some project management experience. I knew that with Ron we would be able to select the right procurement approaches for the different challenges we had because I knew that was going to be a big challenge and I knew that Ludwig because one of our first tasks was to find the land. In fact in late November/December 2011 we already went to Sol Plaatjie the Northern Cape we started at Upington with Ludwig and I think Emmanuel came on that trip as well and we went looking for land and we went to Kimberley and we started looking at that land, but we already saw it. And in January we went to Mpumalanga looking for land so I knew that those were the first people and I sent their CVs to DHET including mine Ron, Ludwig and Dean those were the first ones and on that basis the DHET approved and then we started developing the memorandum of agreement between DHET and Wits and that memorandum

of agreement is what tied up the governance agreements between us. So we had the project team, the new universities project team, technical integration committee which was between DHET and the project team so that we could coordinate all our staff and then we had a steering committee that we were reporting to project steering committee.

I think we have to stop now and we can meet again next time and also make some arrangement to meet other colleagues. The point is you were right at the beginning it is the team a good team delivers good projects it's not 1 person.

Interviewer: But there has to be a leader within that team.

Respondent: But don't forget that different people lead at different times for example when it comes to procurement Ron will be leading the team. So for example I never interfered with Ron's procurement, but when I said we have a problem with competition's rights commission with one of the big tenders, I then had to climb in and help Ron and we worked I don't know how many hours, we had to develop a writing to the competition's commission reports to justify why we had done something in a certain way.

Interviewer: I've covered what I wanted to cover for now and I hope we can meet for round 2.

Respondent: Definitely, but it will have to be next year.

Interviewer: Thank you so much I really appreciate this opportunity, so in conclusion I actually wanted to cover three specific questions. So you did talk about the nature of the project management team, you covered the nature and the dynamics of their working relationship and the nature of their reporting, you did mention that there was not really a formal way of….

Respondent: we had minutes for our every meeting, but there was no formal way of doing things, sometimes Ron would chair the meeting, at times it would be Dean Etc.

Interviewer: and in terms of the role that you played I need to get different perspectives from your colleagues but in the nut shell you actually solved problems?

Respondent: Yes I solved problems together with everybody involved.

Interviewer: and you also mentioned that your role was looking ahead and experience played a good role in all of this.

Respondent: Of course yes.

Interviewer: and how long is your experience? How long have you been in the industry?

Respondent: I think we should leave that for next time I don't want to keep Cebiso waiting

Interviewer: thank you so much I actually enjoyed our meeting it was very interesting and informative.

R1 Interview transcription: R1, 2 recording

Interviewee: One of the key achievement of the new universities projects was that we did what we almost call a live handover so we didn't handover only finished buildings we handed over contracts so Wits was the employer in the contract right from the beginning when we tendered we made a provision that in the tender documents whoever is tendering or whoever wins the tender must be aware that this contract must be transferred to the two new universities so the new universities can take over as an employer instead of wits because we knew that we've got a limited time so we handed over I think about 34 contracts each for each project for Sol Plaatjie and for Mpumalanga and one the things that made that possible was that we tendered for 3 year contracts, framework contracts and because we had a framework contract, it meant that we issued one or two package orders and the new employer can carry on and issue a new package order so it is not something I have ever come across before that we have to do this .

Interviewer; because when you normally handover sometimes the contract ends

Interviewee: You handing over the building, you are not handing over the contract, you handover the building when it is finished and usually it's the contractor who is handing it over to the client, but in our case it was the contractor handing over to the new universities and obviously we had to take in the handover and get the new universities to take the handover so it was complex and lots of risk was that the new university be it Sol Plaatjie or Mpumalanga said that this building is rubbish we don't want it what are you going to do? You can't take it away so it was that complex and then the other complex thing with the handover was that some projects were started by us or wits as the employer and had to be carried on in the middle with let's say Mpumalanga or sol plaatjie as the employer so we started the design we took the design up to stage six and then we handed over, they had to complete the design and then start the building s that's what I mean by a live handover.

Interviewer: so wasn't there anything that could possible go wrong? Starting something for only to be completed by somebody else/

Interviewee: absolutely it is very difficult, I mean we had to make sure that the design was and the university was with us all the way through the design and we also had to make sure that the amount of fee paid for with the design stage six was not too much in terms of what was delivery because that they had to carry the rest of the fees so it was a little bit complicated and as I say it's something where we had to feel our way to some extend because as far as I know I don't know any example you know that where t5his had been done before it might have been done, but there's nothing that I am aware of that is documented that we could have learnt from so we had to find our own way through that.

Interviewer: so that structure that has you as the project tea leader and under there is consultants, can I show it to you?

Interviewee: Yes, sure that to me I don't understand the structure you talking about.

R1 Interview transcription: R1. 3 recording

Interviewee: conceived that one from the beginning he still loves that one so we were never contradicting, but really if you see the one that we used, you'd just see the difference

Interviewer: so I actually wanted us to discuss the structure and also discuss the programme itself, the delivery model that was used to deliver projects and lastly YOU. I know that in our previous interview you told me that I must move away from thinking that within your team there was actually a leader who was running the entire show, but it was people who were leading at different times

Interviewee: oh dear I don't remember how to get to this thing, they've changed the website, we will look afterwards with gladness, but I can try to just call it up, yah let me present it to you like I do when I am doing a lecture. I've got a new computer so I am battling, so here you've got your projects your wits projects and remember I told you that we appointed a project manager we appointed actually 2 project managers we always had one of those 2 project managers and then we have design consultants and the contractor mainly a framework contractor of some sort so wits established a desiccated programme and I was the manager capital projects delivery manager what I was, I was reporting to the deputy vice chancellor finance and that is Patrick Fitzgerald and that was the line function management of all the projects and each of these projects were ……..to me and then wits under professor Ballim's chairmanship set up a capital projects steering group and so I was also reporting and so is the deputy vice chancellor we were consulting through that steering group to get key decisions taken to brief everybody where we are and get key decisions taken so for example can we start a project?! Is there enough money yet?! Which projects were going to be prioritised?! And etc. so then you had for each project you also had a champion at wits who could have been a head of school, a dean or just a champion like so that champion had to be involved with that project so engineering school the chamber of mines building, the engineering department would have been very much involved in the

Interviewer: so they would have been the champion?

Interviewee: they would have been the champion

Interviewer: so the champion was one person or a group of people?

Interviewee: it was usually one person usually it was the dean or head of school so on the science laboratories it was the dean of science at the time it was Andrew

Interviewer: is he the one who had a problem of walking down?

Interviewee: No, no he didn't it was one of his lecturers, so this steering group the wits capital project steering group was made up of the deputy vice chancellor, the vice chancellor was ex officio

Interviewer: so that where professor Ballim was at?

Interviewee: No no he a deputy vice chancellor, he was chairing the committee on the wits programme, he was chairing it this project steering group and Professor Loyiso Ngxwa was the vice chancellor, professor Ballim was a deputy vice chancellor and professor Fitzgerald who I was reporting to was also deputy vice chancellor he was deputy vice chancellor finance and operations so it was good that you have professor Ballim who in that case at that time was the deputy vice

chancellor academic so he was responsible for all that academic issues in the University, it's the most senior deputy vice chancellor after the vice chancellor because he is not always reported as senior, but in a way it is because this person has to have an understanding of what are the critical academic priorities in the university and those would guide which projects are very important so he had no line function and responsibilities he didn't have to deliver the project, he didn't have…

Interviewer: he didn't have to go on site?

Interviewee: No, no, exactly, yes, But of course the fact that he happens to be an engineer was very helpful because he automatically had some understanding of the processes that we go through so at the steering group, you would have all the deans and all the champions so if there was a champion and wasn't the dean or the head of school or even if it was the head of school, you'd have that head of school on the projects steering group so they would then be engaging at the project level and here you would also have a project team so me and the project manager and the design team would sometimes meet with the champion whoever it was to show them the plans, to show them issues, give them options where there were options and also the wits facilities, the PIMD would also be at some of those they'd always be invited.

Interviewer: so wait, on the project team is where you were at including all the consultants?

Interviewee: no no, what I am saying is that in addition to our usual site meetings and project meetings, we would also have consultative meetings with the head of school let's saying head of school, the champion and with the person who was going to use or have to look after the space afterwards

Interviewer: end-user?

Interviewee: not the end user the end user is the champion, but the person who's going to manage the facilities, clean the floor, maintenance, all that stuff and make sure that the air-conditioning is switched on properly and working and all those things that have to go on behind the scenes, change the light bulbs, they would want to know what light bulbs are we using with their 50 000 different light bulbs so those would be things that would be discussed and it wasn't such a regular meeting there were key milestone where you would come together and talk about, where things are how to get the funding, sometimes those for example especially the chamber of mines and the school of public health and the wits art museum they had to raise money from donors and we had to know how far is that fun raising so and then the last slide here is the whole thing put together so you have these various committees and working groups that are filling for example the space allocation committee, the space use committee within wits and so that was happening behind the scenes, so you could ignore that pretty much for now and they so you've got the line function here through to each project and you've got governance and consultation happening here, so you'll find this slide or slightly different version, but almost the same in that paper that Monica sent you, that paper describes the projects that we did some of the projects, most of the projects we did.

Interviewer: okay, so I see that you are there by capital projects as delivery manager, where would Ron, Dean and Ludwig fall under, are they where would they fall under within that?

Interviewee: they not here, but they would be part of the, I'll show you another slide so this is the new universities, so you've got the department of higher education and training, he had a project steering committee which was set up in terms of a memorandum of agreement between wits and DHet, but before we talk about the project steering committee let's go so here is the wits new universities

project management team, we were the client's delivery manager on behalf of DHet, we had a technical integration committee also designed into the memorandum of agreement which was simply because so it was between our team and the DHET team, the agreement was between wits and the DHET, the technical integration committee here that was set up in that memorandum of agreement there were two committees set up; technical integration committee and the project steering committee. The technical integration committee would meet at least monthly I think we met throughout the project somewhere like 60 times, but that was an integration committee where especially in the earlier parts of the project, DHET also had to make inputs, the academic planning, visioning for these universities, we couldn't do it in isolation so we had to integrate and in fact the DHET put nominated 2 people from new universities team, one was academic advisor, the other one was more institutional development somebody who understands the higher education sector the university environment so we had a technical integration committee where we would basically explore those things were just beyond just the project management team the client delivery management team is what we should call it. And then we had a project steering committee so that was just DHET and the project management team, then we had a steering committee which included representatives from DHET, we had representatives from wits. So before professor Ballim became the vice chancellor for Sol Plaatjie when he was still at wits he was no longer he became a member of the steering committee we had directors general of the 2 provinces. We had UJ that somebody represented, and we had the University of Pretoria which somebody represented so it wasn't just wits and DHET there was some other contributions coming in to guide this project and in addition we had the director general of each province; northern cape and Mpumalanga centre represented in the case of northern cape and the director general came himself, in the case of Mpumalanga they sent somebody from his office. And then there was the 2 national institutes of higher education they were key stakeholders because in the province where there was no university before so because there was no university, the government had set up an institution of higher education to facilitate access by those people in that province to higher education somewhere in the country so that institute had to be closed down in each province once the university was established because there was no need for it so they were also part of the steering committee, the steering committee met once every 3 months and what happened then is that after the establishment of the 2 universities after they were propagated by the minister which was I think august 2013, but remember we started basically in the beginning of 2012.

Interviewer: with the new universities, right?

Interviewee: with the 2 new universities yes,

Interviewer; and wits was still running at the time? So they were running in parallel?

Interviewee: wits project was something separate, it was set up separately, and once this started it was run separately from wits project

Interviewer: so you started the new universities while the wits programme was on right? So who was left at wits?

Interviewee: Emmanuel was still the head of campus planning and development and remember that the projects at wits had decreased, the work had decreased and we still had the 2 project managers and for most of the time I still had a small role to approve certain things, but it wasn't really an active role.

Interviewer: so was there a project close out report for wits?

Interviewee: no because those projects, you know there's always a project close out report well no there isn't always, but usually for wits we would have a project close out report per project

Interviewer: not per entire programme?

Interviewee: no, not for the programme because the programme will still carry on.

Interviewer: I thought that the programme was from 2008 to 2014?!

Interviewee: from 2007 but mostly from 2008. One building started in 2007. The first one was the FNB

Interviewer: so the programme is still current?

Interviewee: it is still going on, it's just that it is not such big projects and not so much expenditure, but Emmanuel is in the process now busy with asking the DHET for funds so that he can carry on with the programme

Interviewer: but there isn't new buildings?

Interviewee: there might be

Interviewer: cos wits is almost full now

Interviewee: is it?

Interviewer: yes, there's no parking and, but I know that professor Ballim did say that aim of implementing the infrastructure programme was that they wanted to minimise having a lot of parking spaces and less infrastructure, so the reason why maybe parking is a problem was that it is not their main focus we should use public transport or something. So as I did ask so you said that Ron and Dean and them

Interviewee: I cannot put Ron and Dean here, but I'll go back to so here, after the 2 new universities was established they were immediately brought onto the steering committee and then the technical integration team and they immediately became part of planning and decision making at first it was the interim head of the universities, at Sol Plaatjie it was professor Ballim and then when he became the vice chancellor we were one and remember that's the when they didn't have any capacity of their own of managing construction works, but they were brought in into this and later on the other important thing sorry, at that stage they had it was established around august 2013 if I remember correctly and the university started they started teaching in renovated buildings in January 2014 so once we got to the beginning of 2014 we knew that for 2015 we can still renovate some things which would be enough for 2015, but for 2016 we had to get busy with buildings for 2016 because it wouldn't be enough anymore so when we started then, we started then tendering for the new buildings and one of the things we immediately did was a project manager for each university because that meant that from the moment that we handed over this building process that we were involved in to the new university it means they have a project manager who knows all about the project and he is able to carry on project managing and under the project manager of course the design team so it is a similar arrangement to what we had at wits if you remember

Interviewer: yes, I remember. So Marietjie was one of the project manager?

Interviewee: yes, Marietjie is one of the project managers and Dirk is the other one. I am looking for something and I think I lost it so here this is what I am looking for so this is the situation you remember the client team; so you've got your delivery manager, and here is your delivery team where you've got your project manager, your professional team, the contractors and this is your end-user that we talked about earlier, your operator who operated the maintenance and

Interviewer: so that's the champion and maintenance?

Interviewee: yes, your end-user, yes. Your client team is your delivery manager plus technical advisers so as a client you always need people that you can trust to advise you about spatial planning finance management, procurement an all these things so we appointed a team so here's I can show you the whole team; that's the steering committee so there we are Emmanuel Prinsloo.

Interviewer: as Wits governance and oversight?

Interviewee: yes, so Emmanuel was critical to all the things that had to happen within wits, you know managing, the tender committee had to meet, wits tendering committee Emmanuel was the key person managing all that and there's me and here you have Dean Barnes was the project manager, Monica you just met, Ludwig spatial advisor under Ludwig we had Christine architectural services advisor and we also had Willie Potgieter engineering services advisor and Martin Grobler ICT, Martin had done a lot of work with wits.

Interviewer: I remember you once mentioned Martin

Interviewee: Nigel was part of Dean's team, he helped us with the furniture, procurement and the because it is a very tricky thing we had to I think at Sol Plaatjie we had something like 19 000 items and Ron procurement and under Ron there was Alyn I don't know if you know Alyn

Interviewer: I don't know Alyn,

Interviewee: Alyn what he did he did a lot of work he did with around everything you can imagine in the short period of time from January to about August he had to procure everything, all the professional consultants about I can't remember now close to 20 something in each university about 20ish.

Interviewer: Companies?

Interviewee: yes companies, not always companies, but different services so you might have a company like Aurecon which is quite big they might provide with mechanical and electrical engineering so it is not necessarily, but we had to tender each of their services separately and so Alyn was busy whenever a tender came in he was the first one to sit down and start doing the evaluation and then he would come with a draft report and then the evaluation panel will look at it and then you have Graigler Watson he was recommended by DHET and he helped with the establishment of the university you know that universities are full of as you probably know rules and regulations, policies for everything, he helped set those up.

Interviewer: and Mark? You forgot Mark

Interviewee: oh I forgot Mark?

Interviewer: Yes

Interviewee: and Mark played an absolutely critical role, have you met Mark? I want you to meet Mark; I would like you to meet Mark and Ron

Interviewer: Yes, Ron. I did select quite a number of people that I want to talk to and are part of the project management team, but I didn't know more about the rest of them

Interviewee: you don't need to see all of them

Interviewer: but I can just see the key people because, Alyn is working with Ron.

Interviewee: I think Ron is important, I think Mark is important

Interviewer: and Dean as well, the program and project manager?

Interviewee: I'll tell you about Dean and Dean you can interview.

Interviewer: because delivery models? Who can I chat to about delivery models? The model that was used for Wits Capital Projects Programme. I know that it was a programme, it had portfolios. It's portfolio and under that portfolio it's a programme and under programme it's actually individual projects. So wasn't there a model they were using to deliver projects?

Interviewee: I think when you talk about delivery model you probably talking about a procurement model anyway a delivery model is for example design and build so I can tell you about those and Ron could tell you, the 2 of us can tell you about this, you know not really Dean what Dean set up was very important for us was what we call the program management system so we had a system for getting procurement approved, for getting so every time we met with the DHET on that technical integration committee so would say these are the procurement we need to make now, can you please approve them, they are we going to go out on 40 procurement and each one is roughly this amount so we would get the DHET on the procurement plan and then we had the contract register and the payment register so all our systems that we need and that's why Dean was absolutely invaluable in setting up the whole systems which Monica and dean mainly managed and me and Emmanuel would sign off on certain things we were checking this so even though you had project managers in each province, later all the payments still had to grow through us pass through Dean's hands he would so the checking first and then Monica and then it would come to Emmanuel and me to sign so when you talk about delivery models well you could talk to Ron and you can talk to me. At wits we mainly used the model in which the employer does the design and appoints the contractor to do the implementation and then we used the NEC target contract for implementing which meant that the model encouraged, encourages everybody to come within the budget, collaboration etc. that's the model we mainly used. On the wits junction residence complex, you know it?

Interviewer: yes, I know it

Interviewee: that was 1200 beds and that was funded with some inputs from the DHET, but the rest had to be borrowed from RNB and because it had to be borrowed, the loan has to be repaid through the rental from students and from the minute that it was agreed that we go ahead, the DHET, Wits and everybody we had to get finished because you can only bring in students and the beginning of every year it's no use half way through so we had to get finished by I think it is 2012 I think we started in 2010 and we had to finish in 2012 so what we went for was design and build because we needed our project management capability was not good enough to pull it off, there were 14 new buildings there we had to put in roads, sewerage a whole lot and plan and finish it in 2 years so we went for a design and build

Interviewer: and that way you also shifting the risk

Interviewee: yes, shifting the risk, exactly that. We had penalties in place, but the interesting thing you see even on that design and build so that we still used the advisors so we still as a delivery team we had to keep an eye on them so we had Ludwig to help us monitor design and Ron I mean well Ron's company not so much Ron. Ron helped us put together the contract and at that time Ron was working for a company was part of the company called sol and skitter engineers so we got them because we knew them from giving us good advice in the past so we got them also just to keep an eye on the quality of the concrete work you know, structural work as it is great and we had a financial advisor who helped us with the modelling so those were mainly the advisers that we had at Wits for all our projects I would say.

Interviewer: okay, now I understand

Interviewee: some projects, so once we had appointed the contractors, remember that it was a framework contractor sop you didn't necessarily need an advice on an on-going basis on each project occasionally when you needed the advice then you would bring Ron in and similar with Ludwig I think it was only when we needed Ron and at that time we didn't have Dean

Interviewer: so Dean only got involved on the 2 new universities?

Interviewee: Dean helped us; it is not quite true right at the beginning of the programme when we started in 2008 Dean also helped us set up the program management system or authorising payment and all that

Interviewer: so dean is the systems guy?

Interviewee: he's the systems guy, he's an engineer, but I always found him very helpful in systems, yeah so those are the key ones right at the in the last year or so, sorry I meant we had this lady called Gina she was with Walter Sisulu university and I think she was just finishing and DHET asked her to assist with the academic planning so I think she was there she was busy with us and then she went over to Mpumalanga and continued to assist them so I think she went to she was probably busy helping us until the beginning of 2014 and then we needed to have a management accountant right at the end to help us wind up all the finances, help the 2 new universities to capitalise their projects onto the balance sheets because once you have a building it is an asset, it adds value to your assets onto the balance sheets

Interviewer: so she assisted with that?

Interviewee: yes

Interviewer: okay I understand, because I was confused on that structure that you showed me about where did they fall, but since you clarified it that there are technical advisers and then there's managerial function which was you

Interviewee: the delivery manager yes.

Interviewer: the delivery manager and you had advisors or wits had advisors

Interviewee: well we called ourselves a team, but in a way they are advisors specialises in various disciplines, but we come together and put our heads together and I would often invite everybody in just to solve a problem, I wouldn't just tell people what to do, but often we had challenges that we

needed to solve together so the first thing I did to make this project a success which I take credit for was to select the team.

Interviewer: that was my next point, my next question, so yes

Interviewee: I selected the team! I out forward the core team to the DHET to go so the core team was I, Ron, Ludwig and Dean.

Interviewer: on the new universities?

Interviewee; on the new universities!

Interviewer: and at wits?

Interviewee: well, at wits it wasn't so formal, it was more casual it didn't always use the same advisors, I would say we always used Ron for procurement and not always the others and that's fine, what's important about these advisors is that you have to be able to trust them you have to, you can have an architect in your project, but you might be working with the architect for the first time and you need somebody that's going to tell you that he's going overboard or the engineering the same quality.

Interviewer: was there any chemistry between you guys?

Interviewee: I think there was a lot of chemistry. I think you should ask people like Ron and Mark and Dean for that matter

Interviewer: and I did set up a meeting with Emmanuel, but it is in the first week of March,

Interviewee: but I'll try do you want some help to meet with mark? Or Ron?

Interviewer: yes please, I would appreciate that.

Interviewee: I would give you some pointers because I asked them, you can see that I've developed some lecture material and when I was developing this material which was from April to July last year (2017), somewhere that period. I asked Ron and the material I was developing was about the role of the client or what is the client duty and what is important for the client to manage or to do, so I had a meeting with them I don't have the date here on my book, I'll give you some headers that you can ask them, so I asked them that what was it that was important that I did as the client delivery manager and they came up with some of these headers so Ron says management of competing interests and competing priorities so you're always managing competing priorities for example we decided at the new and it goes hand in hand with managing risk by the way so we knew that as we start construction at Sol Plaatjie and Mpumalanga one of the problems would be everybody wants to get work, jobs, contracts, subcontracts

Interviewer: especially the locals

Interviewee: Yes, exactly, so we drew up a program focusing on local development and that was for me a priority and that was one of the things that Mark helped me to implement, we had a whole program of skills development and all sorts of things and at some stage people came and say should we not accredit these projects with green building council of south Africa, now we then looked at that and said now we had to take away our focus and it's going to cost about 2.5% of our budget our construction budget so somebody has to make a decision or a firm recommendation which is what I

did at the end, I said we not going to do that. We going to do then right sustainability things, but we don't have to accredit it because that is another process that will rip off everybody getting busy and it will cost us money and we will lose our focus on the development programme so I made that recommendation to the DHET that we don't do it for a number of reasons so it's that kind of function that management of competing interest and management of risk so when we started getting into fees must fall and our project, it was just at the time when our projects were nearly finished later in 2015 and I then said to Ron let's not mess around, work out a plan for us how do we shut this project down if we have to, it might cost us money but it is better to

Interviewer: than to lose money

Interviewee: if we see it out of hand we have a button we can press to shut the project down so Ron worked on that, but somebody had to be thinking about this thing, project managers or not. Control budgets I think one of the things I led in now in certain terms is that I the fact that we have the control budget, we derived that budget in certain way because the DHET the higher Education has a system for establishing cost norms and we have to work with those norms and try to read those norms and therefore once you do that you get to a budget and that budget we call it the control budget, we call it the control budget because you do not violate the budget

Interviewer: but the control budget remember it includes the escalations, the

Interviewee: yes it includes everything, it include escalation, it includes VAT, it includes fees and as an overall control budget for the whole programme which includes all the different projects and I think our budget for Sol Plaatjie was it was 804 million rand in the beginning I think and at Mpumalanga is round about 400 and something so that's for all your projects for your infrastructure work, services, and everything included and so we introduced a culture where the control budget is just not to be exceeded if you find yourself getting to a point where it's going to be exceeded we have to do something, we have to figure out something and say to everybody anybody to talk to on this projects will know that there was a control budget and that we were very strict about it and that leadership came from me and that's one of the things I certainly contributed to the project and to make sure that we basically stay in budget we had results which are you know fantastic, there are in this document.

Interviewer: are the results per project?

Interviewee: Yes!

Interviewer: like outcomes, delivery outcomes per project. How is it compared? Is it cost related or time related?

Interviewee: cost and time related

Interviewer: because I wanted to ask where can I get information about the projects within there that were delivered by the team, specifically the delivery outcomes?

Interviewee: you'll get it on this report so I am telling you things that Ron told me and Mark so the control budget ask him to talk about that I remember when I went into a meeting the first meeting we had with all the consultants and contractors remember I told you that we had that period between the beginning of 2014 and about August 2014 and when we got to having all the teams for both Universities, the project managers we had a meeting at the professional development hub in that big lecture venue the big lecture venue I think it was I think it seats about 80 people it was almost full it

was all our consultants, contractors and I asked them a question and I said who amongst you has ever worked on a project that finishes within a budget and there were about 8 hands went up and I looked at them and said you are people that worked for wits

Interviewer: that's why they had the experience

Interviewee: I said to them that the rest of you, you are now going to work on a project that finishes within budget, I am just mentioning a few of these at wits I am the one who basically drove the change from the what's that the GCC to the NEC introducing project management instead of principal agent and continuously challenging the team to move beyond their comfort zones so delivering a project within budget and here are some of the other one that I want to mention nobody mentioned this, but the other thing I also did at wits and on these 2 projects is Safety so you have a situation where you have regulations for safety there's laws and everybody turns to say live it to the point of the agent and live it there the agent and the project managers were managing, but the client needs to show commitment to these things so one of the things I am very pleased about is that one these 2 projects we've got time pressures and the fact that people are working on top of each other especially at Sol Plaatjie we were able to finish projects within our budgets without any serious injury and what I did in the beginning is I made it clear in the beginning that all the teams you know in project meetings that the health and safety agent was appointed to shut or people were endangering the safety of either the workers or the students or the staff so everybody knew that we weren't going to mess around on safety so Mark come up with the nature of decision making, the quality of decision making, drawing on the inputs of the team and anticipating the future ask him to tell you about how we dealt with the environmental consultant who was being difficult and Mark and I and Emmanuel sorted him out and then ask Mark also he's got a lot of points here just the nature of control, being okay with uncertainty so it's the principal of progressive elaboration, it is important as well because you start off a project like this with lots of big things that have to happen and you are vague about how much each of us is going to cost and slowly, slowly you get more certainty, but for a long time you working with a lot of uncertainties and you have to have to be able to manage that it's still knew as the project forwards and yes he's the one of course you can talk to about he played a critical role into managing the provincial stakeholders in particular so we talk about the politics of infrastructure development and enhancing provincial participation there are certain things that. Innovation ask him to talk about innovation on this project in particular how he solved the land question you know the problem when I said the land question is politics, the political land question which is a very big one, it is. I am talking about simply the fact that we were building on the government land, but that land still has to be transferred and you can't build on somebody's land which is not yours, it is very very risk so we had to come up with a very very innovative solution and we did. I think the other point he makes here is always I think my role was to always make sure that the client's interests, the client being the DHET and also the 2 universities as the client delivery manager I had to make sure that we never lose sight of what is the client's priorities so you might get architects getting excited about some view you know sometimes we have to get and somebody needs to do that and

Interviewer: so this is where, Professor did mention that towards the beginning of a project you had to and I don't know if that was true or not, you had to actually teach or make consultants aware of the values of the client so whatever they designed are in line with what the client wants, for instance with the wits2022 vision it had to be designed in the way that they are moving towards the direction, was that the same for also the new universities?

Interviewee: exactly the same! The same with the new universities in fact Mark and I played a critical role in writing the vision for the new universities, ask him about it because there is a document called

the framework I think it's framework for the new universities, development framework for the new universities and basically Mark and I wrote it.

Interviewer: so Mark is also here, CPD?

Interviewee: No no, Mark is a private, his company is called development at work, he studied law and then he did development so I think he's got a masters

Interviewer: because the document that you saying you wrote, the one that was about the client's role

Interviewee: I haven't written a document, I've just development a teaching material, this is what I am showing you here is slides that I use for to deliver some lectures with Sam and Ron

Interviewer: like the same one we went to the other day, it's called it's near Zambezi

Interviewee: yes, that side so exactly, I forgot that you were there. So there is no document written

Interviewer: is just that I can't wait to put my hands on this report, it answers most of my research objectives, and it came at the right time.

Interviewee: now it is being difficult to finish it, so that where some of the things, let me see if I can find it in here, this was just around May last year (2017), have I dealt with everything?

Interviewer: yes, you've dealt with everything! Because I wanted to discuss the structure itself and that was discussed, I wanted to discuss the role, the selection process, and that was discussed and then the actual programme, I'm okay with that, the delivery outcomes of projects, you said I'll find it in there so yah, you've actually address what I wanted to address, the delivery outcomes of each project and the delivery outcomes of the overall programme.

Interviewee: CHAPTER 14!

Interviewer: I now what to go talk with Mark and Ron and if there's any clarity that I would maybe require from you, I'll just drop you an email

Interviewee: you're welcome and so meet with MARK, Ron and I'll send them an email and copy you and tell them that you'd like to meet with them and then ask if they do that and even with Dean, the only problem with Dean is that he is based in Durban

Interviewer: so maybe we can do it online, Skype or something

Interviewee: you can maybe do that or maybe when he comes up here

Interviewer: and I hope it is before the end of March because I have a programme where I need to finish collecting data by the end of March so that I can start analysing it and looking for gaps and what not. Latest maybe April

Interviewee: this one will only be ready on or available let me put it that way on the 07th of March to the 10th of March

Interviewer: that's still okay because my target is actually the end of March

Interviewee: okay I'll do that for you, if you need to see me again

R2 transcription

Interviewee: in 2009 the University made a decision to split the capital works programme as a separate division from operations and maintenance, previously were running with PIMD, the very small capital works programme, but in the first of July 2009 we formally splited off into PIMD the refurbishment, operation and maintenance and campus planning and development, to focus on the large scale capital works from conception to handover. We took an approach to tender for project managers and in the first round of projects we went with outsourced project managers. We got project managers from enhanced……I'll get the right name for you….enhanced strategy something and from diagonal projects something. So that relationship like lasted for about like 4/5 years. When our capital programme decreased, the lady you just seen now Marietjie, we took them on fixed term like wits staff is like the nature of the relationship is such a thing in any way you really don't deal with head office managers staff you manage staff. They sit in our offices; they work with us Joe snow out there wouldn't know whether they are from wits or whatever. It's a wits project manager. And then I think lies the big success. It is about sharing the common vision, sharing common values and understanding that the control budget is the control budget and we don't compromise on a few things. First thing is safety everybody that comes to site goes back home with 10 fingers and 10 toes, 2 legs, 2 arms and 2 ox that's if they came with them in the morning that is the first thing. Nothing is important like we don't cut like any corners, with safety and to date we've been very fortunate that we haven't had any serious accidents in the capital works programme and also for that the university has appointed external local occupational health and safety construction practitioners fairly from a capacity point of view, the beginning capital works programme, but also when did the new construction regulations kick in? I think in 2014 or something there 2013/14 construction regulations kicked in so wits since the start of the programme established the health and safety in an environment like an office so we going to review are construction process regulations implementation guideline like now and say where's is the touch points for internal wits people that didn't exist before because I think there is still some values they can still tap into there it's like the more wits people we get on board the better it is for wits, we develop our own people basically it is about the institution knowledge and it about managing our destiny and the same goes for project managers so all of our project managers at the moment it's fixed term just like the wits staff we are busy sort of like developing job descriptions so we going to advertise hopefully the problem with a capital projects programme

And some contractor just don't get like the philosophy shift and it's fine their business is probably the whole company is set up differently, but i8f we look at the wits capital programme the new universities one there's good success stories the guys that got in to the teamwork, the risk sharing and all of that model and they started here and they grow into big contractors and there's guys we are not the right client for, their contracting strategy is not right and they are not the right contractor for us because let me give you an example like we refurbished the mike protection security services office in Robert Sobaku block, there's graduations, you can't work through graduations and it's like graduation is the most important prestigious thing in the university calendar, people work years for it people pay up to half a million rand to get to that point, the construction program is secondary to that, there's a students, and his parents, his grandparents, and the university puts on its best Sunday wear and that's what we do, we celebrate 5 years of work, and it's like it not up to us to say ooooh, we are programmed for that that's what if that's going to stay up for a week, we going to be standing there in the background there because that's the most important thing so you can't come with an approach to say that this is my programme we would go like listen the team needs to do this on remember of the team has this business requirement okay work around it that's what we have to do.

Interviewer: so I know that there was a team put in place just before construction the team I am talking about you, I am talking about spencer, Rona and Dean and the others so that team had a great impact as you've been talking about having a thorough planning also contributed or was part of the success factors that helped you, so I am actually concentrating on that team, so I just wanted to know who were the members of that particular team and their roles?

Interviewee: the core management team was myself as the director of the department, spencer was the capital programme manager, dean assisted us with the programming like issues on that was to unpack the programme and like all of that, Ron was our procurement adviser and Ron was actually fundamental in a shift to say let's procure on frameworks, let's procure in a better way to manage risk of multiple contracts in a very tight constraints operation like environment this traditio0nal model will not work for us so that's the core team and also like within that team we were assisted by Ludwig Hansen our urban planner and hi role was to locate the projects within a long terms spatial strategy and then the architects and the rest of the professionals from that the detailed designs flows from there. So then we had support from our legal department from wit5s legal and as it's procurement, it's to critical success factor for the project was also financial management, it's definitely in our financial manager Gladness works and shapes on a daily basis it's about compliance and compliance and sort of like governance it is when things go wrong that you lose trust if you do not have your governance in place you cannot report to your oversight committees if your money is not managed properly if your procurement is not managed –properly and your governance is not sort of like spotless, forget about it you've got no credibility when you walk into that room, then you walk into that rooms that voluntarily oversight committee are dealing with and that's a dead discussion before it even starts, so finance definitely it's always like a back house function, but trust me it's like 8if finance do not pay on time and finance do not assist us to make sure that our procurement5 is 100% spot on and our governance Is checked, A we lose credibility with the funder and we will not get any more money with the DHET and if the DHET sort of like we receive an audit query in our report, it is the wrong thing so it will never get there the wits finance will ensure that it goes through the head first right through before it gets to the donor so it's those like support function that is a s important as a project management functions and the key thing is that if you don't rope those people in as part of the team, finance, legal and procurement cannot be gate keepers, legal always wants to right a contract that deals with its risk no such thing, it does not exists, it['s about understanding the risk, documenting the risk and doing the right fair sharing if the risk and then managing the risks and when it arises because there will arise things that nobody thought about and docs have like 1 of those. The finance job is to sort put the budget, make sure that we stay within a budget, regularly like monthly sort out the cost reports to project managers which we give invoices and keeping sure that we are on budget and cash flows through the completion date and all of those things and definitely make sure that when the time comes for annual reporting with the DHET we are ready and lined up, we've got clean audits, 10 clean audits in a row had been a huge part of the critical success factors, but is also sets a right tone for the contractors that listen buddy we are not here to mess each other around we have a job to do and the better we do this job, the better our chances to get more money and more jobs and we had more something like 1.7 billion rand like tomorrow will unfortunately not be enough to refurbish all the campus and address all the issues that needs to be addressed so the better we manage this the better our chances are to participate in the next grant opportunity when it comes around in every 3 year cycle so one should not although on eat times and I'm guilty of that you sort of sometimes rush in there and sort of build this, deal with the governance issues first properly, but also like be upfront, deal with the upfront, it's not something that you deal with like later, you don't fast track anything and you don't find there's a policy and procedure for procurement there's the delegation of authority that you need to comply with an then other people are like all happy if the university like pays late

you pay interest it's like on of those things, we haven't played like great ones yet, we've paid ;like once and we sort of negotiated it we put the contractor down and we said you know what this happened it's no big deal next time we need to see that we sort it out like in the next week and that's fine and that5 goes with teamwork and relationships because normally like that you can't get unless you are part of the team and part of like problem solving because it's like the contractor would say you know what5 you gave me such a bloody hard team it's my time to clap you with a stick with my interest.

Interviewer: so that team neh, you and Ron, Dean and spencer did you guys have any…you have been emphasizing governance and its importance, so did you guys have any structure that you put in place, or any nature of reporting lines, or how were you guys working the nature of the relationships amongst you all?

Interviewee: we have internally as a department had a flexible flat structure arrangement, so we had a program and we reported back to the capital works programme steering committee, Ballim and them so that was quarterly like reports, the purpose of that reports was to track progress, was to report on risk and was to report on cost and it was governance and those are like as professor Ballim always says ''it's eyes on hands off'' if governance structures starts dealing with management issues there's an unholy mess in the middle, the need to be this and this, this is a police man and someone had got to make the police man happen and if this one doesn't perform its management issue that you deal with and not governance and structure, but when governance structure starts getting involved in operational issues there's a great mist of shabby things happening there. Governance should never deal with a contractor or consultants it should deal with what is mandated to do that's a campus planning and development team if we then don't perform it's a separate thing then that becomes a management issue like one up against the governance body and the operational team, but not the project team

Interviewer: you said you were working in a flexible manner so you guys had very different roles to perform, you knew what you were doing and how wasn't there a document structuring to guys? You know like there's different types of structures. There's a matrix structure where there was a hierarchy.

Interviewee: to be honest No.

Interviewer: you didn't have any structure?

Interviewee: we didn't have like a formal structure. Spencer was permanently based like where in this office we are a classical open door poli8cy we probably like we are 5 hours a day in each other's offices same with the project managers it's the same, I have regular like fortnight like one on one meetings with the project managers and once a month I have a management team meeting where everybody sits together I do monthly finance meetings with my finance manager and I have project meetings every fortnight with my finance manager and it's not a long meeting, it's a bullet point, what's happening, our we on track and so on, what do you need what you're about it's a question in that meeting, what's not on track what do we need to sort out what do we need to sort out like upper management or are we on track on this issue. So where do we report to in terms of governance to the capital works project steering group reviews p[projects, approves projects either for implementation for the university finances or that's a project and we want to put it forward and now we are going to start with the application of the project funding to the DHET and there's always a funding relationship between us and the DHET or we have to say that is it a strategically important projects or just a normal project funding processes so that's that way, our authority to spend and our contracts gets dealt with in the terms of the delegation author document so contracts goes to the tender committee

and within the delegation of authority document, there's quotations, there's invited tenders and there's public tenders and quotation depending on the limit at the moment it is one quotation for an expenditure up to 20 000 two for between 20 and a hundred. 3 quotations for between 200 and a million, between 2 and 5 million is an invited tender so you don't have to publish anything you just invite a tender and above and expenditure of 5 million it is a public tender and then you need approvals of that, do you have a copy of the delegation of approval?

Interviewee: No

Interviewer: I'll give you some of the new ones so let's make a list so I'll give you a copy of the DOE so just drop me an email and I'll get a copy to send you all of the information and the new construction policy ones that is updated because I the delegation of authority it['s like once we've procured the approval up to 5 million is like the 2 operating officer, 5-30 is like the chief financial operator that can sign off on that contract and I think 30 to 80 I think that's the limit now the vice principal and the vice chancer can sign off. And above 8 is chancellor who needs to sign off. There's a very nice checks and balances in place and I think also like that and that's part of keeping people happy and accountable it's not that Emmanuel can make a decision and spencer and can choose contract A and we like the price and lets sign it up. It's like a learner, Emmanuel can't just touch there's got to be a person responsible exactly those breaks in governance so it is always like sort of the person that sort of motivates and doesn't approve or recommends it is always like one decision spate from the others so there's always like the checks and balances in the system.

Interviewer: so would you say that you were the leader of the team?

Interviewee: yeap that was my job

Interviewer: so wait Emmanuel, if I can take you a little bit further, the core team that you are talking about, who selected the team? Who knew that I needed to bring in Spencer, I needed to bring Ron, I needed to bring….

Interviewee: Spencer was brought on board by a secondment agreement by Murray and Roberts so spencer was given to us and thank goodness! And that was given to us through a relationship Murray and Roberts had with the deputy vice chancellor at that stage because we really battled to do maintenance operations and planning and this huge capital works projects and management actually said no, this is not going to work, we'll bring in someone else to deal with that and will just focus on that and spencer is your resource t9o that to take it off the ground so spencer cast precious experience is that spencer was the previous c9onstruction executive officer in the CIDB the construction industry development board actually that's how e g9ot hold of like Ron and sort of that was our core team. So our core team started off based on I would say previous working relationships and sort of the university acknowledging the risk that this is not like a normal project. I remember in 2007 when capital projects just started off and up until then we were in surv8ival mode we were n9ot on an expansion mode we did like very small scale projects minor refurbishment no major like constriction and since then we've grown into a team 5that built like the two new universities and that was about the core team and the people that was bought on board, but also the people that was brought on board understood we lack governance to deal with this thing and we lacked special like resources to deal with this thing to deal with all of this so now we can say for the next phase like okay that informal sort of structure needs to be properly formalised like now, we going to move forward and sort of like it's a nation p[progression to sort of like how organisations like mature it is like we are ow at that po9int where we need to like pause an say we need to formalise this thing, we need to properly like

resource it, we need to revisit our business processes and policies to make sure is it sort of like fully compliant and now we have sort of like a breather space we need to do that because the capital project's steering committee has done away with so we going to put up a campus planning and development committee like in place which is all going to assume all the property, development and infrastructure related matters including the capital works programme on behalf of the university. The core executives were part of that team and we actually like in the middle spencer, Ron and myself. The other people which is the core executives in strategy and vision and all of that, that was P4rofessor Ballim and Professor Fitzgerald so we were like a hub in the middle i5t's like without those two individuals and A; leadership and vision and trust, trust me I don't think we wou7ld have achieved a tenth of what we were able to achieve none of these things work if you do not work with leaders and people with vision you can't pull this if in a managerial environment you can't want to micro manage this, if you want to micromanage you've got the wrong people and you need at an executive level to lead, to instruct, to govern, you need to manage you need to implement so we were in the middle

Interviewer: so you were in the middle before the contractor and the executor?

Interviewee: yes

Interviewer: okay I fully understand, so Spencer was the one who got Ron on board?

Interviewee: yah

Interviewer: so he likes calling himself the delivery manager, client delivery manager or something like that

Interviewee: that's a good term

Interviewer: yah there isn't really….

Interviewee: I would call it a development manager because the planning and t5he strategy happens internally, once we conceptualise the project he's like yeah unpack that thing ad make sure that it adds up to the landscape into the development management regime.

Interviewer: so spencer was the one who as doing the selection of the team like maybe if you ever had a chat with him did he maybe tell you about the factors in which he considered in creating such a team because and do you th8ing there was team chemistry between the team members ?

Interviewee: you know what it was a good team with honesty and chemistry and what is nice is that there was a space to differ that's what I like about wits, nobody has a perfect ideas we had good ideas and we sit and botched it around to make it the best idea and in the team it was experts coming from different expertise my job was to get these construction people to unders5tand the university, you can't just start brainstorming and do this, I don't think on this side of the fence and it is to find that balance there was definitely like goof team chemistry, respect and trust and that respect and trust to say I don't agree with this let's just sit down and discuss and it's like you know what sometimes we often on the wrong path because we haven't thought about something and that's where respect and trust comes in, we are not protecting egos, we are protecting the best job outcome and that happens to keep the team work it's like when you dream can discuss that I don't agree on that I don't agree on that I thought about that and this may be a better idea and revise the management idea, that's good teamwork, but if you stick on a managerial idea with ego and thick-headedness, it's a disaster.

Interviewer: yah, that's actually true, so they were all reporting to you?

Interviewee: yeah

Interviewer: you were actually the link between the team and the actual university?

Interviewee: yah

Interviewer: what was the main role I hear that the major role I get is that you were actually the problem solver if I were to put a term in it and

Interviewee: what is my job if you ask me that interesting thing?

Interviewer: yes, what was your job?

Interviewee: on a very like silly note is that my job was mang8ing people and letting the right people together to get to the right technical outcome because on the one hand we had a very difficult time, university is has a difficult time because in the same building somebody will be working on their PhD for 2 to 3 years and somebody is teaching on the other corner somebody wants to read and write on one corner and then you want to send a bunch of builders with dust, noise and everything and you mistakenly switch off the wrong circuit which compromises somebody's experience or whatsoever. So my job is to really sort of like get the technical team to understand the unique requirement of this university, but to also get this environment to understand, you can't stop stop and stop wait and little bit there wai5t a little bit there, we are not in an environment to save the work for after hours and also you don't want to work after hours unsupervised in a laboratory it's like God fruit the contractor falls in to the wrong area and it's just like something up so after hours of work is not suitable for campus environment where you work in between buildings, so my job really is like to keep the teams together, to guide them and to steer them not to manage them because if a team can't manage itself you need to find another team, there isn't time at my level to manage people or to manage like little issues my job is like we have a problem and okay let's sort the problem out or we need to do this and okay this is how we do it as much as the executive used to step you could end up adopting everyone's bad monkey and then nothing happens because they are waiting for the executive input this are the practical things there the problem being 3 possible solutions so let's see what's best there have we thought about the fourth one, but you need to manage the works here and if you didn't get everybody accountable to their job the job will not happen all the wrong job will happen.

Interviewer: yah you did mention some factors which enabled success of the team, would you say that there was actually be a direct link between how the team was structured and the core team was structured and because they were working this is the delivery outcomes. Do you think that there was a direct link or a direct influence that this team did 123 which as a result caused us to achieve these certain outcomes meaning had they not done this particular thing we wouldn't have achieved such outcomes

Interviewee: I think the team has achieved what the team achieved because there were trusted, their input was valued, p0eople were treated as professionals within their field and they w2ere accoun5table for delivering professional services and outcome I think the big part of it although people were accountable for outcomes and we all knew all though we are running against the clock, there's something more than just build8ing with what we are doing it's like there's something magical about building and refurbishing universities ask me to build an Audi show room, honestly I'd die from that to aircon the box for fancy cars as compared to building a laboratory, a library or a lecture theatre

orb a campus canteen. There's value in what we do, it's what we do on difficult projects because at the Audi dealership it's the boss who then says this thing is wrong, do this do that and what not we not having this against that and so on and so forth, any university project had at least 50 designers which 1 of the professionals out of the 49 is empty and it's critical to unpack that. So I think part of the key things really for people to understand is that what is it that we are doing, money is scares and we have an amazing opportunity with the DHET putting money for the first time after really a long long time from 10 years ago into infrastructure it is the university's money and I think on of the key things also on the advice of the key management team is that the contingencies belongs to the client it's like although we budgeted for it we don't put it in the to the DPL contractor and the project manager may approve minor issue and then it's comes up to the management team to say why and the there's a limit we have to approve and then it has to go to on out and trust before we go like one up we box it up all the way until we find another solutions to it and address the problem without increasing the cost and sometimes it was unavoidable we had to pay in 3 million rand on the school of public health because the wall collapsed, there was a joburg water pipe in the corner that nobody knew about and when we excavated the basement parking lot and when they've done the retaining all it started to leak a meter and a half that way popped our way, that's it we have to deal with it and that was a genuine unforeseen which was a risk and a cost increase and because the controls were in place notified early and we dealt with cost implications, got the governance approval like early so it's not a surprise when we finish a project and then there is a 3 million4rand additional cost to the university, still busy with the basement site of the project and we say this is not in our budge5t so I think this is what made for a successful team to think but not like micromanaging, that space to breathe, space to think and space to lead their teams, I do not sit in project meetings, that is the project managers domain, I meet with project manager if I need to sit in meetings I've got the wrong project manager that's the project manager's job as a professional to manage that layer of the works, so there's no the run around project manager, there's the architect that discuss the project with the project manager, you don't discuss it with me because that's my man in charge, that's my Dirk and Marietjie you see if you speak to then they will brief me and it's not about an arrogance this is about keeping those layers of accountability, and they will brief me and if we need to and then I'll step in and say we need to have a risk management meeting.

Interviewer: so that when all the others are included?

Interviewee: yah

Interviewer: yes you did talk about how you ensured performance and it was through reporting so if you were to summarise spencer's role what do you think was his role in the entire programme?

Interviewee: chief whip! Production, quality, safety, time and cost is you do not make spencer unhappy including me, spencer's job was to ensure that the project managers deliver and also make sure that the gets the input from the university so that he can make the project managers as much as I thought of that I was the link between spencer, development and the university and spencer is the link between the project manager, myself and the university because ultimately spencer ad myself are accountable to the capital works steering group so spencer worked both sides and it is the hard why it not that because there is a contingency then we are going to spend it, that contingency belongs to the program, if we don't spend it we can start another project earlier or we can do another project entirely, for now it is just a contingency thing within that project, but it actually belongs to the capital works programme 8if we not going to spend it we not going to spend it and there's a discipline to getting the professionals to understand t5hat, the contractor at hand must also try to understand that you need to apply your mind into and we battle with that academics ask to a certain degree with a space

indifferent and everybody is, refurbish your first kitchen at home and you'll understand what you haven't thought about and why you need an architect, but everybody is a builder's warehouse expert, it's like everyone is a master chef after watching one episode

Interviewer: you've actually covered the majority of the question i had today

Interviewee: in short it's fun, you cannot work with people that are not going to enjoy it because it is not an easy job, it is amazingly rewarding job, there's a lot more easier thing to do out there easy and nice as rewarding as working for the university the complexities I am not mot quite sure about that, but that is why I am still here after 15 years later it makes a difference and it is also that thing because the budget are tighter I clench when I see shopping centre refurbishments and then you see another shopping centre refurbishment going into another 300 million rand worth of refurbishment, the value preposition for me is not there is like with than 700 million you know how much can do with that money.

Interviewer: I heard that the same team was actually used for the new universities, but with the new universities it was more advanced.

Interviewee: more advanced and that was like round 2.

Interviewer: you guys knew what you were doing

Interviewee: yah and their roles had changed, in the new universities, spencer became the lead he took my position, he was the overall lead for the programme my job was the university's representative agent as the implementing agent was appointed like spencer and them so spencer and the core team basically took the bulk of the responsibilities from the new universities side job so my job sort of shifted like the legal procurement, back office support, spencer was the key like leader the project leader on that one. Wits was the implementing agent I took on a governance role there.

Interviewer: so there were still project managers like maritjie and them

Interviewee: no maritjie and them were not involved on that one; there we procured with public tender for project management firms. We got Aecom at the sol Plaatjie University and Ariya at the University of Mpumalanga

Interviewer: so for wits going back to the wits capital project programme was there a close out report for that particular for programme?

Interviewee: it's on-going we are, so no there isn't a close out report so no

Interviewer: so they'll never be because it is new projects upon projects and so on

Interviewee: have you I'll check if it is in the public domain as yet, but you need to get the close out report for the new universities because there is excellent information there.

Interviewer: yes please

Interviewee: we just handed over last week to the DHET, there a beautiful chapter on procurement, on delivery systems, on scoping, the role of the client, there's fabulous information there, and you need that one. So put a week aside to read the 380 pages

Interviewer: and highlight the important things because I think that report will cover almost there….

Interviewee: that will actually be the source of you know what the mir4acle about that project is that against all odds it came on time, there was no client, there wasn't an academic program, there was never a site in the beginning

Interviewer: they didn't have land

Interviewee: exactly, we didn't have architects so we had to have an architectural competition and procure for like a full speed of consultants that's going to be like your base source of information, that is a beautiful report

Interviewer: so I think you've covered most of the questions

Interviewee: okay

Interviewer: let me quickly go through them I know the team members, I know their roles, do you have any background experience or skills that actually contributed to how you performed your role?

Interviewee: I am civil engineer by training, I started work in 1995 in the public sector I had a bursary from the city of Johannesburg so I worked for them I was working for the civil engineering department which was a great one so I worked for a very long time and I actually knew Ron from there thinking about that I worked in the Soweto branch we had the 4 metro councils so I worked for the other memebe3r of the council we were seconded that way to the other member of the council. Ron was leading the water something refurbishment programme, it's the first interaction I had with Ron almost like 20 years ago, I had forgotten about that, my experience is in public infrastructure, public infrastructure committees, public infrastructure governance, working in committees I made a mistake thinking that when I came into the new universities they'll be less committees. It was mire committees and equally more complex governance structure as at the city council, universities are just a little bit faster, but they are faster and they have the right leadership they had have the right governance structures and they had the right management attitude, because if you micro manage that doesn't come out across because I can send you so many papers today and you put them in your desk or you can let me to get on with my job and keep me accountable in a governance structure so there was no executive people goggle when I tell them that I have more than 2500 emails in my inbox, hey safety reports, they drawing registers, there's site meetings and it is impossible to read them all so my rule is if there's something that you need an executive input can you put it in an instruction in the email an you flag it, other than that I will scan it through the information because I have a professional accountable people managing the works, but if something happens and somebody get injured, you don't manage it, you bring it to me that very second and I do not find things out like later because if I find things out later I cannot manage the risk and that's my job so that's the fun part and the other part is about keeping the client out of the work, there's a role for the cl8ient in the beginning, but the client cannot be involved in the nuts and bolts, they'll panic when we do the excavations what you see of the inside is not the room, the room is going to be on the outside, they all do that in the beginning, and you know what funny is when the first sort of underground. I think the key thing for what makes this work is self-driven individuals, it is not easy to manage they all are strong leaders straight in the field, they are people that like accountability and that do not shy away from that responsibility, problem solvers, but they are also people that you need to support and you need to get out of their way so that they can do the job and you need to trust them which if you do not trust them you might as well out them in a straight job tie their hands behind the parking and ask them to do their job. Sometimes my job starts at 5 o clock when I get to my job the rest of the day we can't work in a formal that you have to make an appointment to see me it doesn't work, there a problem

you work in, there a quick question you walk in sometimes I feel like I can just put a steel door and say you can't walk in on my side but that's the nature if the work, things run on site and once it runs it runs

Interviewer: I think I needed a document which shows the delivery outcomes like for the projects such as FNB…..

Interviewee: but FNB was not that successful, FNB was a lesson learnt the wrong way and it was still early in the game because you didn't or you didn't tackle this kind of work if you don't have the right systems, procedure and people out in place

Interviewer: I heard that wit5hin the programme you started with FNB and the development5 hub and those ones were not a success and that's when change was initiated

Interviewee: they were a success in terms of being completed, but not in terms of the cost management, but also in those days to think that you can run it in the normal capacity, in the normal way of doing this and sometimes people like myself included are just big-headed, that no we can do this and it's like no you can't you need to breathe because maintenance and operations is a such a huge job, this is not a cleaning services in the 7university it's a massive job and it grows in complexity it's like now you want to put a development programme in the middle if this things and you think you going to do the maintenance and operations as well it[s like honestly park your ego and ask for help

So drop me an email with those, I will clarify the new universities report if it's a pubic document and I'll send electronically and you need to open the one that says index forget about all the other files, the other files is where it pulls it's reference documents from so when you click the index it will give you the report in like a web format and if you want to see the individual report you must go into the other files, but if you click on the architectural completion click within the web page format, if you want that as a pdf document look at the other folders

R3 interview transcription: R3/new recording

Interviewee: recently we spend, the expenditure is about 1.6 billion for six seven years on the wits programme and within a very short space of time we spend the amount on the new universities so it's the same team.

Interviewer: it was the same team, but just different program

Interviewee: well it was sort of more intensity because we spent in one financial year 1.3 billion rand so you can almost take it as six years condensed into one

Interviewer: I actually wanted to ask about the team members? Who were the team members? And what were their roles?

Interviewee: we've got a close out report that's where you gonna get better information from the new universities, then the first section of wits because what has happened is that we have developed a 300 page report as a close out for everything that has happened on the two new universities, but we haven't done that for the other projects all we've is a paper Sam wrote

Interviewer: and for wits were there any close out report?

Interviewee: no it wasn't, the reason why we you know when you spending that amount of money in such a short period there was an agreement that it would be part of our terms of reference that we would give a comprehensive close out report so this report you can get from the wits library, we could speak to Sam about it, we have given it to the librarian so it will be coming out in the public domain, but I prefer for you to get it from the library rather than direct from me, if you understand what I mean. Now what we've got is, you can come sit next to me so that we can. Wits governance and oversight was Emmanuel Prinsloo, client delivery manager was spencer Hodgson, programme and project manager Dean Barnes, when you talking about program and project manager he was more of the back office side of things, he was not more actively managing projects are you with me? This is a little bit of, but that's really rather client support than delivery team activities because the way we constructed it, the way we structured it is we had a client team and we had a project manager, and we had designers, specialists and contractors so the day to day project management was done by through a competitive procurement process so in other works, the idea is that we had one what we would call the delivery team in sol Plaatjie and other one in Kimberly so when we talk about program and project at the higher level is more of the back office stuff, you know what I mean?

Interviewer: but not the actual project manager per project?

Interviewee: No, No, we had consultants doing that, but with wits we started with a firm of consultants and that eventually or were migrated into the university staff, they were contracted in so they had a 3 year contract or whatever it is and providing services, but they started off as consultants now remember on the new universities project the idea was that wits was always going to be a care taker, we were never gonna run it all the way through because you can't build on another man's land, but when he's not there you could build to get it going and the whole idea is that we would never go through to the construction phase, but problem is that it is not the core business of the university and remember those signing the contract with the university or everyone remember if anything goes

wrong they are liable so it was because of delays getting staff appointed at the new universities and the scale of things, politically there was huge pressure to resolve it and wits said okay, I'll do it for you so the idea is what we wanted these team be handed over so that these would stand down, you're with me? So when you say project and project manager it's more in that context so remember on the academic side now and this is why I say it is better to look at this because this is well documented and it is not so documented on the other. So Dean was also involved, but he was a higher level programme lever, but then we had project managers that actually was sitting in here that separated the client and yes Marietjie was in the team here and she was never up there so Marietjie's firm tendered to do this, but weren't successful. Then we had the project administrator, Monica Reuben, spatial planning and adviser was Ludwig Hansen, I think you know him, he is at wits runs an architectural practice and he is also a part time lecturer at wits, technical services adviser that was Christine she was part of the problem is you know I should just say the program and project management, the issue with the new universities was that it was a bit of a different spin because it wasn't the case that you had an existing new universities and this is what I would need for the building as this, we had a blank sheet of paper, you had to get an academic program going because you don't know what you're teaching and you can't build buildings for. You can't build a building and say right we've built a building fantastic where are the students?! So we had to do the whole academic planning so dean was very involved in managing because we had 2 streams one was infrastructure, the other was academic planning so we had to plan curricular as a draft and even all the standard operating procedure and everything else like that for the university so then when you appointed the interim they didn't have to start from scratch they could adopt it or adapt it, but it was a starting point, you with me? Then we had the ICT services adviser Martin Grobler they was a lot of ICT involved and then we had furniture project management we had to supply I think something like 12000 furniture items and equipment because you can't have or open up a university with no desk, no laboratory equipment all the laboratory supply and things like that, all of that we had to do so you needed someone to look after that? We had procurement and delivery adviser it was myself, procurement adviser Lyn supported me, development and stakeholder adviser this was a new person we never had brought on he wasn't part of the wits team, all of us were involved at wits.

Interviewer: even the furniture project manager?

Interviewee: Yes, look when we did the Wits junction, wits junction had 1200 beds, now there fridges, stoves, the furniture, the bed lamps, the cupboard, all the loose fittings, so Nigel was involved in that look we cut our teeth in that. So mark burke was brought in because there was a lot of stakeholders to manage and engage particularly with the communities and something like that so mark was really communication and staff like that stakeholder engagement and what not now institutional planner this person was purely to get the academic programs and structure of university what are the standard operating procedure, how are they gonna function so it had nothing to do with the infrastructure that was all part of

Interviewer: so he was part of the other program because you said they were two?

Interviewee: yah, part of the other program. So dean and spencer would manage the two streams and then you gotta pay all the contractors we had something like 3000 payment certificates so that's where you see, it's back office. Then what you got is Prof Gina I think he was a previous deputy vice chancellor in one of the universities so she did the academic program so she was part of that other stream. Then you had the engineering services advisor now Willie never really played much part in the wits because we didn't have much services you know it was existing, but now you had to get land assembly, you had to get to interact with the local authorities, it's services, bulk services and the rest

of it so Willie was brought onto the team, and then we had the administrative support and it was more the admin, taking minutes of the meetings that type OF side of things and that was support to DHET to a large extent because remember there was gonna be a lot of interaction with the client for the rest of to and things like that and then we brought in at a very late stage a management account because one of the things we did not really appreciate as we went along is ones you've procured an asset you've got to put it into an asset register and it's into the whole financial system the whole financial accounting when is it under operation and when is it transferred as an asset and all those kinda things that wasn't a big issue when we were dealing with wits because that was all in place and etc. but now it was a little bit of complex because not all the land were being transferred it was still promised in government because if we waited for public works it would still be another 10 years from now before we got it going, so that's sort of the team. That's why I really believe that if you wanted to get a data to work with is to because the problem is you gonna battle at wits it's gonna be fragmented over a period of time If you know what I mean. The outcomes were excellent because remember the outcomes sold the project for us to do the new universities today because they could have said thy going to get public works to do that. So what we've got here that's why I say it could be tremendous for you to go through it because we got the MOU the contract, the context, the drivers, the project evolution the project governance, the academic and institutional development you can get an understanding of that stream, you then get the land assembly, feasibility, early implementation, spatial planning, architectural design and competition, procurement arrangement, design development and project delivery goals , client focus on development, architectural buildings and architectural buildings in the other university, expenditure and value for money, this will give you the breakdown of the cost of the delivery team, broken down into what was the academic planning and what was the infrastructure side of things which is very difficult to get information on that, handover and close out, so you'll se for example on the…

Interviewer: so there was nothing documented for wits?

Interviewee: well, I wasn't involved in documenting it.

Interviewer: who was involved in it?

Interviewee: well, the thing is this is rare and I've never seen anything like this, I've spoken to Prof George Fourie who was at the University of Singapore and he did say that he has never seen anything like this. Will Hughes who was Sam's PhD supervisor has never seen anything like this. You see it costs money, and it takes an inordinate amount of time and if it wasn't for having spencer around, we wouldn't have had this so I spent a lot of time with spencer developing and polishing it together, Mark Burke as well so we had money set aside in the handover period, because remember there was also an ulterior motive in that it's because you are handing over from wits to other universities, if anything goes wrong…you with me? So this is sort of the record if you want to put it this way so what you've got is expenditure going to the main three cost centres so we've broken it down into project cots, academic cost, feasibility, general office and management, infrastructure planning, institutional planning, delivery management, so in other words you have a breakdown of which describes what is fairly under high level in all of this, so it gives you the full picture if you with me now if you're trying to, are you doing a PhD or your masters?

Interviewer: I'm doing my masters

Interviewee: you doing your masters, okay it's not a problem either way I just couldn't remember, now the thing is what you want to do is you would like to link this in or not?

Interviewer: I want to see the impact or what role was played by the team into achieving successful delivery.

Interviewee: well, that's a very good question and at the moment I am writing a very comprehensive publication on that which would be published by wits and the engineers in poverty which I would have hoped to finish it this weekend, but it seems like it is every weekend, but I'm nearly nearly there. Now this document is basically, I am publishing it to celebrate 20 years anniversary of engineers against poverty which is a national charity and it is London based I am one of the trustees so wanted to get the work out and things like that look I was doing something with wits and later on to make it a joint publication so it would go out so I've had it reviewed and all the rest of it so I'm just putting the last few things together, but what had emerged in going through it because I am not an academic I've never been involved with the universities, I have a senior doctorate, I have never done a PhD or masters or anything so I'm not sort of a traditional academic so I was trying to join the dots together to get things going now in preparing all of this I think if you wanted to do something a really worth while all the bas einformation is here, chat to spencer because he was king pin.

Interviewer: yeah, I did have a chat with spencer; he did tell me or gave me the ideal of what his role was

Interviewee: but I'll show you how to link it together, it is going to be a very worthwhile topic

Interviewer: okay my focus was on the team itself and how it was structured and the nature if the relationship amongst the team members and the dynamics and how they worked well together to achieve the outcomes achieved, at the same time in literature they say that with every team there is a leader the person who ensures that there's proper coordination and that the team actually works well so I actually wanted to get from his point of view or his perspective what was his role and then he asked me to get other people's perspective

Interviewee: I'll tell you, let me not try and steer you in another direction, if you wanted to take it let's just see here, this is the only authoritative guideline that I've come across as the client guide, now if you look at this they will tell you that the single most important factor in the successful delivery of a project is the client so if you have a look here if you go through this document and what I did is I scanned it and I can just email it to you a scanned copy so this document talks a little bit about what makes a successful project and if you go through what makes a successful client you need, a project requires a clear vision, clear about what they want and articulated well, spencer is one of the finest people I've come across to have a vision he is a visionary, his background is architecture even though he hasn't really practiced architecture I think he hasn't designed a building in his life, he was one of those and he'll probably don't say any of this to you so that you understand where he comes from. His father was the founding member of Mkhonto we Sizwe, his mother was Walter Sisulu's personal secretary for the last 20 years of his life, his mother was imprisoned with Ruth first and they fled south Africa because his father was also a joined or one of these bad associates of nelson Mandela, so spencer left south Africa on an exit visa when he was 12 to join his parents in the UK. His mother ran into the apartheid campaign in the church in England and he trained in west Germany he then joined the Tanzanian ANC camps so he comes from a whole political thing where he sees and he is sort of old school ANC that was fighting fro values, whatever you do was driven by values is driven by passion and that's what spencer is all about. Now if you come into the role of the client and what happens now if you ask what his function is an I think this is the thing that is very very interesting and spencer also operated as an executor he was the first executive of CIDB, I don't know if you knew that, and the way he works is that he's had a vision and he is mapping what people are doing, are they

supporting the outcomes of what he is doing or working for or not so everything is designed around what he wants to achieve so if you ask him and probably why he is a bit reticent to what he does is it's not being easy and I can't find it in literature and a lot of things around it and this is excellent, it really helped him in his role, but there's a lot of stuff that's not stated so let me try and put it to you this way, what is the role of the client if we've got a team here doing all the let me get the magazines

R3 Interview transcription: R3. 2 recording

Interviewee: to delivery team stakeholders, so what is the delivery team? The delivery team is the built environment professionals and contractors that are doing what they know best, time, cost, quality, now time, cost, quality needs to respond to values, can they deal with values of what the client wants?! They get directed, they don't have the vision for the project, they doing the work, client needs the vision, so the client initiates, commissions, pays for the project, owns the business case and leads the project now leading the project is not doing the day to day work, it's giving the strategic direction to allow to come to the end result because remember these people are not responsible for the business case, it's not their business case, you with me?

Interviewer: Yes

Interviewee: so the project manager, this is the structure we used, so you'll find as well like on the wits project as well as the other wits project it's the project manager who manages and does all these good things, but the client had to provide this, now we refine this overtime, but it is still essentially what the thing is, so Spencer was asked by DHET at one stage, one of the DEGs, we understand what dean does, Dean is managing the academic planning, institutional development, infrastructure plan, getting the finance from treasury, paying the service providers, accounting for the money and all the rest of it, that's the project management, initiating projects in other words we need land assembly, we need a land surveyor appointed, we need a town planner appointed and then we'll do as a team we'll put them all together so one day Dr Parker asked Spencer what does he do?! And he described his role as being like a conductor in the orchestra, look at it like this the violists know exactly what to do, the saxophonist knows exactly what to do everybody knows what they doing, but someone had to pull them together to get the end product, you with me?

Interviewer: Yes

Interviewee: that was a very good analogy, so now you've brought the team to do all good things, but they gonna go in different directions unless there is a strong version to pull them together and to orchestrate them, are you with me?

Interviewer Yes

Interviewee: so his role was basically that, if I to sort of put it slightly different, what is his key role? His key role was to get rid of blockages, if you think of it this was, I don't know what your background is, have you had much project experience?'

Interviewer: Yes, I am a quantity surveyor, my background is quantity surveying

Interviewee: Okay, so now you sitting in the team there, you can see that things are going wrong, community is revolting, costs are going up and there have been delays in claims coming in and there are all of these things coming in, can you solve all those problems?

Interviewer: I don't think so

Interviewee: you cannot, it is not your job to sort them out and if the client does nothing, the project just goes costs balloon everything goes out, spencer's role was to look for the blockage, solve it, so that this team can work as effectively as possible, does that make sense?

Interviewer: Yes

Interviewee: so the role of a delivery manager is to get rid of the blockages, to orchestrate the team, give them a vision, and give a direction, you with me?

Interviewer: Yes

Interviewee: and unblock things, so let's look at spencer's value system and what makes him globalistic; he believes that if we gonna work collaboratively, this collaboration is going to give a better outcome, instead of them and us fighting dog eats dog and the rest of them, if we work as a team you gonna make more money, he's gonna get what he wants so it's a win-win. Now what turns you off? Late payment! So in his mind and I am sure you've heard him say that intuitively, if you don't pay in time you've lost all the credibility with your contractors I can't ask contractors for favours, I can't ask them to accommodate me.

Interviewer: he said that some of them won't even tender cos they know that they'll have cash flow problems.

Interviewee: exactly! So if he heard there was a payment that's late, he would go into Wits offices and track down what the problem was, that's his job, to get rid of the blockages and create a conducive environment for delivery to take place, that's his job so if anything threatened the project, he got involved, if everything was going well, you never heard from him, if there was an issue around procurement, he was on my case daily, If there was no issues about procurement, I wouldn't hear from him for weeks, so his role was wherever there's blockages he would climb right in and get rid of them. If you think this way in your experience; can you think of a project that has been successful in your mind where the client has been shocking or poor?

Interviewer: No

Interviewee: think of the successful ones, think of the client, did the client get rid of the blockages?

Interviewer: to some extent yes,

Interviewee: you can't just wave a magic wand and everything is gonna go, you not gonna do fees must fall for sure, but they took over the space that you as a professional team could not solve, so you see if you start thinking about that, now you not gonna have every project running perfectly, there are some things that are not gonna be resolved very well, but if you have a client that is willing to deal with these thing and this is what I'm saying the client team, the delivery team, the delivery team if you want that to operate efficiently, the client team needs to solve the problems this one can't, not to now interfere and say you should design it this way, you giving the vision, you giving the direction and you're accepting the outputs, but if you want to get project outcomes, you need vision, and you need to take ownership of the business case and if the delivery manager his job was to please wits university will please DHET so he took over their business case and said this is mine an di am gonna make it work, this is why there is little literature discussing this

Interviewer: there is very little literature on this

Interviewee: no I heard, I might with the chief construction advisor in the UK government Peter Enson and I asked him for a client guide material and he said this is the only book that he has so you begin to see the roles, so spencer's role is extremely difficult to pin down, but it comes down to what values do you want to see, so he wanted to see collaboration, he wanted to see projects designed to a

budget, not pay as you go or pay for what is designed, he wanted products that were aesthetically pleasing, he wanted environmentally sustainable buildings so for example we never got any green star ratings and for any of the buildings, but if it was submitted we would have got it, because the design covered not ticking boxes, but to actually have a real impact so it's got all the I mean the taps have the cooling system where you take water from the ground and it comes through the pipes, so we've got sort of natural cooling in Kimberly without using electricity so that was all built into the slab all built into the designs it has a lot of green features that were built in, but we didn't tick boxes of what goes into green star this and that and the reason is that he had a passion that he wanted to do a skills transfer the legacy and all of that left behind, participation of local communities etc. so if you are now confronted to get a green star rating, it would have cost us an additional 2,5% because you pay all the consultants to do all the design, check list, foundations and all of that, so he said hang on, let us not invest in that, a better investment would rather be to focus our time that we focus on what we call the development goals in other words black empowerment, focusing on communities, focusing on skills transfer so we can give you a very detailed record of that so it comes down to prioritising these objectives, so for example he believed that it would be good value engage someone who is really good with environmental sustainability to coach the team in other words to participate in some of the design meetings to influence the outcomes was far better than getting a tick box approach, are you with me?

Interviewer: yes, yes

Interviewee: so in other words he balanced all these things he wanted to see as part of his vision, vision, values and these values guide the decision making in terms of what he is going to do because he wants an outcome, you see I was just looking like here I was reading this on the weekend, this from transaction and enterprising a new way to delivering high performing infrastructure makes a comment here where it says on time and within budget, is no longer a math, government and owners will need to be more demanding and focus on clearly defined outcomes and improvements in efficiency the supply chain will need to respond and commit to collaborative and continuous improvement which is more or less what Spencer wanted, so what would take is the whole procurement strategy, we've got the framework agreement contracts and long term relationships all those things that you've heard about that happened at wits wasn't an accident it was a belief that if we structure ourselves we'd have a gooder project outcome.

Interviewer: and that happened actually.

Interviewee: yah you saw the very tight tolerances, very trying circumstances that's because you've built the culture to take on spencer's values that wouldn't have happened naturally.

Interviewer: okay I understand. Okay Ron in terms of the roles, the team member's roles, remember they called you guys the bull dog team…

Interviewee: did you enjoy that?

Interviewer: yes I did actually, it actually gave me a clearer perspective to my research that this is not all about having…. Yes the procurement strategy and contracts play a big role and that's where I was doing my honours research, those procurement contracts, those procurement strategies are actually done by people…

Interviewee: so let's try and take this one of the things that I find very interesting, AECOM were our project managers in Kimberly, they have had since the start 27 staff trainings, this team once they were engaged in the project not 1 left.

Interviewer: talk about consistency!

Interviewee: you got it?! The way this team was assembled, you'll notice that there's no affiliations here, spencer hodgson's and associates, dean Barnes is enhanced projects, Monica worked for enhanced projects, spatial developments is Ludwig Hansen and associates, urban design, all have their own practices, architectural advisor she's actually running the projects at sol plaatjie she was freelance, he runs his own company, own company, own company, own company, own company, all of these are individuals and we were not interested in the companies, so this is taking a client function and outsourcing it to a team of individuals that come together with what Yunus spoke about chemistry, now you see if we run through the team, but I am saying if we talk about the synergy of the team, I've worked with spencer since 1999 when he was a chief director in public works I worked with him, when he was at CIDB I worked with him, when he worked at Murray and Roberts, he never set a foot in Murray and Roberts, he was seconded to wits

Interviewer: Yes, I actually heard that he was a donation to wits

Interviewee: yes, he was a corporate investment gift so I followed him around wherever he's gone he's brought me along and he's brought Dean Barnes along. Dean goes back even longer so I think they might when spencer first came back to south Africa from exile, spatial planning since the start of 2008, Ludwig Hansen was involved, Martin had been involved a hell of a long time, Nigel started at wits, Alyn had worked with me since 1995 sorry 97.

Interviewer: so you've been working together…..

Interviewee: yah we we've been working together within the same consulting company from many years ago so what I am saying is that if you go through all of these, these are experts in their own right, companies were there, but we were not interested in the companies, you came to the client team and you left your company behind

Interviewer: you bring your expertise!

Interviewee: you bring your expertise, now there are interesting facts that would come of this document, that if we looked at the expenditure, to cut the long story short so we don't waste time, when the construction was running fully, that team cost about 4,5%

Interviewer: 4, 5% of the construction cost?

Interviewee: of the total cost, construction and professional fees, now what is interesting is we had about 5.5% negotiated contracts so in other words, that time was assembled as individuals through negotiation, you with me?

Interviewer: yes.

Interviewee: so the 4, 5% is lower than that because the other was for the academic planning and institutional planning, they were head haunted and brought in so all the rest of that was competitively tendered so everybody in this box was competitively tendered, but this was assembled because if you cross the line you are part of the client.

Interviewer: okay Ron wait, so in terms of the assembly or selection, who was responsible for selecting the team or who was given this role? Did he know that if I selected Ron, mark and dean, this is what I am going to achieve?

Interviewee: you see, it comes down to relationships because we've worked collaboratively for years so when he the minute he came to wits, the first thing he did is that he got Dean and myself appointed.

Interviewer: as individuals or companies?

Interviewee: the idea was to appoint us as individuals and our companies were second

Interviewer: so you work for wits now?

Interviewee: yes

Interviewer: part of CPD?

Interviewee: Yes, okay, then I would bring in others if need it be like Alyn came along, but he wanted me, I needed support. So if you went through the roles and responsibilities, we've gone through the client role, we've went through the project manager, the project manager is very much managing some of these aspects and these aspects are very different to project management.

Interviewer: okay Ron, before we go down, wits governance and oversight, what was its role because he definitely or was he part of the team?

Interviewee: yah, let's go back again, let's go back again, Spencer was seconded from Murray and Roberts so technically he wasn't an official, so Emmanuel was the staff member because you need to have that linkage, are you with me?

Interviewer: yes

Interviewee: so although spencer was seconded to wits, he was like a contract worker to wits, he wasn't an official, so Emmanuel's role was that he was head of camps planning and development so he was taking overall accountability from the university point of view so he was wearing the university's hat, governance, linkage, how systems work in the university, what structures need to be followed, so he was looked at looking after the university's interests,

Interviewer: so he was the link between wits and the team?

Interviewee: yes, so spencer was the conductor in all this and the rest of it, delivery manager and so he would work very closely with Emmanuel, because he's gotta adhere to all the systems, institutional process all the rest of it, which Emmanuel understand and spencer is the outsider

Interviewer: and spencer will bring that into the team so that there's a link?

Interviewee: yes, then what happens is Dean you sorted out, project administrator and now from a governance point of view, what is the first thing that goes wrong? You should know that as a QS, if finances are a mess, everything collapses in a project and if you look at projects that are going the wrong way, the finances are in a shame, so Monica's role was under dean, she worked for dean, but she was responsible for keeping all records of contracts. Things like that so you've got your contract register, remember there's also authorisation for expenditure, procurement plan, she would keep that updated because every time we wanted to increase the value or procure the services of anything in

such order, we have to get the client's permission first, do from the governance point of view, the critical things that she managed was the procurement plan, the contract registers, and all the payments that were made. So if you wanted any record in that Monica was your point of call so he was keeping the background going of all the data gathering, the consistency of it etc., etc. so she would check payments that are coming in because the project managers they would have the professional team to them, so they were also certifying because they were the cost controllers, well, cost controllers…the project managers performed the project management, and the project leader and the contract manager and the procurement leader, so they had 1 2 3 4 functions so in other words they were managing the professional service contracts and certifying payments because they were closer to you can't get Monica who had never been on site to so what would happen is they would certify all the accounts that would go through for payments and Monica would check it, would check it against authorisations and purchase orders and all the rest of it, and then it would go for payment, because if you really think about it because there's only one role that the client needs to pay al he do is pay, money, so she was kingpin on that. The spatial planning advisor is if the client is gonna exercise leadership and direction, they need to have professional support because if you don't have someone briefing the architects you gonna be heading cats, I'm sure you've seen that

Interviewer: yes I have

interviewee: so you suddenly see things going out of control, they over design and their egos come in the way, and they going to manage and say this is my monument building, it's like the other day we were talking to one of the project managers and said how do you deliver projects on budget, and spencer said very easy; I have a control budget, I agree the control budget, and the architect is not allowed to issue anything to the contractor that hasn't gone through the QS and the QS's job is to say if there's budget for it, if there's no budget for it, you can't have it, you can only have it, if you've got a saving from somewhere else so in other words the role of the delivery manager is to support the cost control as well because if you are the Qs and the architect says I am the principal agent this is what we do, you're overruled, whereas the client is holding you accountable for cost control so the delivery manager is going to be setting the budgets, agreeing and doing very close liaison with the cost controller, in fact we don't call people QSs anymore, we call them cost controllers, cost consultants, cost managers whatever you want, it's got nothing to do with qualities.

Interviewer: definitely not

Interviewee: do you know what I mean?

Interviewer: yes

Interviewee: because that is the most critical part of the project because they need to have at their fingertips what is cost control, and Spencer need to be briefed

Interviewer: there's monitoring as well

Interviewee: exactly! Because he's gotta have the feels about the decisions of when we start, when we move, what is still left, how we going to etc. that's going to come from a very very rock solid cost controller, so the architectural briefing is for you to brief the architects and what the client requires and what the expectations are and then remember that the client is also gotta consent to the rules and you know on the projects you working with, the clients are so weak, it's whatever the team tells them they just run with it, do you know what I mean?

Interviewer: yes

Interviewee: whereas if you doing it correctly, you need to have the client that at each end of stage you are accepting the outcomes, now if you don't have specialists architectural in house abilities if you wanna put it this way so Ludwig can take on any of the architectural spatial planning he is an expert in his own right, then you've got the ICT you need to have that person as well to brief on the ICT, the ICT is part of this

Interviewer: part of the client team?

Interviewee: yes, giving the briefing on what ICT is, managing the process, you not doing the design, he's giving the strategic actions, we need to have a contract out for that, we need to have sort of that, we need to have that. Furnitur4e is what are the furniture requirements, trust me, it is amazing, when you look at this here, we had the furniture figures somewhere here, I can't find it remember where it is at the moment, it might be in the index, it's something about 4.5% of total expenditure and generated 200 unique items, the fitments it's massive, it is very complex because it has to be managed. To get the right timing, the right furniture equipment because if you don't have the AV equipment in place you can't start lecturing, now we took over that responsibility, we didn't hand it over to the project manager so it's Nigel, Nigel ran the furniture what are the requirements trying to get the architects chase them, what are the requirements matching them with the client, what do you want for chairs, what do you want for this, lot of client side of things.

Interviewer: and then there's you

Interviewee: yah, myself, the core team was Emmanuel, spencer, Dean, Ludwig, Myself and Mark, the rest provided support, in fact when spencer agreed that wits when i5t was agreed with DHET that wits would do the job it was on condition that spencer is to be supported by Ludwig, Myself and Dean, in other words if you get him, you get his team which is the team

Interviewer: so he's a package?

Interviewee: exactly a package, he told wits legal that if you get him you get Ron, so I did all the procurement so look we came as a core team that we would support him at meetings, but we would have our operational functions if you with me, but we would collectively come together at team meetings with the consultants to come pick up where the issues were Spencer was a minisit meetings because the project managers wanted to use meetings to get information to manage projects whereas he wanted to find out what was going wrong.

Interviewer: so you obviously had to separate that

Interviewee: well, it became difficult at times, but something had to be managed because there is not point of having meetings that is trying to get through progress you see as Martin Barnes who wrote the NEC contracts he said what you want is that you need to manage time, cost and quality so you shouldn't be thinking about what has happened because you can't solved what has happened, you can't do anything, all you can do is how can we finish the project to achieve what we need with the time left and with the money available so in other words that is where spencer was focussing, he wasn't focussing on whether this person did this and that, you couldn't care, he wanted to know is that and remember this projects r7un on a very tight deadlines we need to finish at that particular point and we needed to achieve it within that budget.

Interviewer: and at the same time, remember there at the conference there's someone who said that there was a lot of uncertainties, so some for the things were still not by the time you were appointed and before you started the land was still not acquired, so I feel like that was amazing because it is so rare to find projects that have a lot of uncertainties to be delivered on budget, it's actually rare.

Interviewee: so look when we started actually 70% of the work hadn't been designed.

Interviewer: and I said to myself this is Gold, I need that.

Interviewer: then the procurement advisor actually I built the strategy and produced all the procurement documents in time you know people follow on when you have your templates and when you've got your examples in place others take it over, the procurement advisor Alynjer kay he did all the tender evaluations provided support to me, checked documents, checked things did all the evaluations etc. and all of that side of things. The development stakeh9older advisor as I said mark burke looked at the development goals and was involved in communications with the stakeholders, keep them he had a very good way with them in communicating with people, he was brought on board because we tried getting a communication consultancy to do it he actually if I remember correctly we asked for quotations spencer just didn't like any of them

Interviewer: any of the consultants?

Interviewee: no and then came across mark and realised and hang on this guy undertook the university, understood vision, could communicate the project issues to stakeholders, engage and integrate that was purely, Craig was doing institutional planning in other words he was putting in place how does council work, what are the standard operating procedures if you have an HR section what are the requirements…

Interviewer: vision and mission of the university? Programs?

Interviewee: well, he was the institutional planning I think we I've got it, you see academic and institutional planning comprised a range of planning and delivery management skills in the built environment, however the team was soon expanded to include specialist services to address the academic and institutional planning, let me see if whether he game me more details in something like that so the institutional planning is like can you imagine, if you remember Yunus Ballim said when he started it was just him, there wasn't even a secretary, he had to design the first appl8ication form, now Craig produced a document I can't remember it was a while ago of a 1000 pages of how to run a university all the standard operating procedures because then, you see you handed over now it doesn't mean to say Yunus has to accept it, but he's got a starting point, he's had 2 years advanced he's now gotta figure out what staff he's got to have he's got basic policies he's got a basic framework to operate from.

Interviewer: was Craigler the Guy who had retired and then he was called back?

Interviewee: I can't remember, I didn't have much dealing with Craig, but Craig also had a whole team underneath him because I remember putting his contract together he had a huge team underneath him if I can pull up his contract and have a look at what his scope of work was if that's of any interest, but it was to assemble groups to look at everything on how an institution functions, otherwise you can't operate a university

Interviewer: you cannot, because universities have policies,

Interviewee: and you can't expect people to hoof it as you're going along because remember we university of Mpumalanga if you look at the enrolments you probably got that document wasn't pretty clear of what was there, I mean you saw the enrolments going up, you can't just have running s5tudents and now we gonna try develop the policy what are we gonna think about, what is our structure so they were experts in putting institut5ional arrangements in place so they provided drafts for everything. The academic planning was to start thinking about what academic programs we needed, what resources were required because remember we were an open university it wasn't just having a building it's did you have a teaching staff in place to do it so they were starting on developing the curricular what the DHET think the curricular would be and then you had an interim council that came in they were then presented with this is what we think should happen i8n other words they as an iter8im council could internalise, engage and debate on that and start expand8ing it5 and making it their own, but it was all about and you weren't starting with a still born child, you had something to start with and that was the whole game. The engineering services adviser was Willie Potgieter he was former director of BKS, very solid civil engineer extensive, auto, township services all the rest of it so Willie got involved with all the local authorities to find out about the bulk services and bulk services contributions because now you putting massive facilities on and you gotta connect with the bulk services, just as a matter of interest I think what we forget is that universities are actually massive institutions. Do you know that the University of Pretoria is the second biggest rate payer in Pretoria?

Interviewer: no id didn't know about that

Interviewee: BMW Pays more than them now if you think of that, they've got a million square meters of buildings to maintain, they've got I got the figures the other day 695 buildings now on some of their campuses they can't expand anymore because the municipalities cannot provide additional and no it is not land it is services, so there's a huge cervices thing that needs to be engaged like in Mpumalanga there's was roads, how do you get access to the university because now 15 000 students in the future and what is that going to do to the road networks, what are you gonna design to accommodate all the traffic, Kimberly for example when we started in Kimberly, the municipality couldn't provide sufficient power for us to run the cranes so for the first 3-6 months we ran with the diesel generators to keep the cranes going, but someone had to sort out with the local authorities to prioritise so the local authorities said well we can get we can supply the cable we can get the contractor for labour and they can supply with the cable and we said we'll start with the digging and everything else, we had to make payments to the municipality all those kind of things, t5here;s a hell of interaction that has to happen with getting it going, and then Willie could also brief the engineering teams and say this is what we've arranged with the local authorities and here's your scope of work for t5he internal services, design for this, design for that etc. and Kimberly has got a huge water problems, water scarcity you know reuse of water all those things to look at

Interviewer: and Jill was the support for…..

Interviewee: Jill was more of I never integrated with her in the entire time because she was really supporting the secretariat to the fortnightly, monthly and quarterly meetings with stakeholders in fact spencer met if I remember fortnightly and monthly with the I'm sure I took notes because I was inv9lved with that so he went to DHET and briefed t5hem with what was happening she would take the minutes and she would be part of the secretariat in all of those meetings so Monica never did that, Jill did that because Monica was looking at the delivery team and Jill was looking at the DHET client interface if you with me because remember we were delivering the universities for the DHET as the funder and we were the implementing agent so she was looking at implementing agent funder

interface secretariat support so she was document8ing the decisions that were made which was critical because it was part of the governance, you could say that Monica was looking at the contract and expenditure governance, she was looking at the client sponsor.

Interviewer: in terms of selection and assembly of the team, what do you thing were the factors that spencer considered?

Interviewee: it's difficult because spencer realised the reason why he brought dean on board is spencer is not a yow should we put it, he is not someone that would sit with the accounts and manage all of those kind of things all should we say project office? Whatever you call it in terms of the client where you gonna house very thing and manage all of those activities, do the planning, do the programming, because you can imagine now you've got these different streams how to pull them together how to keep things going etc. he needed someone to provide him with that type of support and Dean had done a hell of a lot of that for many years. Spencer had worked with Dean because Dean was head of KZN housing which spencer was the consultant

Interviewer: so would you say experience played a big role in terms of selection or to some extent….

Interviewee: yah look experience, chemistry, background relationships that you trust that person to can deliver what you need to do so he brought him into the wits programme to do that as well. So he ran the back office if you want to put it that way he managed the back office and remember as well it would be like spencer would say man need to sort out the land affairs and dean would say we need a town planner, we need a surveyor, we need this we need to engage with that etc. then he would put t5hose into operation so dean was project programme management I find it very difficult with the project programme management terms because they so intertwined and stuff so I think it is the wrong term. He was doing whatever needed to be managed from a governance point of view if you wanna put it is it governance management so0 that's where it came from, Dean had good back record good relationship with spencer he had worked with spencer in the CIDB as well. Spencer had worked with me for so many years o9n the procurement side I'd done all the procurement stuff in the CIDB, I'd done all the procurement stuff on the first phase of development at wits so he knew that he wanted and he knew what he could get under there.

Interviewer: and Ludwig?

Interviewee: spencer met Ludwig on the wits campus when we started work in 2008 so Ludwig hadn't been that long with spencer, but spencer realised that what you needed what master planning because if you building a brand new university you can't do it oooh we got a little building here, where does it fit? Where does it go into the master plan? What does it do in the future because what drives universities? It['s student enrolment so you need spaces linked to student enrolment, do a projection this is not done getting an architect to do a projection all the way to 15 years so Ludwig has done spatial development plans he did with provide 5 year horizons what was possible with space utilisation linked to budget and things like that so it was critical to get Ludwig in and Ludwig had done spatial developments for wits university and what had also happened when we did the 1200 residences we started off with a PPP idea in fact when spencer and I arrived at the university they were in the PPP process and they had appointed a PPP service provider. Spencer and I got involved in that and the first thing that came out was to operate it you can't have most of you what do you call it5, you can't have 80% of the student run by wits and 20% run by another agency with different rules because students migrate to residence so we said chuck the operation out and we looked at the finances and to cut the long story short we got a lower rate from the same bank that was going to

provide the PPP people we got the better rate in those days and that was before Eskom and it's nonsense we got a better rate than Eskom, we got the best rate RNB has ever given to a public body so it changed all the dynamics of making the thing viable then we chucked that out, then we said then spencer said one of the other reasons was that they wanted us to guarantee 95% occupancy and that would be the responsibility of the university to get students, they would have no there's no i8ncentive for them to fill beds and run it so the last thing we looked was if we were gonna sell the spaces we couldn't get a design and build you needed to see how they looked like how they work we had to do all the planning, then it comes down to values, not coming down to detail design, it's what do you value, what are you trying to achieve, what is your vision and we wanted that to a large extent for postgraduate, families and so on so we had to see how the whole thing work so what we got is Ludwig came in and we appointed him to do the whole spatial development and to do the layout and circulation, in other words to take it not beyond into design development but not too finish off design development, early design development stage and then what we did is we then handed it over to the contractor to finish on a development construct bases

R3 interview transcription: R3, 3 recording

Interviewee: Yah so that's were Luidwig came in at that stage we didn't need too much engineering advice in the beginning because look I am a civil and structural engineer by profession so I've worked for many many years in the consulting field so the high level staff was not a problem I the beginning, but when it got to the engagements and a hell of a lot more work it's really kind of essential to bring everybody on body.

Interviewer: Okay Ron, I understand that a team was assembled in the first place and all that, but there is a way in which you guys were supposed to work, was there any structure that you guys were following or was is just how was the team working how did you guys work? Was it we have a structure this is Ron and this is so and so and then we meet on monthly basis we do this and that, was there any way in which you guys were working? Or was it informal or flexible or something like that?

Interviewee: it was more very informal and very flexible if spencer had an issue he would assemble the team if there wasn't an issue what's the point of having a standing meeting?! We had some standards standing meetings and the way things started off was that originally Dean was driving the whole process of putting standard meetings together; Dean wanted to use the meetings to get his information to manage the project. Spencer didn't agree with that because the point of those meetings why have an expensive time while sitting around listening to something that I've no interest, he wanted people to resolve his problems the difficulties so most of them had I can't remember now forthrightly or monthly meetings I think it was m9onthly meetings with the project managers and the cost controllers of the tow new universities and once again it was also in the beginning more tried to get information out of them and spencer landed more into telling us how the project is going because our roles was to pick up on the issues that need to be solved then you see if you had your integrated team there you could say to them do this do that do the other and you could resolve it, it wasn't the case of oh we don't understand the procurement Ron is not here do you know what I mean?! If there was a procurement issue he was there if there was a technical issue he was there and if I was listening to the procurement side I understood the technical issues that I could capture into the procurement so he worked with the core team if you want me to put it like that the core team would come if he needed others to come to the meeting like if ICT was in the agenda if there was something that needed to be discussed in the ICT, ICT would be called to participate so he operated with a core team on a very much collaborative basis you know I think the thing is if you've come to see me two weeks ago I wouldn't be talking like this I've been reading up a bit about these things because I think we do things intuitively now this is a very recent document, very sort of futuristic if you wanna put it that way and it talks about effective team work. ''creating an effective team to achieve common goals'' he sorted out what the goal was, he had the vision and he led it, it needs expertise you see here, it requires deep knowledge of the companies involved in a programme and the capabilities, methods, business models and objectives, so he had Luidwig and this technical people to advise he would phone me up and say Ron advise me on this procurement and if you weren't giving the answers that he wanted we would have very loud discussions about that and the long discussions. You see there's something about positive conflict, this is positive conflict to the right answer and I can tell you in working with spencer a lot of the things I have done I wouldn't have done if I wasn't pushed by him, you with me?

Interviewer: Yes I am with you.

Interviewee: so he's pushing, how do I solve, I have a problem, this is what I want to do with the vision how can I link it to it and his job was to bring technically narrow minded people to tell him how he could achieve his vision by thinking out of the box. It requires a deep knowledge it needs expertise in managing the processes and information and links design and engineering, so he growing on his team to provide that management expertise because remember that governance sets priorities, visions and all the rest of it, accountability and things like that whereas what you're doing with management is that management is about controlling at the lower level so he was trying to set up a broad framework at the lower level that would then take place, but he had people he could go to. The integrator or spencer owns the key planning and management processes that coordinate design, manufacture components the integrator has to have an expertise or has to be an expert in his functions from owning the integrated engineering planning all the way through now we had he assembled experts around him all of them. When you looked at the bulldog team each of those individuals were respected amongst their peers, you with me?

Interviewer: Yes

Interviewee: we weren't the mickey mouse of who is this person, you know what I mean?

Interviewer: Yes

Interviewee: what this has something interesting what caught my eye on the weekend spencer was reading this, I'm getting very excited because it really talks to what he's been doing intuitively what they say is the key feature to the new approach of delivering infrastructure management was what did we do differently? We delivered outcomes now there's a difference between time, cost and quality and outcomes. Outcomes the client is looking at. Now owners definition of value ling term relationships with suppliers, the governance, performance measurement we did all of that. Organisation, coalition of suppliers, aligned commercial interests, effective organisations, integration, capable and digital transformation now they give you, I was just looking at this and thinking about university projects I must actually try to analyse this at some stage. Governance we were value at the centre we were probably value shapes investment program we were probably sitting there now this is an approach to delivering infrastructure collaboratively, regular reports on supplier performance we were interested in performance not where our progress in terms of a Gantt chart are. Performance reporting integrated with production when we came together we had performance reports on what the development goals were; engagement of the community BEE, skills development all the rest of it because if anything was falling behind targets, the project manager what's the problem, in other words we could influence change to achieve our values you see the same as quality, time, cost. You would come and report back and we looking at because time is that's what you've got, but we looking at the overall budget. Spencer wasn't fast if you went over your contract value as long as it was still within budget you this budget is different to price. Key suppliers procured through frameworks we didn't have a hit and run relationships he wanted to build a culture of working together. Cost reimbursable contracts with incentives, target contracts. Single integrated project organisation; small team ran it. Integrated businesses processes and systems, production systems and so it goes on so if you actually went through owner champion appointed Spencer owner function integrated with delivery team, we did it, owners and suppliers working together so if you look in other words what we've intuitively done is spencer designed collaboration because he believed that collaboration would bring the best out of us so you see that's essentially these sort of the kind of thing. This is all about trying to bring greater collaboration into the thing so if you look at it intuitively we never followed that because that was published in 2017.

Interviewer: so you did all of these things before an official document was produced? Okay so there was no structure Ron? Team structure

Interviewee: if I had to give you, it was more functional in every ways. What I did do is and I can give you something, let me just correct this and I can show you the closest you would get to a structure is that spencer never had a formal diagram because we knew what we were doing. We had worked as a team together I mean I had worked with spencer when he was CEO of CIDB I attended most of his leadership meetings with his senior staff discussing strategies a lot of it maybe had nothing much to do with me, but was to get those inputs and we worked as a collective. Spencer has always worked as a collective and I think if you go into the routes of ANC has always been a collective decision making processes, I'm not talking about all the nonsense that's going on now, but Mandela was very much collective. So spencer comes from collective decision taking, but making use and taking advice from experts. So surround yourself with experts, put a problem to them and should be solved. Maybe you staring to make me think about things I haven't thought too much about. There is something I came across years ago that really made sense to me because we live in South Africa particularly with the engineering fraternity we have a packing order and it all depends on which door you came through. If you did a diploma you became a technician, if you did a b-tech you become a technologist, if you did a degree you could become an engineer and I've always argued that as far as I am concerned most engineers are actually functioning as technologists.

Interviewer: why is that?

Interviewee: well, if you think of it this way, it is transactional you see there's two types of people you get, the transactional person and a dynamic person. Transactional person very good in their discipline you think of the QSs you've got probably 99% of them fall within the transactional give them drawings to do, they'll measure it and do a bill, but don't ask them to think laterally and move out of the QS space into other spaces, you with me?

Interviewer: Yes

Interviewee: now the transactional person moves across discipline boundaries, professional boundaries, international boundaries all sorts of things like that. So probably in spencer's head at the back of his mind is to have a team of dynamic people that can step outside their disciplines. So Dukes University did this years ago so you can look at transactional vs dynamic and get it from Dukes University it was done for engineering very very interesting to get to characteristics and what they say the biggest determinant for a dynamic person is the higher the quality of education it is not the exact science, but they've tried to study what makes a person dynamic. The higher the quality of education the higher the higher the probability you gonna get of a dynamic person. So what it's actually saying is although the training you can go through the same educational process some will not make that gap and that why I said they go back and work as technologists because look at the 99% of the work that's done is transactional. Do you need advanced theory for it? No in fact a whole lot of engineering is technicians.

Interviewer: I haven't thought about that, but that's true.

Interviewee: it was one of those light bulb moments when I came across that and I thought about it because what you need is you need more dynamic people.

Interviewer: maybe that's the reason why the industry a lot of loop holes.

Interviewee: Are there dynamic people?! And it's a small group and what spencer has done is selected a rounding dynamic people because you can go into all of us, Dean was more transactional in the project management side, but very competent in what he does and that's exactly what spencer wanted, he wanted the governance in place, he wanted Luidwig, myself and Willie to think outside the box.

Interviewer: and with your line of work there is no room for transactional

Interviewee: not if you gonna go into collaborative and the rest of it.

Interviewer: yah because as problems arise you need to address them form a higher

Interviewee: exactly, so what we did, what I did, I can print this out for you so that you can get a better idea of it is when the new delivery managers came in place I wrote this to try and explain to them what the structure was because one of the things is that with the new universities coming in spencer was quite keen that there be some continuity because you know we've set up systems and we pull out and someone else doesn't understand the system so what he said was that there were to people in his team that could not be used by the new universities one was himself because otherwise they could never be a transfer and the second was Dean because we had to have a break with that governance side of the things for the new so Luidwig, Willie and myself and Alyn and Martin got transferred so we working for Sol Plaatjie and the New Universities to support their delivery managers so what I did here was to dry to document and it's really the wits system but with Dennis Mokotedi who got involved as well so let me see if I can spell it should be able to get it. So what I did if you looked at a structure the only structure would be a functional one, look this might not be the case in which they are still running this was based on what I tried to put together using the Wits philosophy that we had used let me just print it out for you and maybe you can then start thinking about it.

R3 interview transcription: R3, 4 recording

Interviewee: took it out this morning, it is very recently published, collaborative business relationships, ISO 44001, this is generic, and it is not necessarily construction you see collaborative business relationship framework value vision leadership and objectives you see the specific strategy outcomes, business case and implementation plan, obviously people skills and collaborative maturity, capabilities roles and responsibilities, governance management, are you beginning to see the team fit?

Interviewer: yes

Interviewee: you see, continual improvement process, team management monitoring and reporting behaviour, disengagement triggers and process so we had a disengagement at the end and then we wrote up the close out report, but I thought when I started looking at this it is what it is being done intuitively so what we've actually…

Interviewer: was this recent? So you guys did the future anyway?

Interviewee: this was first published in 2017 I didn't even know about this, what happened was attending the committee meeting and I mentioned the standard got if from ISO and on only Friday was the first time I saw it so all I am saying….

Interviewer: so it is ISO….

Interviewee: 44001, you see this is talking about collaboration now what we were doing and if you're looking at collaborative approach and we went back to what I will show you is you starting to see and this is what I think that maybe your direction of your research could go is to take what you've gained from the wits project, what you see, what you've observed and what you've seen and where things are going if we talking about collaboration and you begin to see that all of this vision, outcomes and all the rest of it are taking the delivery of projects into a collaborative approach so we may have not set out to have done that you know consciously, but that was what has intuitively happened so if you're looking at literature or anything something like this on a back analysis would probably give you more value than so if you looked to it and you started because can you see what I can start seeing the parallels come in.

Interviewer: so you did talk and addressed the accountability process. What was…..?

Interviewee: you see with relational what triggers it?! Is if you think about it, if you go back to the NEC framework philosophy if you went with pure NEC, what would trigger a meeting?

Interviewer: a problem

Interviewee: a risk. Are you with me? Now remember risk as well is quite, I find it quite interesting to say it to the way they recently defined risk, this is another update of the 2018, but it was first published in 2009, I am just saying is the thinking, the fact of uncertainty on objectives an effect of a deviation from the expected can be positive, negative or both. So risk can be an opportunity or a threat so in other words what should trigger a meetings is in a collaborative approach because if you are collaborating you are only interfacing when there's risks because what's the point of just giving another layer of reporting. So spencer was pretty much, we had regular meetings mostly monthly meetings to keep the tone and the temperature and if there were issues unresolved tell me about them

because what spencer used to do, he was very clever, he used to sit in meetings and he would ask a question and if you couldn't give him an answer like that, he would then start probing it and the minute he start probing it you find where the weak areas were so his meeting was trying to ascertain where the guys are crossing over things, do you know what I mean?

Interviewer: Yes

Interviewee: so that was his interaction with the delivery team, as far as his client team was concerned if there was any threat or an opportunity, he'd call people in for a meeting to discuss it could we then collaboratively with all the different angles we got solve this problem.

Interviewer: looking at the programme, what factors do you think enabled success? Looking from the team's point of view?

Interviewee: well, maybe I should give this to you I find it interesting, I haven't published anything, but what I did do you might have not picked it up on the screen, but we asked at that Pretoria workshop, remember I gave them that exercise, what did they think of the success factors and remember i reported on the screen what the outcomes were, do you remember? Let me just open it now, foundation course okay, what we did was the reflections of the day, I put this in and I didn't send it out to anyone, but I just though I want to capture it because there is something in it. When I asked the questions this is what they came back with, the top three. Governance framework. Remember?

Interviewer: yes

Interviewee: so what was the success? Governance, second procurement strategy, third putting in place the super client team, if you go down it is strategic brief, now how do you get a strategic brief together?! It's not a spencer that's gonna give it, he's gonna give the vision, but you need Luidwig and you need Willie to firm it up, you see what I mean?

Interviewer: Yes

Interviewee: upfront planning, implementation planning and it goes on, but if you look at the big three of those three so in other words what is it really saying?! Is client function because strategy is part of the client function, I was quite pleased with the outcome of that, we obviously got our message across

Interviewer: yes

Interviewee: did it make sense the presentation?

Interviewer: Yes, it did Ron, because I also went to one team and we did talk about this, this came we called it the bull dog team, the procurement strategy we did discuss,

Interviewee: you see I took a waiting and I've got the frequency out of the groups to try and get it, it other words, I wasn't really saying that.

Interviewer: it was us actually, you know in the team, but you guys were a different team in the sense that you all knew what you were doing, and you came in together to form a team, but at times there should be measures or procedures put in place to ensure performance, how do you think performance was ensured? How did spencer ensure that Ron performs, Dean performs, mark performs, etc.

Interviewee: he was on my case, well he followed up, if there was something he was working with and if there was a problem, he would daily be in contact with you.

Interviewer: so communication was a factor?

Interviewee: absolutely, constant communication you can see because the thing is, is it the performance of the team or the performance of the individual?! Now the performance of the team is a reflection of the performance of the individuals

Interviewer: yes

Interviewee: so in other words if you're not getting the outcome you're expecting, there's a problem with your team

Interviewer: but that's not always the case, there might be a problem with your management style

Interviewee: ooh look here I can tell you about it if you work collaboratively, I can tell you about the early days yes, at wits he for example wanted health and safety to be sorted out, because we had the problems with sites and it was good. He got the health and safety expert in we on a Saturday, the entire professional team at wits including his delivery team came into a whole day's health and safety, focus, attention and get on with it to build the culture of collaborative working I don't know if you've taken or you've been in the honours cause I've done one the NEC at wits?!

Interviewer: yes I have

Interviewee: that was actually part of the day he would get the whole professional team with the contractors, with the client, and we would go through that, that was to bring about the change in culture because with everybody there in the room, he was very clever he sat through and I don't know how many times I've given that presentation to various teams and he comes every time not because of me, he wants to see the reaction of the people and whether they understand who understands collaborative working and who doesn't, because he will then work with those that don't. You see that also part of bringing the culture across

Interviewer: so that's part of leadership?

Interviewee: it's part of leadership in getting it going and we also had like on occasion like if we delivered the building and there's problems with the quality say he calls a meeting, entire professional team, all the guys that were supposed to coordinate the contractors in the same room, and so you can't have the consultants saying it's the contractor and the contractor can't say that too. So all were there and he said right guys we have a problem how are we going to resolve this? So he got me to say this is how the contract should work, we don't have to tell you want the problem is you know it! How are we gonna resolve this no fingers pointing you see it's actually collaborative working.

Interviewer: looking at the team, wrapping up now. Looking at the team and how you guys worked together and the delivery outcomes of the entire programme of projects, would you say there's a direct relationship between team structure and the role of the team leader and delivery outcomes that if the leader does this or if the team is structured this way will achieve this? Is there a direct relationship, if I go up this does up and down the opposite is true?

Interviewee: you see with relationships can you define relationships like that? Like if you get a husband and wife this is how you communicate? This is how you gonna do things, you gonna have a weekly meeting and am I right?

Interviewer: yes you are right

Interviewee: so it comes down to if you are to have a successful project I think it comes down to some of the things that Yunus was putting forward and saying about the team with chemistry and vision

Interviewer: in terms of chemistry, how would you define chemistry?

Interviewee: well you see the thing is when you talk about chemistry is can you get on with each other, you don't have to like each other, remember what Yunus said, you working with people, you can have a cup of tea with them, but it doesn't mean to say you guys are friends. I think you need to have respect look the team clashed at times over issues, but there was always respect, it comes down to you got to have respect, you got to have when you talk about chemistry well if you think about in a relationship as in like boyfriend and girlfriend, best friends, there's something that you can get the best out of each other, you with me?

Interviewer: yes

Interviewee: to me I think you've got to acknowledge what functions need to be covered so they way I'm looking into it I've broken down the client in client's role, client team to 2 functions what is the high level strategic direction setting the business case owning and adjusting the business case the rest is what needs to be done to integrate the rest of these things to enable the client team to function that's why you have the client delivery manager with everybody underneath him, now for him to function he's gotta say in this particular context, what help do I need because I am sure if you spoke to spencer, spencer would say that he knew procurement was a big issue, he knew that spatial planning was a big issue and he knew that governance, record keeping and keeping track of projects was a priority so those were the first three members he looked at and said who can I bring together to assemble a team and to get things going. Now I'll be honest with you Dean Barnes and I have not seen eye to eye in everything, one thing I do respect him is that he knows what he is doing, I may not agree with his methods at arriving at an outcome and spencer has repeatedly came into things and hold me in and said you're gonna work with Dean and find a way of resolving, do you know what I mean?

Interviewer: Yes

Interviewee: so you need to have that leadership that comes, that is recognising that people are gonna do thing differently, but it is what is for the good if the project and what is the end outcome. You see what I mean?

Interviewer: yes

Interviewee: we are too involved in trying to get a recipe together so for example Martin Barnes who wrote the NEC contract he was president in the association of project managers in the UK when he was out here in south Africa h made some very profound statement he said as a project manager if you deliver a project on team, within a budget, to the right quality who cares what techniques you used?! You see we coming into you need this package, you need this software, you need to have this methodology.

Interviewer: but how I combine everything doesn't matter

Interviewee: yes like if you talk about risk management, the larger the company the worse they are, last about risk, we risked priced everything, I used the Monte Carlo method, I used all of this etc. etc. and I say to them have to gotten to the bottom of the root cause? No no we haven't, but we've done our analysis. Mott and Macdonald I have great respect for, he was doing his PHD when I was in university and his whole life worked as a contractor he was risk project manager for Aveng as he said what keeps you awake at night? The risks!!! He's seen risk registers with hundreds of risks; he said if you were to run projects successfully you can't manage more than 5 risks so bring it down to that. Now he on a lump sum basis delivered 600km of gas pipeline for a project and never lost his boots because you are focusing and those things can change so as a delivery manager, it is not a team structure that's gonna do it, it's not a methodology that's gonna do it, it's about having an understanding of what worries you, he recognised the risk and there was a procurement issue, governance issue, technical plan issue so he got that sorted out, the next person he brought in, I have issues with communities engagement and we are not communicating well, bring in Mark, you see?! It's a relationship thing and it all depends upon the person's personality and capabilities. Had we had a different delivery manager we could have had a different team and maybe a different…..you need to find the complementary skills.

Interviewer: do Ron would you say the client project management team or the client team actually influenced the delivery outcomes?

Interviewee: absolutely, you've got to read the ICE guide it says here the biggest single contributor to the success of the project irrespective of the size and the complexity is the client

Interviewer: and it does talk about how it actually happens? Or no, just a statement?

Interviewee: see we always trying to find some formula, some recipe, but it comes down to what you said in the beginning, it's people that deliver projects and you see that is what it is all about

Interviewer: but Ron I think the reason why we try to come up with recipes and formulas is that we actually want to……

R3 interview transcription: R3, 5 recording

Interviewee: some of the building blocks and what you gonna have to have is the understanding of delivery management, procurement, portfolio, progamme and project management, risk and change management and governance, those are sort of the key things that you need to understand. You need to have a working knowledge because if you're rep the client and you don't have the working knowledge you don't know what you don't know you need to bring people in to do that. This is my recipe then we have controlling work forces how do you put because governance is all about controlling so that's where the gateway system that I put in place in treasury kicks in. the we have procurement strategies in tactics so you need to have an understanding okay?! You need to have an understanding of value for money and then designing an effective delivery management system, collaboration and all the things we spoke about. To me I think at the end of the day you are not gonna come up with a recipe you gonna have a sets of principles of what you work on because it is around relationships it is not around tools and techniques and people forget the definition of project management it's the tools and techniques it's around the methodologies so we try to find a methodology and that why a client is difficult to define because you can talk about principles, collaboration etc, but is sort of last month with all the reading trying to finalising and writing things down the way I do, it's about writing its more and more and I think the tread is collaboration and if you collaborate you gonna have teamwork you gonna be able to manage your risks and you'll have at your disposal and broad set of expertise have you seen how spencer works?

Interviewer: I have a way in which I am going to conclude my research; I have actually come up with a closing remark for my research.

Interviewee: Okay.

Interviewer: Thank you so much Ron, you've covered everything that I wanted us to discuss today.

Interviewee: Spencer says that all he did was to take notes, he said when you came to see him he found some notes that Mark and I gave them and he read them out

Interviewer: from his journal, he was like okay I can't actually define what my role is, but I can actually tell you what other people think of me and he opened a journal and he said okay Mark said this and this and he read and read and he said Ron said this and he read and read the I said I need to see these 2 people.

Interviewee: but you understand that it's relationships?

Interviewer: yes, it all goes back to relationships and I think with spencer the time of leadership style that he is using was that he had also played a big role.

Interviewee: there is some there is basic inherent skills thing is I'll put it to you this way, the team and some of the other contractors are dead scared of him. We also got into a meeting and he ripped one of the project managers and he comes out and says Ron did I overdo it?!

Interviewer: so that culture of actually introducing the, previously the construction industry was following this master servant relationship and it wasn't moving towards the collaborative nature so obviously when you're introducing people into a new culture you need to educate them they need to know.

Interviewee; when you need to do if you want to have something superb with the master servant relationship have you ever read Martin Barnes's paper?

Interviewer: the NEC?

Interviewee: Not about the NEC, he wrote a paper it is well worth reading, this is where I learnt about the master servant relationship. Martin gave a 1999 many many years ago he gave a lecture in ICE in London and it was entitled ''from smitten to eaten'' Smitten was the guy who was the founder of Civil Engineering and Eaten was trying to take the industry further forward so he gave the history of project management between those two boundaries and fascinating things because he tracks the history of project management and you see that's the nub of the matter is and you probably don't know why we do stupid things like actually he raised it in a lecture in south Africa and I begged him to give me the copy of the paper now I find it difficult to f8ind it in in references and things like that because it was more like an institution thing, but is it so well worth reading. You see the relationships which were revolved were now used formally written components including contracts, etc. contract are based on the basis of relationships because it is in which we define commitment be also legal documents commitments which rests in various ways and ultimately enforceable now you see this is not new I mean Brunel who was hailed for doing so much work in the UK, 20 years after he died they were still settling court cases you see a simple thing of our we having a master servant relationship or a simple collaboration between two experts and I think the underlined thing I've learnt from spencer, spencer recognises expertise and suits respectful expertise it's not on an island that I know everything myself.

Interviewer: so that's what made you guys win? Wow! This is fascinating

Interviewee: so this is more like a lecture and it is difficult to find its stuff in the 1990s prior to 2000s it wasn't so much literature, but you'll find it very interesting.

Interviewer: Okay Ron, thank you so much. I think we are done and if I have any questions I'll email, and please don't forget to send me the scanned copy of the client's best practice guide.

Interviewee: Okay I'll do it.

R4 transcription: R4, 1 recording

Interviewer: I am a master's by research student and my research is about team structure and the role of the team leader, and how team structure and the role of the team leader influence delivery outcomes of projects.

I was specifically focusing on the Wits capital projects program; I heard that the same team that was set up for Wits capital projects program was the one doing the new universities.

Interviewee: I don't know if that's true because wasn't involved in Wits capital projects program.

Interviewer: Yes, I was told by Spencer and other participants that it is actually more or less the same team, but with the new universities is that it's more developed, like there's more people????? Whereas in the capital projects program was just a few people because that's where they first started.

Interviewee: Ok!

Interviewer: So with you I just wanted to get your perspective in terms of, you're working with different team member's right?

Interviewee: yes!

Interviewer: Which is Spencer, which is the core team. So I'm not actually looking at the contractors and anybody I'm just looking at the core team, the client's team.

Interviewee: The project management team?

Interviewer: Yes! I'm looking at that. So I understand that you were working with all of them at some point and you had roles and stuff, so I just wanted to get your perspective in terms of what was your role in the entire project, in a nut shell how you would explain your role?

Interviewee: Ok, I was a project administrator which involved the basic administration of setting up meetings, taking minutes, doing minutes and setting contracts that were set up by the team members in management , we'd the have contracts signed and raising of the purchase orders after that and the invoicing, and all the invoicing that have come through the whole project . Service providers, everybody would come to me and I would check them if they were incorrect I would send them back to get them to fix it up with all the supporting documents of the invoice and once im happy with the invoice I would raise the payment authorisation form with the documentation and have that signed and send through the process that eventually the invoice will be paid. I was also responsible for the up keep of the procurement plan, one of the team members would do all the tenders together, the tender documentation would go for approval and would go in the newspapers normal process and once the tenders appear on the newspapers, all the queries would come to me, we'd handle the queries with the management team and the on the closing date obviously we'll be there on the closing of the tender , make sure because they were different provinces make sure that the people that have to be there to open the tender , the tenders would be couriered back to me and I would make sure the tenders get to the person involved in this for evaluation and he'll take them through for evaluation . I would then get a signed copy of the evaluation report and then we would start the process of contracts insuring that vendors are registered on the Wits vendors register system,

so that when we have the contract signed and the invoices come through they are on the Wits system. So it's just the whole process from inception of the appointment to the contracts and eventually to the invoicing.

Interviewer; So it was a process throughout, were you doing it per project or in the nut shell for the program itself ? With the contracts were you doing contracts individually for a project or it's the new two universities Solplajie and Mpumalanga, so the contract administration and the whole process were you doing it per project or for the entire universities.

Interviewee: Ok, are we talking about the management team?

Interviewer; Yes!

Interviewee; I had one contract which covers the work in both universities

Interviewer; So it was the NEC?

Interviewee; Yes the NEC

Interviewer; So in terms of the team if I may ask about the team, from your perspective what was the role of each team member? Like Spencer , Ron ,Dean , etc.

Interviewee: Spencer was the program manager, Ron was the procurement specialist, Ludwig was the architect and spatial planning person. They all had different roles, have you got the close out report?

Interviewer; No I don't have

Interviewee: Ok you can get from Sam has a closeout report, they will tell you exactly who the team members were, the project management team members, and what their roles were.

Interviewer; Ok I understand within a team structure, there is a way that performance should be ensured and there's away in order to check or to monitor to check whether work that is allocated or work that is supposed to done by a certain individual or a company is done. So I believe there's some element of reporting that was happening. How was the nature of reporting?

Interviewee: For the project management team, that's a difficult question to answer because it was an on-going process on where we were very close at this stage of the project and everybody knows they had to that stage, that stage is finished. We move on to the next stage. There was a form of reporting to Spencer and project manager and all those people, it's not like a service provider before he got paid I had an actual physical report instructing which everybody had signed off and that was done can be paid to that. The project management team together they worked on a certain phase, the next phase and they all just happened, it was done and then they decided ok this is the next phase they all worked together and got that done , it was just within the team that the phases automatically got done .

Interviewer; Did they have any monthly meetings?

Interviewee: Oh yes we had lot of project management meetings, monthly meetings maybe, depends on where the project was , sometimes twice a month , Oh yes! regular ,regular meetings.

Interviewer; Ok I want to ask about the actual cost expenditure , so I'm not sure whether you're the one handling it

Interviewee: That is also in the closeout report .

Interviewer; That is also in the closeout report?

Interviewee: All the closeout report is about three, almost hundred pages long and it has all the relevant sections. Because you cannot ask me for the expenses for the whole project.

Interviewer; No I don't want figures . I want to ask about how was it done . Ok there was a budget allocated for the university, right?

Interviewee: Yes!

Interviewer; And within that budget there's individual projects within that, meaning there's building, whatever building, whatever building. So I just wanted to check what were the factors to ensure that everything doesn't go overboard meaning you record all your expenses /expenditure. How did you ensure that expenditure don't go over board?

Interviewee: Ok, we had a procurement plan, so we would plan how much could be allocated, but now you're only talking about the project management team or are you talking about everybody?

Interviewer; I am talking about the entire university.

Interviewee: Ok we would have a quantity surveyor QS that we work with closely with us , say for this , for structural engineering for this building the QS would work out the costings. We would then put it in our procurement plan and get costings for that discipline , for that building we would then put it in our procurement plan and get approval from the AGT, once we got approval for that we would then go to tender and we would see with the tendering amounts that come in and if my approval amount is higher than the tender amounts we won't give it to the service provider . we would do a contract amount for , it's a criteria for approving tenders and according to the criteria what the end amount is going to be for that service provider, we would do a contract for that amount. Say the contract is for two million but the AGT approved three million, we're not going to use this whole three million we're only going to use two million, so we would perch the other million. It's not to say the AGT's approved that full amount we have to use it. So that is the process we'll go in we'll get QS's to work that out the amounts , get it approved go to tender and just use the amounts that the contract amount is.

Interviewer; Ok I understand that some of the team members were individually contracted right?

Interviewee; Are you talking about the project management team?

Interviewer; Yes the project management team

Interviewee; Oh! We're back there now

Interviewer; Yes we're back there

Interviewee; we would work out how many hour they think they could use for this space, they would tell us, we'd get the amount approved. Whether they're going to use it or not, sometimes they would

say they might use five hundred thousand rand but at the end of that phase they only used four hundred thousand rand, we perch the other hundred thousand rand.

Interviewer; Ok I understand that team members within the project management team, some of them were companies, meaning they were consultants.

Interviewee; Yes they consulted with us.

Interviewer; so I just want to understand how was that done, the entire contracting of getting them

Interviewee; getting them for what?

Interviewer; Getting the to be on the team, getting them on board in order for you guys to do the new universities

Interviewee; Yes we appoint them

Interviewer; Via what type of contracts?

Interviewee; Professional services contracts

Interviewer; And then the payment is done via hours, the number of hours they worked?

Interviewee; Yes those would be hourly rates, those are hourly time based rates , that's for project management team

Interviewer; Is there any nate characteristic of the team that.

Interviewer; Ok let me start it this way. With my research when I was doing literature review I found that most large projects within the South African context experience cost overruns, relative cost overruns. So it's rare to find a project that started with this amount of money and then finishes maybe within…I'm talking about the budget cost only.

Interviewee; Ok

Interviewer; I saw that with Wits starting 2008-2014 and even with the with the new universities they've achieved relatively very low deviation between the expected and the actual, So which I feel the reason or one of the major contributor is a client project management team .

Interviewee; Yes

Interviewer; And that some aspects are…they did something to magically achieve such outcomes. So I just wanted to check is there any maybe one major thing that the team for you, for them to achieve such. What did they do differently ?

Interviewee; We controlled it so well. I just to mention that at the end of our project, we had a surplus amount of a hundred and twenty two million rand left. We don't run over budget , so all I want to say to you we had such an amazing project management team, if a comes in at a tender and it is the most ridiculous amount, they would just say sorry this is not acceptable.

Interviewer; Ok

Interviewee; It was not just accepted whatever amount the contractor wants or sat this is the amount of money I want. We work with quantity surveyors and the quantity surveyor would do his homework

and say no,no,no…that's totally an unreasonable amount , this is the maximum amount and we would absolutely cut them down. We will not accept, we will do our homework on what is acceptable and what is not acceptable and we will not go overboard and we will just not accept it. So if they want the work they have to come down with their figures, we didn't just accept anybody who said we're going to put all new windows in this house for five million rands and we sit and say ok that's fine. No! we did our homework that's the big thing, that's why we had such an amazing team

Interviewer; So would you say experience played a role? Let's say there is another university or let's say maybe UJ for example , UJ realises that the way they have been delivering their infrastructure , the costs are skyrocketing . Would you say what Wits did can be mirrored into another university?

Interviewee; Yes, Not Wits I don't know about Wits I can't talk for Wits. I'm talking about my project. My project is with the AGT project although we used payment system through Wits. So I don't know what Wits does themselves. So on the new project I think a lot of universities can learn how we did it and implement it in their university, absolutely.

Interviewer; Exactly what factors do you think they should consider

Interviewee; Well, just looking at costing, costing it properly, costing it correctly should be considered

Interviewer; And establishing them coming with methods that will make the costing expenditure efficient.

Interviewee; Yes, I'm not saying anything against any of the universities because I don't know but to make the tender process legitimate and above board and just concentrating on cost.

Interviewer; So roughly for …was there any roughly for both new universities was there ??? so there was no difference between the expected and the actual for the entire….let's say the total cost of the university was this much , like the expected was this much, was there any deviation between the two or there were…….

Interviewee; Costing's between the two universities specific? , Oh was there was because it's a different environment, In Mpumalanga there were more development already existing , Kimberly there was very little development , in Kimberly the environment is different, the ground is more rock, so you have to start with the ground work differently because there's more rock. There was nothing in Kimberly it's just like a desert or veldt . In Mpumalanga there's more vegetation, more greenery so the environment is totally different , so there were different amounts spent on each of the universities so you can't say they spent two million and they spent two million, it was different because of the different environment and what was required. And more buildings had to go up in Kimberly than Mpumalanga as well, but if you get the closeout report from Sam it would tell you, because in there tells you how much we spent on each university

Interviewer; So who was the funder of the university?

Interviewee; The founder?

Interviewer; The person who was giving funds?

Interviewee; DHT, Entirely DHT.

Interviewer; Ok, I understand that the cost didn't go over budget, there were some savings and stuff. I we were to talk about time, was it delivered on time?

Interviewee; Yes I'm sure Spencer told you this too. The project started in November 2011, and I came in , in May 2012 and later that in year 2012 or was it in 2013? Somewhere, anyway! President Jacob Zuma said at a press conference "all the universities will open their doors in 2014" he made that public announcement and we were saying "what?!" It can't be done we have to build these buildings. They were looking at 2015 and now he just says without consulting with anyone, is it feasible? can it be done? So he just announced it and we opened. We opened in 2014 with just a number of buildings obviously and a certain number of students and then from there we planned what we going to do for 2015, what we had to be ready for, for opening of 2015 more buildings and more school programmes. So we also planned programmes we had planned it for 2014 and then 2015 programming so it carries on, so yes we were always on time with opening buildings even the contractors they'd work through December , but we opened for both, on what we planned for we opened.

Interviewer; Ok, what aspect of the project management team, do you think…aspect I'm talking about attributes or the characteristics of project management team. What is the main thing besides contracts, besides ensuring that costing is in order, like the way they just worked together, what aspect of their nature ensured that the delivery outcomes were achieved?

Interviewee; Dedication, and their knowledge, their absolute knowledge of the industry and professionalism in what they do, because everybody had their own...what they specialised in and their absolute professional attitude and drive to get it done. And that was the main thing and behind it all I can say my personal basis the honesty its team on how well it worked.

Interviewer; Did the team members have any chemistry?, like was there any conflicts between because every team undergoes conflicts

Interviewee; No call it disagreements and then it can be sorted out because there was no personal conflict, there might have been disagreements on how to do the next phase or whatever but it was always worked out and eventually there was an agreement and we went forward on that. There were no personal conflicts or…..no, no, I can't say that, not at all in a team they worked very well together .

Interviewer; Ok, so from the beginning when they were selected or assembled, was there any team building activities?

Interviewee; No, there was no time for team building I must be honest with you. Let me tell you when I started working in this building and I looked at this garden I said God is so beautiful every lunch time I'm going to sit under the tree and have my lunch , that was 2012, ok six years later I've never done that . There was no time for team building I think they were all very highly professional people. So we just got on with it and worked even if we had to work through the night we did that to get the job done.

Interviewer; So it was a perfect fit

Interviewee; Yes highly dedicated bunch of young professional people

Interviewer; Ok let's talk about Spencer

Interviewee; Yes

Interviewer; Spencer was the team leader right?

Interviewee; He was the programme manager

Interviewer; Yes so he was overseeing the entire project management team?

Interviewee; Yes

Interviewer; How was he leading the team did he have maybe a leadership style like ok we're going to use this route like how was he?……

Interviewee; He was, if can use the words strict and that's putting it mildly. Let me tell you, he is the most amazing person he does strategies like he knows, he is the most amazing strategist. He can tell you now if we don't do it like this, this, and this, in a years' time we're going to have problems with this, this, and this. He can foresee he is the most amazing strategist and he would sit in a meeting and he would say ok this has to be done, this has to be done, this has to be done, you do that, you do that and this is why and this is why. We have to do it this way, everybody goes away and in a months' time when we meet and this one didn't do that, oh! Boy you will not want to be in that meeting. He would let you have it, he was so brave, and he'll be quiet, but boy don't get on the wrong side of him, don't not do what you were supposed to do and don't lie. Oh! I'll feel sorry for you.

Interviewee; So that's the way in which he ensured performance of team members

Interviewee; He would uhm…and everybody did what they had to do because Spencer is there to check up. No, he is thee most amazing and the fact that he is sort of semi-retired and he's not here at the office anymore , I miss that but he's still involved in my current project but I don't want him to leave work and totally retire because he's amazing .

Interviewer; There's very few of Spencer left in the industry

Interviewee; Oh yes! And I must say honesty is the key thing with hi???????????

Interviewer; So he's that kind of parent who can see that ''No, my daughter is lying now''

Interviewee; Oh yes! And if you did something wrong don't even try and argue the point, just say sorry I did it , I'll fix it. Don't even try and get out of it

Interviewer; So going back to Spencer, how do you think the way he was leading the team affected the delivery outcomes or influenced the delivery outcomes?

Interviewee; influenced the delivery outcomes in a positive way?

Interviewer; Yes.

Interviewee; absolutely, absolutely where other people would say listen we can't make this deadline we can't open in 2014, he will be the one that says we are opening in 2014. Zuma announced that we are opening and it will happen.

Interviewer; Is there anything that, talking Spencer and delivery outcomes, is there anything that you would say had Spencer not done we wouldn't have achieved this outcome?

Interviewee; Spencer had a huge influence on the outcomes, absolutely. If he wasn't around it might have been a bit different …..

Interviewer; In the way that he was leading the team and his ability to foresee the future outcomes ….

Interviewee; foresee what problems we could run into and already working on that now to avoid those problems, he was a great influence in this project, I tell you he's the best.

Interviewer; if only people didn't age

Interviewee; you're right if we can have another Spencer, have another few Spencer's we'll have a lot of success with projects

Interviewer; is he grooming anyone to become like him?

Interviewee; no, I'm sure the project itself, the people on the project management team learnt a lot from him and a lot of the people that were on the project management team are still contracted now directly with the universities to carry on with the work

Interviewer; to carry on with the work for the universities?

Interviewee; Yes

Interviewer; ok so how were you appointed?

Interviewee; Ok I was appointed by the project manager, his company appointed me, so I worked closely with them on a project, it wasn't a proper NEC contract, it was through his company that I was appointed

Interviewer; ok so it like a fixed term contract?

Interviewee; they're not fixed term, I was until the contract ended. I'm still here now because we're now working on another project with the DOGT

Interviewer; ok so you're contracted for that again

Interviewee; Yes. I had a year to year contract kind of thing, originally it was going to be seven months and then I stayed till the end of the project

Interviewer; so how is it like having year to year contracts, year to year contracts?

Interviewee; oh it was terrible….

Interviewer; because you're not sure whether you're continuing next year or….

Interviewee; oh it was terrible and they can't promise me anything because DOGT had to extend the MOA with Wits, so only when they knew it was extended again they were like ah continue for another year and it's the same with my current contract now because from the first of April they just extended it again for another year. After March next year then I don't know, it's horrible to work like this

Interviewer; Thank you so much Monica

Interviewee; It's a pleasure I hope I helped.

Interviewer; Yes you did.

R5 interview transcription: R5, 1 recording

Interviewer: so I am focusing on the bull dog team as they call it

Interviewee: the bulldog team?

Interviewer: yes, I remember I went to some seminar in the IDMS there by Pretoria just far from Pretoria and they were calling it the bulldog team

Interviewee: I have never heard of that expression, but yah

Interviewer: Yes I am focusing on that team so I would like to ask who were the project team members. I am actually not focusing on the construction and consultants and staff, I am focussing on the one the client team in a sense

Interviewee: 5the representatives of the client who represents the interest of the client, yah I think you've mentioned those that you have interviewed I think the one person that we used extensively is also who was not mentioned it's probably the engineering side possibly two technical people on that team which it was myself from the architecture and urban perspective looking at buildings, open space the like, town planning, the regulatory aspect of it that visa vee versus maybe the more infrastructure side of it, built infrastructure, that would be your engineer and there we used a gentleman called Willie Potgieter he's probably not a client rp[presentative, but became quite an important person we relied on for infrastructure so I think you've quite a comprehensive team spencer would be leading the overall team structure and then we've got the community liaison Mark Burke, financials run by Dean Barnes at that stage primarily, myself as the planning design and there's the infrastructure side I think one mustn't forget about despite the fact my view that this is the client representative and we never designed anything necessarily we do write the controls within which future design teams or projects operate and we do need the technical input that why I think the engineer is useful or Ron with the procurement

Interviewer: so as you explained the role of each member I understand that your role design spatial planning and the others procurement and the like, how were those role played? How was each member's role played within the team? Was it in a set up environment or was there a structure governing the roles played by each individual or was it just a flexible way of working?

Interviewee: I think it's a bit of both you're obviously defined by your skill set and you obviously contribute and work within those parameters, but that didn't preclude you from giving input because the team acts as a matrix if one falls out there's always this gap so I do think they work in consultation across interests so in the procurement I would give in input on what are we looking for since and what would be the key strategies in terms of getting the right professionals for a specific project so there would be cross pollination on that side and I would another examp0le maybe instead of getting one architectural practitioner I would recommend maybe three or four which would then inform Ron's process in terms of the route of how do we procure it so It's a bit of both I don't think it's working in silos.

Interviewer: so was there any structure? Any formal structure, you know teams are structured or formulated in a certain manner like there different teams there project teams, there's planning teams

Interviewee; No there was quite a strict structure in terms of that

Interviewer: A formal structure?

Interviewee: I think there's quite a formal structure in terms of how we operate, what roles we had and what we looked after and chart that so that would be overseeing the whole variety of streams of work as a core responsibility.

Interviewer: was it like a hierarchy type of structure?

Interviewee: Yes I think that would be

Interviewer: like a person at the top and the followers

Interviewee: yes I think that would make sense that I would oversee all the architects and all their work going down. Ron would look after the procurement and all of that and all the requirements underneath that.

Interviewer: and you guys will be overseen by the leader?

Interviewee: and then we would have a very specific reporting structure as well and we would then and report back at what we call an exact meetings and what we would call them, nut there would be a PMT project management steering committee and then we would have our headings and t5alk t those and from there we would then go to various client bodies the dept. of higher education or at some cases later one the executives of the two new universities or wits in this instance so we have a very structured reporting structure and it was well documented and minuted which I think is a strength and also a very important part of that despite within the streams talking there is obviously cross pollination so it's quite well structured

Interviewer: so I understand that initially when wits was looking into having its infrastructure management meaning planning where they're going to build the residences how the whole infrastructure framework is to be done so and initially there was no people responsible for doing that so how were you guys selected? Because I think it takes a great skill to actually know that I need to get a spatial planner who is so and so I need to get procurement person, how were you selected?

Interviewee: I think you probably got a better answer from spencer in terms of how these people were selected?

Interviewer: I didn't actually, he said I should ask the people the people he was working with because it is much better to get it from somebody else's perspective.

Interviewee: I think there was a bit of history between spencer and some of the core team people I think they probably knew each other from procurement other treasury or from a government perspective they all worked together, Dean, Spencer, Ron, but they were they sort of knew each other so I think there were a bit of personal relationship in terms of how to run and project facilitate this. Some of the other members be it myself someone like mark burke let's start with myself cos I understand that better, at that stage there were very few people working with campus university campuses on spatial planning there was a lot of architects doing design, but very few people doing it from the large spatial planning perspective and those that have experience in that being myself and

two or three other companies and two were selected to work on it, there was a group from cape town that was selected at that stage so we did it first jointly and as time progresses I then took over or my company took over that role. Most of them in geography were Cape Town based geographically that was just too far away and sometimes immediate response was required so I think that's probably the transition so that very small team upfront was probably quite an intimate one in terms of maybe past experiences and the specialised skills.

Interviewer: so were you, you got into the team as a consultant or individual?

Interviewee: yes, well I would imagine it not as an individual, I always acted as an individual, but I had a team behind me more like a company, a contract with wits. So my first work was on wits spatial framework ensuring that there is an oversite as to how we gonna do the next five years or ten years so that's how I got involved.

Interviewer: would you say that experience or qualification or skills set contributed to your selection?

Interviewee: yah I think so, all of that definitely.

Interviewer: or background?

Interviewee: yah cos it's not just you need people to work with in that kind of environment, you can't just hope that someone comes of a specific background to do oversight in that scale so no.

Interviewer: so would you say you needed experience of how many years?

Interviewee: well at that stage I already had 20 years of experience so that counts for something.

R5 Interview transcription 2

Interviewer: so how was that? Sorry about that…..

Interviewee: I think one of the first things just maybe thinking back is that we worked on a methodology of how we are gonna execute things so there was a clear path as to what we are gonna do even with the spatial framework we would ask certain person questions like assembling the land is gonna go through certain process we had a clear scope of work indication what we need to complete so it was actually quite easy to judge track on where we at and that influenced all of our partners and we were and knew that everyone was working at the same time and suddenly the town planning is falling behind the environmental study is falling behind so we need to start targeting those so I think there was or a community liaison wasn't done to ensure that this thing works so I think there was a clear method behind various parallel processes that we were following be it town planning, design, procurement, community liaison and I think those were set up upfront. I Think we would follow those quite vigorously, minuting is important.

Interviewer: Did you have like monthly reports?

Interviewee: I don't think we had monthly reports. We had we wouldn't report to Spencer necessarily in a report format, but we would compile reports for our client as a reporting structure. There were various client bodies; we had the university itself or the DHET or the council at the university so there would be various levels of reporting and I think that was our…..

Interviewer: A way to monitor performance?

Interviewee: Yes, that is also important to track.

Interviewer: Okay, with the delivery outcome of projects, what would you say was unique, besides the procurement strategies, besides the core team performing its function in totality, what do you think was the biggest contributor to the outcomes that were achieved?

Interviewee: Okay, not an easy question, but I think right upfront when we set out the strategies as a methodology approach towards resolving or getting results is the setting up of a vision and I think at the beginning when we said what is the vision of other institutions or DHET and we set those upfront and we've always made all of our decisions against let's call them the performance qualities that we set up front and we would judge that against it and I think even the end result does that fulfil the vision of that institution? Did we actually attain that? Be it in terms of the quality, the inclusionary nature, the academic output, I think we set ourselves right at the beginning targets, the vision. We made a huge effort with the vision which we call the framework radius; conceptual framework for institutions we tried to achieve that to enable that through whatever projects we completed and if that is achieved then that would be a good result.

Interviewer: That's true. Okay, would you say that going back to team structure, you said it was hierarchical, but it had a flexible nature in terms of the nature of relationships?

Interviewee: I would say obviously it is hierarchical, on No it's true of the whole spectrum.

Interviewer: and how did that hierarchical structure influence the outcomes? Would the outcomes could have been different if you had a more flat structure?

Interviewee: I think maybe hierarchical it's rather or kind of thing I don't think. They would be a team leader, but within the team the people would have equal say, I don't think that anyone was superseding on the other even within going down and giving instructions to professional team or design professionals, it wasn't sort of like giving orders, I don't think there is something of integrated approach for allowing people to voice out their professional opinions because that why you appoint them so I don't think it was that hierarchical in that sense or draconian I don't think that's the right work. Would it been different? I suppose so, it might have been more chaotic in certain instances so I don't know I can't really answer that.

Interviewer: Teamwork! Did you guys have an team let's say you undergo a conflict, like team reviving, the way to revive you guys that actually contributed to the success, the way that you guys were working together in order to ensure that the targets that you set for yourselves were attained? What was the greatest motivator of the team?

Interviewee: I don't know, I think it's maybe the project and believing in that vision of the project is probably the greatest motivator and ensuring that you achieve it. I think that's the underlined motivator that's why when the project starts it is important to have a shared vision and working towards that. I think that could be motivation enough in the sense that sharing that vision sometimes people if you don't do that upfront people have despairing or despaired views of what the outcomes should be. I think it's a shared thing a shared vision up front is a half way getting there.

R6 Interview transcription: R6, 1 recording

Interviewer: my research is about the wits capital projects programme, I'm actually focusing on the team and its leader the one that was responsible for delivering the wits capital works programme so in the beginning of my research for my honours I was focusing on procurement strategies put in place for delivering construction projects so I realised that most projects within south Africa experience relative cost overruns, but the wits capital projects programme actually achieved less deviation between the expected and actual outcomes so decided to actually expand on my honours research because I believe that there was some element of the team that influenced the delivery outcomes which were achieved so I'm actually focusing on the team structure and the role of the leader and its team member in ensuring that the said delivery outcomes were achieved.

Interviewee: what is your research question?

Interviewer: my research question is how does team structure and the role of the team leader affect the delivery outcomes of construction projects so I would like you ask you a couple of questions on the team members, who were the team members, I am actually on the core team not the construction team that team that was put in place before the construction phase commences so they normally call them in different terms the client's project management team, project management team, PMT, CPMT and what not so I am focusing on that core team and I believe that you are also part of that team with the new universities. So I actually wants to ask about the team members, who were the team members and what was the role of each individual team member.

Interviewee: so it was really a range of expertise that was brought together in the team we had some project management capacity, Dean Barnes was essentially the project manager for the project at that time we had procurement specialists that could advice on the broad options and strategies of procurement that was Ron Watermeyer then we had Luidwig Hansen who was responsible for the development of spatial framework for the team, I am talking about the core here and not the people that came in and out there was myself who was responsible for stakeholder engagement I took a bit of communication responsibility more on the development side rather than on the construction itself and of course we had some critically important administration staff I don't think one must not think about how important the administration support is because it kept the wheels turning over that was Monica Reuben initially we had somebody responsible for driving the academic planning side of the project which was more on the academic side and not so much in construction of course if you're building for universities you must have some inside as to how the academic programmes influences the outcome sand the results with the shape and the form of the physical infrastructure will take we also had somebody responsible for institutional development Craigler Watson he dealt with the institutional dimensions of the establishment of the university so even though the institutional dimensions and the planning were not directly linked do what you would consider as a physical development of the university those inputs coming from advisers or those project team members were absolutely critical for moving the project because what had happened was that the academic planning and the institutional development components of the programme was very much tight into the development of the physical construction so separating it out and thinking about the as separate components will really really be hard so I think one of the important really rally important is that is was Spencer that played the client delivery manager delivering on behalf of and he led this team.

Interviewer: so he was the leader of this team?

Interviewee: Yes

Interviewer: So those were the members having different disciplines within the team?

Interviewee: Yes

Interviewer: Was there any structured approach or reporting lines or the nature of the dynamics between members itself, was there any form you know that there are different types of structures, you have the hierarchy the matrix and so on and so forth so was there any other structured approach that this is the middle man…?

Interviewee: No we really worked on a team basis and what would happen is if it is the area of your expertise you would end up leading that particular work so whenever we had issues to dealt with spatial planning would particularly lead that group of people dealing with a particular matter to spatial planning so what would happen is you would have all of these you'd have a bigger team that would meet every two weeks right from the start, that was people get frustrated by the number of meetings that you have, but in fact the meetings are very very important for keeping things moving, keeping the team mates abrasive of what's happening, making quick decisions and moving the project along, but I would describe it as a t5eam structure with different depend ending on the nature of expertise different team members leading in different domains.

Interviewer: so obviously into getting that team to actually work together that team was formulated in the first place who was responsible for selecting those team members, you guys and how did he know that I needed to get Mark Burke I needed to get so and so in order for them to work together in delivering such objectives?

Interviewee: There was a prior history to team members having worked together in the wits environment of capital projects prior to this one and I think that built up adequate currency in terms of the team members knowing each other for a little bit having worked together having understood the chemistry that made the team effort work because make no mistake about it wasn't a question that at all times they all agreed with the team members in fact the one thing that the team needed that was really really good at was to open up a space for other people's ideas so if an unusual problem would arise can we just sit after the formal meeting and have a bit of a discussion and he would present the problem or his understanding of the problem he'd go around the table and say to everyone what is your take so out of the different disciplines and out of the different experiences of people you'd have very different text, but it provided him with different ways to look at the problem, but also put a raise of options on the table and then at least you have something to work with either to prioritise or develop a criteria to make decisions to address particular issues.

Interviewer: so spencer was the one responsible for selecting the team? And he knew who to bring on board?

Interviewee: Yah, I think he had a and I think if I am not mistaken he was actually quite firm parly cos right from the start there were immense time pressures we were always under time pressure so we didn't really have a lot of time to go through your normal phases of norming, storming and finding each other, you really had to bring on board people that have some work experience with each other so that it could facilitate the teaming much quicker. I was probably an outlier because I've need worked with any of them, but I'd worked with on previous occasions with some of the executive leadership in Wits and when they said they have this particular task to implement my name came up so it gave towards them some sense of referral of people having worked with me so that helped to bring people on board that was in a sense part of a much wider network.

Interviewer: What would you say was you, I often ask people like one of the team members said it is actually difficult to explain their role if you were to put a list form into your role, what was your role?

Interviewee: my role changed over time because I was brought on board to do something very specific and that was to develop the development framework because at the time what was happening is there were several ideas of what these universities would present and symbolically what was required is to write not a long document a short document that sets out the vision that would sort of bring everybody very dispirit members of the broader team within ourselves onto the same page so I was brought on board to develop the development framework.

R6 interview transcription: R6,2 recording

Interviewee: I was saying my role changed, I was brought in to do a specific assignment which was to develop, to formulate, to draft to prepare the development framework and that development framework as it suggests provided an overarching coherent that brought together the essence, the essential ideas that drove the establishment of the University, the motivations and the key principles and values that usually had to be expressed on the basis of that I became part of the three was the recognition that there would be in terms of the justice administration Act there would be engagements with the stakeholders will be required as well, I then steeped into that role to assist and provide technical support for the roll out of that, to record it to note what people would be saying and then report on the various views of stakeholders from there it then evolved into deeper stakeholder engagement in the new universities, the construction process started with the motivation of the universities because then my engagement evolved with engagement with provincial structures and stakeholders in both sides ad eventually I ended up taking responsibility for the development component of the construction because in the procurement process In the procurement strategy we had specified that we would like to see broad based black economic empowerment, learning in development and local participation, skills development and local participation for both universities emerging, that then became my responsibility to engagement with the stakeholders to mobilise awareness around it, but also to monitor compliance to it.

Interviewer: so in the nut shell that was you role?

Interviewee: that's how my role evolved

Interviewer: it started with stakeholder engagement and then moved to a development framework?

Interviewer: going back to the teams, what do you think was the basis of the selection of the team? You know that normally they'd look at skills, background, qualifications and so on what do you think was the basis of that particular selection?

Interviewee: expertise!

Interviewer: expertise? So he knew that into delivering this type of programme I need these expertise regardless of do you think background or experience had any impact?

Interviewee: no certainly because if you look at the team composition let's take on the procurement side the extend of the experience of Dr Ron Watermeyer I mean if you think procurement in the country you think especially in the public sector especially from before it was fashionable bringing for example for procurement a small contractor development he was of the leading thinkers and implementing frameworks before the 10 point plan was even developed and he has played an advisor role to treasury around infrastructure, procurement and so you going to find it very hard to find expertise that can match that level of expertise and experience, so it made the learning curve for the project shorter because at any given point in time you knew that you had the best advice around procurement you know that you'll have a wide range of options and probably get the best fit because I think what happens is when you develop knowledge and experience you decision making becomes far more intuitive so that you are able to generate options far quicker far better and then make recommendations of which path to follow without having to do the numbers necessarily so you

intuitively arrive at the cost benefit analysis and then you do the data work to sort of level out what you instincts would have already told you so I think the combined experience, getting people with the right experience, getting people with the right experience the thing is it wasn't only people with the built environment experience, it was the built environment experience in the higher education environment I think that was also extremely critical because it does have its own peculiar features and if you don't have experience in that particular environment I mean for example a project needs to be done before the academic year starts because of you don't have your accommodation ready, you essentially lose out on the year right?

Interviewer: yes

Interviewee: there are certain drivers I the university environment that are critically important to appreciate it in understanding so there was expertise and experience at a technical level and so the experience of working with the universities.

Interviewer: so this was wits and wits was the implementing agent?

Interviewee: yah

Interviewer: and you came under wits right?

Interviewee: yah

Interviewer: so let's say like for an institution like the University of Johannesburg would you say it would be beneficial for them to like establish the core team for themselves and lean on the various aspects or various reasons you guys used into developing a team. Can you take the wits core team ma and how it was done and put it under UJ and so on?

Interviewee: you know universities work in and they may have their own spatial outline, but they work in many different ways. The universities history matters, I interact with wits, this centre is based at wits and the institutional make up is very very different and the approach to it is very very different, they would be a lessons that you can draw on that you may take into account when you design and develop your capacity, but I don't think you should without thorough interrogating the work in you context replicate something, you've got a point of departure, but you can't take the very same, they may be elements that would work and I think understanding procurement ad u7nderstanding and the role of procurement in construction projects is critically important so anyone should have access to that kind of advice and skills, particularly universities because I am not convinced that from my exposure that people appreciate the impact of the procurement processes on your construction delivery there are lots of instances across the sector where you end up having getting barked down and the procurement processes being challenged so you just never get to the stage where you're constructing.

Interviewer: coming to, do you think there was chemistry between the team?

Interviewee: you have to define chemistry, what is chemistry?

Interviewer: chemistry is the ability of the team to and obviously there were disagreements and stuff to actually, the culture in which the team work together effectively into delivering the output or whatever the task they've been given so do you think there was chemistry between the members of the team, roles were interlinking or you were just

Interviewee: no I have difficulties with chemistry because I can't respond when you say chemistry because chemistry is a chemical composition so I am not sure how that is relevant to the team environment.

Interviewer: in literature they say that teams with chemistry are much better or much able to effectively work together to achieve the task at hand so chemistry can be similar to have the 'clicking'

Interviewee: I don't think you have to have chemistry to work together, I don't think so, I think what you need to have and it was present in the team was an enormous amount of mutual respect not only for the person, but for the person's contribution so there was a bottom line of respect that doesn't mean that there were no screaming matches, that doesn't mean the tempers didn't stir, it's still did, but when it's over and done with the respect kicks in because you know that was coming from because It was either a lot of pressure that drove that incident, but the next day you look into each other's eyes and you move along and I think people agreed with the amount of pressure we were under, we didn't have time to entertain quibbles and squabbles, it didn't add value to stay unhappy with somebody for 2 weeks meanwhile you've gotta work together, so for me the mutual respect for the person and the professional contribution was very important and that provided the basis for corporation and working together, I didn't have to like anybody else within the team, it was irrelevant, if you're a professional you know what to do.

Interviewer: how was the reporting lines being accounted for within the team? What was the nature of the reporting lines? Were you directly reporting to spencer or how was the reporting done and how did the team monitor performance across the team members?

Interviewee: so it was a flat structure, everyone I mean the same core team of whatever the number, it was a flats structure and it could be managed in that way, reports were submitted on a monthly basis but also our reporting coincided with the technical integration committee this was a committee established and comprising of the project team and the DHET, 3 or 4 members from the DHET so that actually drove our reporting because at that technical integration committee you had to report on financial progress, you had to report on progress against the planned, and you had to report on risks and what we're doing to mitigate It and we were reporting on emerging priorities in moving forward.

Interviewer: so was that done monthly or?

Interviewee: every two weeks.

Interviewer: so how was performance ensured? How did they ensure that Mark is working is doing what it's expected of him?

Interviewee: you were told you were not performing in the sense the quality assurance worked in this way; it wasn't that the director you know what you were producing had to meet the requirements from spatial perspective, the requirements from a financial perspective, special requirements in other words we were all in a sense quality assuring each other, we had our weekly meetings and that is where the quality assurance happens, we did the reporting and you know that you can develop reports and they don't mean anything necessarily so I think what was important around quality assurance was holding each other to account because it would be pointed out very quickly and clearly that was what it was not expected and then you'd have to pull up your points very quickly .

Interviewer: so when you do your report you also have to explain it?

Interviewee: yes the report is there and then you have to account for what you're reporting on so team accountability was important, but to account to each other it's not just to spencer links to everything else.

Interviewer: so you guys trusted each other?

Interviewee: we had a lot of trust I fact we had relative freedom to decide on the approaches we wanted to use or develop the approaches we wanted to use and bring it to the table and once the team says you then you must go, you must trust yourself to do and then bring back to the team I mean if you can't trust yourself to do what you need to do then who's going to trust you?!

Interviewer: nobody!

Interviewee: exactly

Interviewer: so there was no any formal structure?

Interviewee: of what?

Interviewer: of the team?

Interviewee: no there was a structure!

Interviewer: was it the same structure that had the delivery manager?

Interviewee: yes

Interviewer: technical integration and at the top it says….

Interviewee: where did you see this?

Interviewer: I got 2 structures, 2 different types of structures, I got one from Prof Ballim

Interviewee: you see you're too high up now, that's the governance arrangements, and you're talking about the project management team.

Interviewer: I got the other one from spencer which is the one I am talking about. The delivery manager and then you have the procurement strategy specialist

Interviewee: yes that's the one, it was a flat structure, there wasn't a hierarchy, but it doesn't mean that there wasn't a structure

Interviewer: it was a flat one?

Interviewee: yes

Interviewer: so I wanna come to spencer, what was spencer's role? I even ask him and he couldn't actually be specific that this is what I was doing on daily basis and stuff, that's why he even recommended that I come see you and you have useful insights about his role

Interviewee: spencer's one of his primary roles was to recognise, internalise, analyse and process demands from the external environment and compute that and frame and structure the work of the team. That's one of the big roles. The second role was that spencer was always anticipating the future he had to peep his eye on what's happening now and what is being delivered, but the technical people

were competent enough for him not to worry too much about them. Spencer was bringing the future. He was taking the project into the future, he was bringing the future closer to the project for example there was a point were spencer kept on talking about we must get project managers on board for about a month and a half spencer was talking about getting project managers on board and the future the risk he had identified was that at some point based on our MOA between wits and the universities that DHET we would have to hand over the responsibilities for the construction program to the universities and they need to have project management capacity so before we were busy doing what we needed to do spencer was busy managing the future so for me that was incredibly and very important thing to do so by the time we understood what he was taking about he had 3 months before he anticipated that risk, anticipated that future and began to put the measures in place because he had procurement to do that and procurement would take 3 months at what point would you have the procurement established then so managing the future, anticipating and managing the future it was processing the demand, the first is processing the demand and structuring the work of the team,

Interviewer: on the first one can you pleasure elaborate further

Interviewee: so there was a development framework that helped us to establish the framework with which we needed to work and then there was signals coming in from the environment that we want the universities built then the was wits itself having its own interest because wits is doing something that universities don't, it was constructing another university so that's not the business of the university so wits was never done, they agreed to do it, but it presented lot of risks so those signals there were competing signals coming from the stakeholder environment all the time and he had to input that and work out the implications for what we had to do, strategize and what we had to do to deliver on the commitments on the MOA that's what I'm talking about that's an important leadership role you need to interpret the signals, the demands so that you're able to structure you're work in such a way that you're able to meet your commitments and be responsible to those sometimes competing demands. Then there is two which is managing the future.

Interviewer: so the demands, are you talking about the demands of the stakeholders?

Interviewee: stakeholder demands yes

Interviewer: not the team members?

Interviewee: stakeholder demands yes, remember he is externally facing, he's looking at the world, he's externally facing. Spencer is the lead person in the project and he is interfacing with the DHET on behalf of the team. He is int5erfacing with leadership of wits on behalf of the team, he is interfacing with the range of other universities which might have an interest.

Interviewer: so he was the link?

Interviewee: the link yes, the interface. The other one is was saying is the third role is about managing risk; anticipating and managing.

Interviewer: so it seems like the objectives spencer set, do you think the way in which spencer led the team, is there any direct influence or direct relationship with the delivery outcomes that team achieved? Or the delivery outcomes of the projects?

Interviewee: absolutely!

Interviewer: what's that direct link?

Interviewee: absolutely! In fact in involves all 3 of them.

Interviewer: so that's the direct link?

Interviewee: that's the direct link. His ability to manage stakeholder demands, anticipate the future, manage the risk, but also the fourth one would be his ability to get the best out of the teams, out of team members.

Interviewer: if I expand this one, it's going to be…

Interviewee: sometimes he was very very tough, he was very tough

Interviewer: so talking about these direct links would you say that if spencer didn't foresee and manage the future the delivery outcomes achieved wouldn't've happened?

Interviewee: no! no!

Interviewer: even risk, if he hadn't manage the risk, there wouldn't me such outcomes?

Interviewee: no. there another one a fourth one, spencer I only came later to understand what It really means to act on behalf of the client, spencer really really understood who the client was and what he had to do to act on the interest of the client.

Interviewer: lack of that understanding wouldn't have led to the outcomes

Interviewee: no,

Interviewer: I think you actually answered the questions I had regarding the team structure. Going back to the team members and their roles, what was the. I am trying to establish a direct link what were the direct roles that actually influenced the delivery outcomes?

Interviewee: procurement

Interviewer: what specifically about procurement?

Interviewee: in a sense because we had the right procurement expertise on board we were able to follow different procurement strategies, procurement methods that allowed us to package the procurement strategy in the particular set of circumstances, I think our capability and respect of procurement if you look at the volume of procurement that we put through, if you look at the types of procurement that we put through, if you look at the type of the procurement strategies that we used, I don't think a one size fits all could have worked we would still be in the phase whatever, if we followed that route so I think our procurement capability was the procurement capability of the team a lot to the large degree.

Interviewer: let's do this, this way we know the procurement strategy specialist was Ron, and stakeholder engagement was you, what aspect of you role you think had a direct influence to the outcomes?

Interviewee: I mean it[s my own area of work o I don't think about it, but now that I am thinking about it because you're asking me, the stakeholder engagements were actually very very intense, the provincial government had very different ideas as to what they wanted from the universities and there was a potential for a role conflict there because universities are national competencies yet the provincial government felt so strongly about the institutions and they wanted to own them so one had

to always manage that tension between them wanting to own the university and actually no no no this is a national competency, there space for you to make your input, but there's a bit of a boundary there so that had to be managed very carefully because you needed to report, the premier's offices were very important in mobilising the support from the rest of the government and also the local government were the universities are constructed, so that stakeholder engagement by the ay was not just me because there was stakeholder engagement on spatial planning, there was a stakeholder engagement on procurement so everybody had so form of stakeholder engagement, but they had to do from the perspective of their expertise, for example Ludwig spent a lot of time in Kimberly I remember upfront working through the spatial framework for the university and the impact on the local government, sol plaatjie municipality and how those 2 interface because that university doesn't have boundaries, but the way are you gonna go to the universities?

Interviewer: my plan was not to, it was actually trying to get everybody here.

Interviewee: I understand, but I am not talking about that, just think about it, physically being in the university space after your interviews because from a research perspective you might actually develop some observation from that, it's either that or you must get the pictures from Monica or Ludwig

Interviewer: yes because I need to get a list of all the projects achieved, but looking at cost only, I'm focusing on cost performance of projects so I still need to get that information on the project delivered, but I that there is a project close out report that I should get.

Interviewee: the second thing is when it came to development objectives, participation for various economic impacts for example I remember in Kimberly there were couple of times we were under threats and a project would come into a standstill, and we had to myself and spencer negotiate with the various formations not industry associations, groupings of business interests that would try very hard and I use this word with great discretion capture some of the value of the project, but we had processes in place we were following and couldn't undermine that. So from the stakeholder perspective there were risks like quite a few points in the process where the project was under threat and that had to be managed and resolved.

Interviewer: and from programme and project management systems that was done by Dean, what do you think was the direct role or the major role that he performed that led to the said objectives?

Interviewee: I think the most important thing was the ability to monitor the expenditure, I mean it is a fair complex set of numbers and I think what they had done was to build up the system, their financial management system, not to start with a system in mind, but to build it up in time adding different values as the project evolves and I think that was quite useful

Interviewer: during?

Interviewee: as we brought up the implementation of projects, I think that was a crucial ability in any given point in time throughout the reports on projects and also on finances because without that in place you don't know if you're under spending, you don't know if you're not or the project isn't moving, and that gives you the visibility, you dashboard, understanding where you are.

Interviewer: I think we've actually covered everything, thank you so much, if I have any question or clarity, I'll email you, thank you so so much.

Interview with R7: 15/02/2018 (New Recording 1: R7)

Interviewer: So my research will be basically…I'll be using the programme as a case study, but I'm actually focusing on teams.

Interviewee: You are using Wits as a case study for what?

Interviewer: I'm studying teams, the nature of the teams and their structure and the role of the team leader.

Interviewee: The way teams are set? Is that correct?

Interviewer: Yes, the role of the leader how the leader effectively lead the team to achieve the said objectives. So I'm actually focusing on that. Remember when we went to the IDMS presentations, we were talking about the team and they said the ''bull dog'' team. Remember that team that made sure that the Wits Capital Projects Team achieved the said objectives so yes I'm actually focusing on that.

Interviewee: So do you want me to just talk and you'll ask questions or….?

Interviewer: I was looking at directing it somehow, in the sense that we start here and go there. So the nature of the team. You can talk about the nature of the team that was put in place for wits capital projects delivery.

Interviewee: the one thing I'm gonna try to dis-aware you of is the notion of the leader as if there was a one great man who was in charge of everything. First of all it is not great and it didn't have to generally be a man. Let me use that as a metaphor. I am always shocked at how I am moved by women voicing song especially African human voicing song. It doesn't matter where you come from you have to be moved by it. It moves you, but it is not in your conscious brain and it's not in the subconscious either it's sitting somewhere in the middle brain and one of the things is that I have thought about it and I grew up in a township. It is simply my culturation because it doesn't matter even if I'm listening to indian music genre I still moved even if I don't understand what they are saying. And a large part of it is that there are no lead singers. African music has got no lead singer and that metaphor is what you should keep in your mind when you thinking through this. That it's about voices in harmony without a lead singer, who take the cues from each other you're being guided by the tone of the other. There's a conductor who sort of sits the program and organises the harmonies and the role of the different voices, but s/he is not singing and he's not a lead singer. So this notion in fact by the time the performers are ready, the conductor doesn't have to be there. The conductor has made him or herself redundant so this idea of a big leader and I think you may I can see it as a section in your thesis around this theme, I mean Ubuntu has been a misused concept, but I think it has that sort of overtones. Mandela's notion of leading from behind. The idea of the conductor becoming redundant on the day of performance and the people are able to take the cue from each other and this big man African leader is nonsense we learnt it from somewhere else. That actually African society you know as in most society it being china, south America etc. are able to take the cue from each

other and then produce the voices that when put together produces a harmony that makes for good corporation and project implementation. So I really want you to take your head out of the space of the leader, but with that said it does need the people to get the keynote. Somebody has to give the keynote. Which brings the voices if you listen to choral music somebody hits that little harp and if you go to a classical music or concert the choirmaster who is the choir master will give a key note on his violin and then everybody goes with the tune.

Interviewer: And I was actually there yesterday, last night

Interviewee: and you know you're going to listen to the symphony on the key of C minor or something like that. So somebody has to give the keynote it's not as though it will happen without leaders, but the leaders are firstly it is not only one and secondly the leaders manifest in different ways.

Interviewer: Yes That's true.

Interviewee: So this has almost a philosophical background in the way in which the team is constructed. I like the idea of communities of voice in harmony. It makes sense to me that people actually know when they need to come in and when they do what tome they must think and what note they must sing, that's the first point. The second point let me start with the historical directory. I was appointed as deputy vice chancellor in 2006 I am a civil engineer my qualification is in cement and concrete I worked for 6 years in construction and civil engineering industry before I become an academic. So I actually did build bridges, built roads.

Interviewer: Using your own hands?

Interviewee: Well I was on site, I was a site agent I managed the concrete team so I was part of the leadership team that build big concrete infrastructure. I then went into the precast concrete industry and I was a technical manager I built factories you know…we got products out and designed products so I had practical experience of how these things work. So one of the things that bothered me and the then appointed deputy vice chancellor of finance who is a philosopher his background is he is a management academic, but his background is in philosophy and drama that was undergraduate studies and the two of us expressed concerns about the haphazard spatial development here at wits. So what we did we said that every time we get money somebody else comes and says let's build a little lab here or something and we end up with lean tools like a shirt built against the bun. Why don't we start thinking about spatial development at wits and we recognised that the wits foot print in joburg was from sturrock park in the west right across Charlotte Maxeke Hospital.

Interviewer: They call it JCE

Interviewee: Beyond JCE the Wits Medical School. So it incorporates medical school,JCE, Donald Gordon Hospital which belongs to Wits

Inteviewer: Business School

Interviewee: Business school,and then east campus, west campus and sturrock park. But the one thing that links us is what I call the Witwatersrand spine. You know what is the Witwatersrand spine?

Interviewer: No

Interviewee: Do you know where the Witwatersrand is?

Interviewer: No

Interviewee: So you are now sitting at the where you are sitting you're almost exactly on top of the Witwatersrand. If you take that cup and fill it with water and you throw it out through the window, half will go to the atlantic ocean and the other half will go to the Indian ocean.

Interviewer: Really?

Interviewee: So it is an important water divide. The rain water that falls on senate house goes to the atlantic ocean and the rainwater that falls on the lawns goes to the Indian ocean. So it's an important water divide and that's why there are no hippos in west following rivers no belazia no crocodiles. Crocodiles are on this side just because the waters don't mix they separate here at this point, so the Vaal river, the Vaal system is the liker scale system and that water flows eastwards and that water flows westwards. Vaal eventually meets with the organce and then it rains at the southern border where it meets with Namibia into the atlantic ocean. So this concept of a physical divide called the Witwatersrand runs east west incorporates UJ, the constitutional court, the Hill brow police station and goes off in that direction etc.

What we did between Patrick and I we got some money together and we got a planning team together architects, town and urban planners people together with Emmanuel. And we said if you didn't have to think about money how would you develop this university? Think about its relationship with the City if we were to advise the city, where would you put the next bus route. Why would you put the next train station. If the city was thinking about the bus route where would you put the bus stops. Should we be encouraging bicycle lanes?! Should we be having taxi routes?! Etc. Where would you put the next residence?! And how would you structure it and where would you put the next academic building etc. so these guys came up with beautifully drawn plan which were completely up in the air. They said we would put the residences here and we would make them look outwards to form a better spatial connection with the city etc. in the inside we would put the community spaces the internal university. So this idea of public spaces semi-private, our offices are private. The performances spaces, the sport fields some of the big lecture halls are semi-private sometimes you'll have the public there. Then there's public spaces where the public will arrive without knowing that they are on the Wits campus without passing the security gates the wits Art Gallery is an example. That's a public space, you don't have to get passes to get to the building except the normal building security, but you're on the wits campus without you knowing it so we started thinking along those line on how will we form a connection with the constitutional court etc. which is a very nice because for example when we set up the internet connection between this campus and management school, education and medical school. We got a company to lay the cable for a 12 million rand project. We laid the cable all the way and we had connections done. We took the connection into the Donald Gordon medical centre the hospital and then they had the internet connection, but do you know what I did I went to Joburg City, I said you know what safety and security? Free of charge I'll have the pipe take off into the hillbrow police station, you give them the internet connection we'll give them the pipes and we do it for free. It costs us nothing. In fact the guy who was doing the cabling said ahh we'll add another one free of charge. The police station has internet now because we formed this partnership eventually I got to a point where Hillbrow used to call me at home and said prof we've arrested 6 of your students what were they doing? They were peeing on the cars, where are they now? No don't worry they are on the cell on their own they are not with other criminals and I said give me their names and keep them there I'll call their parents and give then a R200 fine or something. Tomorrow morning they woke up on the cement floor and they were fine and the police will be careful with our students.

R7 interview transcription (New recording 3: R7,3)

Interviewee: on your master's degree you should make a comment about transformation, don't be afraid of that I think it's important and I think it's something that we take lightly in part that we heavily rely on those who have the capacity I tell you we wouldn't have a hard time developing project management for the wits projects we needed to have friends or people who knew what they were doing, we had to have Ron it was the white male that gave them the capacity that they had its not a reason to say that we will do it in fact the quantity surveying team is still working here with us.

Interviewer: so Spencer was the one who was actually coordinating the team?

Interviewee: Well in that correct bar, in fact there was the project management team, the project director.

Interviewer: Ron was not directly reporting to you?!

Interviewee: no no no, in fact he was reporting to the team that spencer was coordinating and the Spencer reported to me., Spencer and Emmanuel. Ron Watermeyer never ended up reporting to me. All that I needed to know that the person was competent in engineering procurement and was looking after the procurement processes.

Interviewer: That all?

Interviewee: That's all that I needed to know, yah. I have another person who is gonna call me she's doing her PHD. Are we done?

Interviewer: I think we've covered most of the questions I had today. Okay can I ask another question? did you know from the beginning that having this kinda team having the nature of reporting dynamics, you are going to have this 5% deviation? Did you know from the beginning?

Interviewee: No, we didn't even know, it was purely good management and good structure and we had this thing in our head, but we weren't sure that we are going to achieve it.

Interviewer: so during the course were there any factors that you can point out that this one actually helped us so much that we achieved this.

Interviewee: it was the fact that we met regularly and we had our hands on all the risks all the time and we knew when things are gonna go wrong before they happened we knew that the…….project was gonna run over budget and we've done our sums and we've done them correctly and the hands were sharp and we send we can't afford this and we didn't do it and that kept us in check we went to developing the relationship with the contractor…are you interviewing spencer?

Interviewer: Yes, the whole team actually, but I haven't gotten interviews with other because I don't have their email addresses for Patrick….

Interviewee: Sam can actually give you some of the others

Interviewer: was there team chemistry?

Interviewee: Yah I think it was hard, we expected tough talk from our colleagues because nobody worked on the principle that I don't mind what if goes wrong as long as I don't get blamed we watched each other's backs so it just worked like that, it works like that it wasn't that we set it up front these are not the type of people I would socialise with they are not the ones I would drink tea with, weird conversations, but in meetings we are deeply respectful of each other and when I spoke about the values of the university and what the university is trying to achieve and what the transformation project was about they understood and they appreciated nobody and I never got the sense that somebody said that they lot of shxt that we are doing or this guy is telling us. They bought into the idea of what wits wants to be where they thought differently they made their voices heard, but they did agree with the values we thought were important and from then on it was just respectful relationships nobody was….we spoke hard nobody was word out and I think it sort of worked very well.

Interviewer: I think we are done, I covered what I wanted as much as I could.

Interviewee: I need to let you out because the door is locked.

R8 interview transcription (R8, 1)

Interviewer: My name is Tsholo, I am doing my research on team structure

Interviewee: Team structure you could do research it sounds like a management topic

Interviewer: Yes, team structure

Interviewee: Of course you said the school of construction and MANAGEMENT studies

Interviewer: It's school of construction economics and management that's the school so I am doing my research on team structure and the role of the project team leader and how it influences delivery outcomes of construction projects. So I am specifically using the Wits Capital works programme as case study. Normally in large organisations in South Africa fail to achieve their intended outcomes specifically focusing on cost so I have seen that most organisations experience relative cost overruns within the projects or programmes that they deliver so but I have seen with the wits capital projects programme and also with the new universities that they've achieved relatively low cost deviation from the expected and the actual.

Interviewee: It was apparently very successful, I might be telling you something that you already know please forgive me, who else have you interviewed?

Interviewer: I have interviewed almost everybody.

Interviewee; You have interviewed Spencer?

Interviewer: Yes, I have.

Interviewee: you have interviewed Emmanuel?

Interviewer: yes, I have

Interviewee: Okay

Interviewer: But I just wanted to get your perspective.

Interviewee: So you would've gotten a lot of hard data.

Interviewer: Yes

Interviewee: form people like Spencer?

Interviewer: Yes

Interviewee: and you'd also know that spencer is quite innovative so he used the wits project to introduce all kinds of new things like the procurement and tender methodology

Interviewer: Yes, which is different from the standard approach

Interviewee: It was because you probably know this, it was because of the successful delivery of the wits infrastructure projects that the same team or the big part of the team was then asked to continue with the new universities which was then subcontracted to wits and quite again unusual, but I think Blade Inzimande knew very well that if he left it to public works we could still be waiting for the new universities so he cleverly did it through wits. One of my roles was having to convince the wits council to take on the risk you could say what was in it for wits other than good will to have government good will, but of course there was another motivation which was to do something for the country to get the new infrastructure going so I am glad you spoke to people like spencer before because I am released from having to dredge cos I have forgotten the technical details of the depths of my memory. I'm sure did spencer give you documents from so on?

Interviewer: No, I didn't get any documents from Spencer, apparently the same team….

Interviewee: Did he give you the article him and I wrote?

Interviewer: Yes, I did get the article

Interviewee: it is not a peer review article, but did you read that article?

Interviewer: Yes, I did.

Interviewee: it is very broad, but may you are doing your masters you can quote it.

Interviewer: Yes, I did speak to him and he did tell me his perspective, but what struggled with Spencer is that because I believe that a form of leade4rship or the leadership role that project team leaders play, play a vital role in terms of the delivery outcomes achieved and I know that the team wasn't like the general management team where it has to go through the forming stages and all that, it was just a group of people who knew what they were doing.

R8 interview transcription: R8, 3 recording

Interviewee: ……Spencer is like he's almost brought up in it, initially he was in exile and then you know being sent to I think he spent 7 years in east Germany, his wife is from east Germany he had to first learn German before he could even do the architects degree, he then gets deployed, he gets involved with the mazunku project then he comes home he goes into government. So it this some he spent his whole life in service of the movement and I think although as we've moved on the movement just becomes just a political party so you not serving the librarian of the ANC anymore you try to serve society you try to do those sort of things and I think spencer it was the right thing at the right time for him because he just come out of his government deployment and he was also new in the climate because spencer is a little bit older than me he's quite older than me. He's almost reaching his retirement age. Murray and Roberts said don't worry we'll employ you, now I think for the first time in his life probably in his mid-50s found himself working for a capitalist company, but he took it because he needed to do something, but I think then this deployment came and I think his initial response is, is this gonna work, but I think once he got his hands on it was everything, his whole life, his experience worked towards this point and I think this was the perfect project for him because it was socially important, progressive, it was an opportunity to do fairly late in his career to do another big thing which will be to the benefit of south Africa and I think once that gelled he really seized it with enormous commitment because he was capable of work 13 hours per day, he's capable of working on weekends. He was capable of most inferable efforts, his leadership in terms of focus, commitment, and I think in a sense let the whole project, he was absolutely determent that this project was gonna happen and it was going to be an exemplar, it was going to be an example of best practice so I think he drew on all his experience and brought it and that was like very very fortunate for wits and for also the government budget, the donor budgets which were going to be used and I think it was almost like it was a perfect marriage of that moment in his career and the opportunity and I think he was highly motivated, not only by sense of duty, because you know he has a sense of duty, I must do this I must do the right thing, but he did more than a sense of duty pace he took on a project, got the scope of it, realised that he had a fair amount of space to work and fair amount of discretionary and he was telling me about how he was shed this project I think he really grabbed it with tremendous commitment, when you spoke to spencer about the project there was never a question he doesn't know, he was fully seized with this and I think that's what he enjoyed doing that, he wasn't doing it for money, yes I'm sure it was really great to earn a salary, but I'm sure it's not the main thing.

Interviewer: now I just wanted to ask, you know wrapping everything up, I want to understand how did team structure on its own affect the delivery outcomes?

Interviewee: I don't know, are you making a distinction or not between the team structure and the way the project was structured in terms of the different committees and reporting points and so on?

Interviewer: yes

Interviewee: because as I understand it, you're looking at spencer's team?

Interviewer: yes

Interviewee: that's your focus?

Interviewer: yes

Interviewee: so I know that the structure of that team was complex, in that the team didn't necessarily meet every week all in one room, it was a complex structure. Yes sometimes I'd go to meetings and the whole team would be there, there would be like fifteen people in the room, but the impression I got that was for a specific occasion where we would be presented of a building our something of some sort otherwise there was matrix arrangements. Spencer would meet with some individuals or group of teams of people or him and Emmanuel or something had to relate with another part of the universe, Emmanuel me and him would meet, or he would bring the relevant project manager into the room, so the team was a matrix team and had a variety of ways of coming together in small or larger groups, although there was a larger team and I am not sure whether that team was always identical or whatsoever if some people would drop off send others would come along, but there was a larger team and in my mind it was about 15 people and spencer would know that much better than me, I don't know if he answered this question. If you ask me well, how did that assist, I just assumed that when you're doing construction and spencer philosophised me in an occasion when he would say you see Patrick when you build a building there's no actual blue print, yes there a plan, but a plan is a single thing and when you start to build it, you don't know what's gonna happen and you see you've got an architect who's not a builder, you've got a building who's not an architect, quantity surveyor and you've got the electrician, you've got the health and safety, you might have few considerations and this is the unique combination that you have to manage and you have to manage it will delivering the project, by the time he was finished I was like, I said to him it's like doing a play because once upon a time many years ago I used to be involved in the theatre and I said to me what you've described is like directing a piece of theatre, you've gotta bring all the actors in and there's music and there's words, there's visuals, there's costumes, and there's direction and there's a plot and there's an author and you gotta make and people have got to come and see the play that's gonna be 1 and half hour whereas that play took so many days and months and weeks to arrange, it sounded like a theatre production to me with the way he described it, so I think given that he had this grasp of how you do it because he had done it for the buildings at mazunku at the freedom college I think he had this experience of what it takes and the different inputs although the buildings at mazunku where much simpler and cheaper than what we did at wits and I assumed that he knew that within the industry within construction how you join all these elements, architects and health and safety, and builders and electricians and plumbers, you know and there's aesthetics and functionality and there's cost and there's time and there's materials and the rest and that building will never have people who care and those plans are gone, it's not like you build a science block and the same science block is built at the university of the free state, the same science block is built at sol plaatjie maybe that's how we should do it, but it is not how we do it, everyone is a unique creation. And spencer used to say that drives how you manage the team because you are managing the team to produce that so you don't decide how you manage the team and then do the job; the job determines the nature of the team management, that's how I understood it.

Interviewer: so talking about delivery outcomes, who was financial expenditure ensured? Within a project, how did you ensure that you don't go over budget? How was the entire process ensured?

Interviewee: that was a bit paramount, everybody seemed to believe that this is what was going to happen to mess it up financially, form council to the VC, obviously spencer had his control sheets, but between spencer and Emmanuel and the level of on-going project spending there's was a liaison with the small team in finance, normally underneath that it goes through the CFO and under the CFO obviously spencer and Emmanuel could release funds, but not have power to pay, they would sign off, but budgetary to be paid. So this team would meet, but I don't know how often, but it might have been

weekly or monthly and that team at that level would monitor so I would get a report from Emmanuel and spencer and I would also get a report from the CFO, so that was a dual assurance then I would report if I was to say to me I would be flattering myself, It would normally be me, but it would actually be spencer and maybe the CFO would report to Yunus Ballim's governance and of course one of the main purpose of Yunus Ballim's governance group aside from ensuring that the project was delivered to the intended objectives was that it was coming in under budget so the finances were a big feature of the Yunus Ballim oversight and from then on the finances would entered the main stream of the university financial oversight in other words there would be reports to council financial committee there would be the usual audit, internal audit in fact there was a further which I shouldn't forget there also had to be the month financial reports to the DHET on their part of the money, but what we worked and I seem to remember was we couldn't really report on their part of the money because if wits was contributing or a donor because an out of the buildings were assisted by donors and wits always had an annual capital budget for those years of the capital programme most of the capital budget annual capital budget was thrown into the pot so it was very difficult to report to DHET on their part of the money because their money got mixed up. So we had to have reports even if it was 70 million rand of their money and 70 million rand of other donors like chamber of mines building, you couldn't really differentiate that whose money was who because it is being thrown out of a common budget or fund so we than had to also report to the DHET on the project and obviously there was some buildings which had no DHET money like wits art museum and the professional development hub, it was no DHET money at all so those will then not be reported to DHET, but there was also parallel reporting system to DHET and I spoke about how every transaction had to be audited which was painful totally painful to say the least I mean a very expensive financial oversight arrangements, but I think the really challenge was not to account for the money, the real challenge was to spend the money well which of course no amount of accounting and auditing can ensure so the real thing was not to account for the money I don't remember it being a problem or the accounting the problem was can we build this for this within budget and then of course all those new contracts, what do they call the?

Interviewer: framework agreements!

Interviewee: framework yah I mean that was a revelation to me when spencer explained that you've got a service to council and senior management, we do a contract and if there is an under run the builder get half and we get half, and if there is an overrun we share it, that incentivised the builder to rather than the other way around which incentivises the builder the wrong way that they going to go out and find other ways to charge you more so you never get an under run and if it an overrun it becomes a big fight about who pays who and whose fault it is instead of just saying it's a joint thing if you're 3 million over, you obviously pay 1,5 and you'll pay 1,5 so both sides have an incentive to work together and about value engineering where spencer said with value engineering which to me was very incredible, but you wouldn't know where the science block is was a stadium, it was a sports stadium, it was a sports stadium we inherited from the rand show when the rand show used to be there in a stadium, it was quite too small to play soccer or rugby, it was kind of not useful so it quietly ever got used, but it had concrete seats, stands along the one side so just to remove, to destroy and remove that was like several millions so spencer said to the architects, design them into the building and the architects did so those stands are still there, but where seats are not auditorium to the classroom it's something you'd almost wouldn't believe possible, so those concrete stands are still there and the building is enclosing them and that saved like 4/5 million so you know so many interesting things.

Interviewer: I am actually done?

Interviewee: are you done?

Interviewer: Yes, I am actually done

Interviewee: so what theoretical approach are you using or methodological approach in terms of theory of teams? Whose theory of teams are you using?

Interviewer: so I was actually trying to use Belbin's team role theory so I was looking at the Belbin's theory

Interviewee: obviously you'll choose one that works for this

Interviewer: yes because

Interviewee: I have a theory about management theory, which you mustn't confuse them with like scientific theories, management theories are not saying this is how the world works management theories are thinking about the world so they are heuristic they are not actually about how the world works, so they just give you a vocabulary, I'm always telling my masters students that all management theories are not literal if I tell you that this is a theory of organisation, it doesn't mean that actually how the organisation work I am giving you the vocabulary to use that theory to think about the organisation so is heuristic, you use it and then you learn things, if you're not learning things from that theory, try another one because that particular theory is not bringing out any insides and because sometimes management student think that how actually organisations are going to work so if you have a tick list of the 7Ss you know, structure staff, strategy, and you've ticked all 7 and that's it, I said no that's not…you could have 5 you could have 11 so they don't have to begin with So it's just that management theory loves alliteration, I do it myself I try to look for words, there's poetry in management theories, but it is just a way of heuristically surfacing useful information in a communicable vocabulary, it's not literal, so you can have team theory, but it's never gonna be the whole story, there's always gonna be other things about that particular team that will escape that particular theory which doesn't mean you throw out the theories away, you've got to have an approach otherwise it's a random discussion, between you're views and my views or your experience and my experience, but there is a predecoy or forne memory of that team like I find that if you played in a rugby team that won the world cup or maybe the soccer team that won the league like 5 years or 10 years later if you meet somebody, you'd say yah yah we won the world cup I think that's still there you know if I run into Emmanuel with his new boss at wits last year walking in sol plaatjie university so that his new boss could see what has been done at sol plaatjie very beautiful buildings there… I know a wits short course project governance actually which is spencer's thing, construction project governance, he asked me to come and give an introductory lecture on just governance in general so you see them and at some point you're working and somebody says hey remember me on the wits capital projects programme, we did good you know! We cracked that you know and you say yah yah those were the days we really did it yah and I think it is pea decor which means that it was built up and I think form me success, trust and I think those two they interact you might have some trust in order to get success, but we've got success then there's more trust. Success, trust and some sort of neutral professional interest and then maybe mission alignment I think because there were fairly strong different personalities, spencer is more quiet and he's more like he pushes where it needs to be pushed professionally and you get somebody like me who is more flamboyant, but I think the two of us being kind of cadres, ex activists you know, revolutionary. We sort of imbued the team with a bit of like we heroes of construction you know, we are building the nation, we building the country, we nation building you know so I think between us we got a very bit of that even for people like

Emmanuel who never got involved in politics, I think everybody took it up yah this is for the people! Because I think even council was too scared to oppose us because at some point we would come to present we were so full of fighting the good fight you know people we were like wow! They better let these people do what they wanted to do