



**Programme Management Success: A Study of the
UAE Utilities Sector**

**عوامل ومعايير النجاح في إدارة البرامج
دراسة لقطاع المرافق في دولة الإمارات العربية المتحدة**

by

MAHA MOHAMMAD IBRAHIM

**A thesis submitted in fulfilment
of the requirements for the degree of
DOCTOR OF PHILOSOPHY IN PROJECT MANAGEMENT
at
The British University in Dubai**

**Professor Ashly H. Pinnington
March 2018**



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Abstract

There has been increasing interest in programme management which is used as a means to implement strategy, develop and maintain new capabilities in order to manage change. This research aims to understand the phenomenon of programme success in the context of the government organisations based in GCC countries. Programme management is designed to create synergy between various projects and deliver a set of benefits by coordinating between projects. Programmes provide a transformational way for integrating projects as well as organizational strategies. The empirical research focuses on government organisations in the United Arab Emirates examining the various measurement dimensions/criteria used for assessing programme success.

A case study is reported of three different programmes within the Federal Electricity and Water Authority (FEWA). These programmes are 'Water', 'Electricity' and the 'IT Transformational Programme'. A list of six constructs of programme success criteria and nine success factors were identified from the existing literature on programme success and used to guide the exploratory study. The study is based on semi-structured interviews, observations and secondary document analysis. A total number of twenty interviewees were selected from different levels based on their experience within the organisation as well as the programmes under investigation. The interviews covered three main aspects in order to better understand the phenomenon of programme success in the three programmes namely, success criteria, success factors and programme context.

The analysis of the data identified a new success criterion that should be considered when managing public programmes. Moreover, it has been demonstrated that programme context has a great impact on the success of programmes in the government sector, especially when it comes to the external factors related to the executive direction of both the federal and local governments if combined with limited authority and influence of programme managers. Results related to leadership competences are seen as essential for directing and managing programmes successfully.

This research makes a contribution to the theory of programme success through developing a holistic framework for managing complex and technical programmes in the government sector. The framework is based on dimensions of programme success and programme context. The research has also identified the most important leadership competences that can assist with selecting the most appropriate programme managers. Furthermore, the findings of this thesis inform practice specific to the UAE government programmes. Wherever contextual aspects are similarly influential, it is concluded that the proposed framework will be applicable to programmes in other GCC countries and beyond.

نبذة/ ملخص

تلقي إدارة البرامج اهتماماً متزايداً باعتبارها أحد الأساليب التي تساهم في تنفيذ الاستراتيجيات وتطوير قدرات المؤسسات والمحافظة عليها بالشكل الذي يساهم في إدارة وتنفيذ مبادرات وبرامج التغيير، ومن هذا المنطلق فإن الهدف من هذا البحث هو دراسة ظاهرة نجاح البرامج في المؤسسات الحكومية على مستوى دول مجلس التعاون الخليجي.

إن تصميم أو هيكلية إدارة البرامج تساعد على التنسيق بين عدد من المشاريع لأجل تحقيق مجموعة من الفوائد اوالمنافع، حيث توفر البرامج آلية تعمل على الدمج والربط بين المشاريع والاستراتيجيات المؤسسية، ويركز هذا البحث التجريبي على دراسة أبعاد القياس أو المعايير المختلفة المستخدمة في تقييم البرامج في المؤسسات الحكومية في دولة الإمارات العربية المتحدة للوقوف على أسباب نجاحها.

إن هذه الدراسة تعتمد على منهجية "دراسة الحالة"، حيث تم اختيار ثلاثة برامج في الهيئة الاتحادية للكهرباء والماء، هذه البرامج هي: برنامج "الماء" وبرنامج "الكهرباء" وبرنامج "تقنية المعلومات"، بهدف تحليلها وتقييم مدى نجاحها استناداً إلى ستة معايير للنجاح وتسعة عوامل أساسية للنجاح مما تضمنته أدبيات "إدارة البرامج"، كما اعتمدت هذه الدراسة في جمع المعلومات عن البرامج محل الدراسة، على المقابلات شبه المنظمة، والملاحظة ومراجعة الوثائق والمستندات ذات العلاقة بالبرامج، حيث تمت مقابلة عشرين موظفاً يمثلون مختلف المستويات الوظيفية في الهيئة جرى اختيارهم على أساس خبراتهم ومعارفهم بمشاريع وبرامج الهيئة، ولغايات فهم ظاهرة نجاح البرامج، تناولت المقابلات ثلاثة محاور أساسية هي معايير النجاح، والعوامل الأساسية أو الحرجة للنجاح ونطاق أو سياق البرامج الخاضعة للدراسة.

وقد أظهرت نتائج تحليل البيانات أن لنطاق أو سياق البرنامج تأثير كبير على نجاح البرامج في القطاع الحكومي لاسيما العوامل الخارجية ذات العلاقة بالتوجهات الحكومية سواء الاتحادية او تلك الصادرة عن الحكومات المحلية في الدولة وذلك في ظل التأثير المحدود لمديري البرامج، كما ترتب على نتائج الدراسة استحداث معيار نجاح جديد يُضاف إلى المعايير الحالية وهو معيار "الاستدامة"، هذا إضافة إلى الدور الذي تلعبه القدرات والكفاءات القيادية وما له من أثر بالغ في توجيه وإدارة البرامج بنجاح.

إن النتائج التي توصلت إليها هذه الدراسة تعد إضافة هامة إلى أدبيات إدارة البرامج بشكل عام وإلى نظرية نجاح البرامج بشكل خاص حيث تم تطوير إطار متكامل لإدارة البرامج في القطاع الحكومي خاصة البرامج ذات الطبيعة الهندسية والفنية والتي تنطوي على درجة عالية من التعقيد. كما ساهمت الدراسة أيضاً في تحديد الكفاءات القيادية التي يمكن أن تساعد في عملية اختيار مديري هذا النوع من البرامج، هذا إضافة إلى تسليطها الضوء على الممارسات الخاصة بإدارة البرامج في حكومة دولة الإمارات العربية المتحدة.

وأخيراً يمكن القول إن الإطار المقترح لإدارة البرامج يمكن تطبيقه على البرامج في دول مجلس التعاون الخليجي وخارجه.

Acknowledgements

In the Name of ALLAH, the Most Gracious, the Most Merciful

First and foremost, all praise is for ALLAH, the Almighty for giving me the opportunity, determination and strength to complete this thesis.

Completing this PhD thesis has become a reality with the inspiration, support and encouragement of many people whom have contributed in their own and special way.

First of all, I would like to express my sincere gratitude to Professor Ashly Pinnington for his guidance, encouragement, insightful discussions, invaluable advice and patience during this lengthy journey.

Special thanks and appreciation to H.E. Mr. Mohammad M. Saleh, Director General, The Federal Electricity & Water Authority who have provided me with his full support and trust through the entire study. I would also extend my thanks to all participants (Executive Directors, Directors, Chief Engineers, Senior Engineers, Managers, Engineers, etc.) for providing their time and views that contributed directly to this research.

Thank you to all my friends, colleagues and especially Dr. Khalid & Dr. Radhia for their encouragement and advice. I would also like to thank Miss Amna for arranging all the interviews conducted for this study.

Special thanks and gratitude to JASSIM, my husband who deserve my deepest appreciation for his encouragement and patience. Finally, yet, importantly, thank you to my children Abdullah, Noora, Fatima, Mohammad and my little Hind for their patience and sacrifice in making this thesis come to culmination.

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List of Abbreviations

AED	Emirates Dirham (Currency)
APM	UK Association for Project Management
CAPEX	Capital Expenditure
CGFPrg.	Contingent Governance Framework for Programmes
CGT	Classic Grounded Theory
CRM	Customer Relationship Management
CSFs	Critical Success Factors
EQ	Emotional Competences
ERP	Enterprise Resource Planning
FEWA	Federal Electricity & Water Authority
GCC	Gulf Cooperation Council
GFES	Governance Framework Elements
G&P	Generation & Production
GT	Grounded Theory
GTM	Grounded Theory Method
HCD	Human Capital Department
IFs	Influential Factors
IQ	Intellectual Competences
IT	Information Technology
ITD	Information Technology Department
JD	Job Description
KV	Kilovolt: a Unit of Electric Potential.

MIGD	Million Imperial Gallons Per Day
MQ	Managerial Competences
MSP	Managing Successful Programmes
MW	Megawatt
OGC	Office of Government Commerce
O & M	Operation & Maintenance
OPEX:	Operational Expenditure
PM	Project Management
P2M	Project and Programme Management for Enterprise Innovation
PMAJ	Project Management Association of Japan
PMBOK	Project Management Body of Knowledge
PMI	Project Management Institute
PMO	UAE Prime Minister's Office
POFs	Programme Organisational Factors
PPM	Project Portfolio Management
QDA	Qualitative Data Analysis
R	Results
RAK	Emirate of Ras al-Khaimah
RO	Reverse Osmosis
SAP	ERP System
SWRO	Seawater Reverse Osmosis
SCADA	Supervisory Control & Data Acquisition
T	Target
TRA	Telecommunications Regulatory Authority

UAE	United Arab Emirates
VOC	Variation Orders Committee

Chapter 1 Introduction

1.1 Research Overview

There is increasing interest in programme management which is used as a means to implement strategy, develop and maintain new capabilities in order to manage business change (Pellegrinelli et al. 2007). Programme management operates on a strategic level to create synergy between various projects and deliver a set of benefits by coordinating between projects (Rijke et al. 2014). Lycett, Rassau and Danson (2004) claim that managing multiple projects within organisations involves dealing with issues related to the lack of co-ordination and overall control. These two issues usually negatively impact on projects' efficiency and effectiveness in addition to resulting in confusion related to the responsibility for managing multiple demands on staff. A 'Programme' is considered an effective mechanism for project governance. It provides a bridge between projects and organizational strategy (Shao & Muller 2011). In other words, 'programmes' provide a transformational way for integrating projects as well as organizational strategies (Shao, Muller & Turner 2012). They add that programmes are being used by many organisations and such engagement has been called 'Programmification'.

The growing interest and focus on programmes has led to the need for better understanding of the phenomenon of programme success. Shehu and Akintoye (2009) affirmed that while the relationship between project management and programme management are observed to be synergistic, the success factors for project management may be inadequate to those of programme management as requirements of programme

management and project management differ. Project management usually focuses on performance at the tactical level. Programme management, however, takes a holistic perspective that considers transformational changes in the organisation (Shao, Muller & Turner 2012). Thus, the two concepts require different measures of success. The majority of the literature on programme success and its definition has remained conceptual until recently. Indeed, a small number of studies offer measurement dimensions for programme success, such as the pragmatic study conducted by Shehu & Akintoye (2009) related to “The critical success factors for effective programme management”. Additionally, Shao and Muller (2011) conducted a qualitative study on “The development of constructs of program context and program success”, followed by Shao, Muller & Turner (2012) study “measuring program success”.

Professional standards, such as The Standard for Program Management, developed by the Project Management Institute (PMI) and Managing Successful Programmes (MSP) published by the Office of Government Commerce also highlight the success dimensions. The later set of standards evaluates a programme's performance based on value creation and the learning loop. Some scholars have linked programme success with achieving organizational change and strategies (Shao, Muller & Turner 2012). Another study by Shao and Muller in 2011 developed a construct for successful programmes through an interview study which was based on a small sample and provides a step forward in investigating and measuring the dimensions of programme success. Accordingly, a gap in the literature can be identified in relation to measuring programmes' success.

Today, there are three widely known standards of programme management (Thiry 2015). These standards are “The MSP-Managing Successful Programmes”, in the UK (OGC 2011); “The Standard of Program Management” issued by The PMI (2013); and the “P2M Project and Program Management for Enterprise Innovation” promoted by the Project Management Association of Japan (PMAJ 2015). It is worth clarifying that The UK Government (CCTA 1999) was the first to publish a guide or a professional standard related to programme management (Thiry 2015). ‘Managing Successful Programmes’, known as MSPTM has always considered that a programme’s objective is “...to achieve benefits that are of strategic importance” (CCTA 1999 in Gardiner 2005, p. 11). The PMI was the first professional association to indicate that “programs also include elements of ongoing operations” (Thiry 2015, p. 26). The PMAJ has viewed programme management as an evolution and a shift from second-generation to third-generation project management (PMAJ 2004). All three standard/models are explained in more details in Chapter 3.

1.2 Scope

The scope of this study is limited to FEWA’s programmes that will be analysed and related to programme success criteria, success factors and programme context.

1.3 Research Problem

As highlighted in the section titled ‘Research Overview’, there is a lack of understanding of the phenomenon of programme success in the context of the UAE

Government sector; thus, this gap in knowledge forms the basis for this thesis. There is a need to bridge this gap through identifying the success dimensions of different types of programmes. The thesis seeks to achieve this aim through the use of the empirical context of The United Arab Emirates (UAE) Government Organisations.

The research study focuses on exploring the various factors that affect programme success through analysing multiple case studies in the UAE Government Sector. Three programmes are selected from The Federal Electricity and Water Authority (FEWA) and will be related to programme success criteria, success factors and programme context.

1.4 Research Aims and Objectives

The main aim of this thesis is to explore the various measurement criteria and success factors for programmes in the context of ‘Utilities Sector’ in the UAE Government Sector.

The objectives of the thesis are:

- i. To review the existing theoretical perspectives on programmes' success and to identify programme management success criteria; and critical success factors (CSFs);
- ii. To identify constructs of programme context and programme success for public programmes;

- iii. To identify appropriate programme management models that can be used by Government organisations that would help achieve successful implementation of their programmes;
- iv. To assist practitioners with identifying and understanding success criteria, success factors and programme contexts, enabling them to achieve more successful outcomes especially in managing government technical and engineering programmes.

1.5 Research Questions

The research questions for this study are:

- i. What are the critical measurement criteria for successful programmes in different contexts?
- ii. What approaches/practices are deployed by organisations to manage their programmes?
- iii. In what ways do programme management standards/models contribute to programme management and success?
- iv. To what extent are various programme measures appropriate for successful programme management in different contexts?

1.6 Significance

This thesis is significant for the following reasons:

- i. It contributes to the knowledge and literature on programme management and programme success;
- ii. It explores various ways to enhance programmes' success through identifying critical success factors and attending to important contextual differences;
- iii. It provides practitioners with standards/models that would enable them to manage programmes in effective ways and based on specific contexts;
- iv. It will contribute to the programme management knowledge base available to academics and practitioners in the UAE especially in the government sector which will enable them to enhance the overall performance of their programmes and organisations.

1.7 Research Strategy

The research strategy adopted to achieve the objectives of this study is explained in more details in Chapter 4 and is briefly outlined below:

- i. A literature review has been undertaken to understand the theoretical perspectives on projects, project management, project success, programmes, programme management, programme success, theoretical frameworks as well as professional standards/models of programme management. This review assisted the researcher with identifying various concepts aspects related to programme management and facilitated the analysis and interpretation of the case studies.
- ii. A multiple case study approach has been selected as the most appropriate to achieve the research objectives. Three different programmes at FEWA have

been selected to help gain deep understanding of the topic under investigation in addition to exploring the differences within and between programmes. The first programme 'Water' includes a total number of 11 projects aiming to provide potable services to FEWA's customers. The second programme 'Electricity' consists of 22 projects aiming to provide customers with their needs from power. The third one is the 'IT Transformational' programme which was initiated to build FEWA's IT infrastructure in order to meet the requirements of the UAE e-government and improve the overall services provided to FEWA's internal and external stakeholders.

- iii. Data collection has been conducted through different means, namely: interviews with the concerned officials at various levels, observation of live meetings related to the programmes under study and analysis of the related documents. Documents included strategic, operational and business plans, minutes of meetings of the related committees and other correspondences and e-mails with internal and external stakeholders.

1.8 Research Limitations

The following is a list of limitations related to this study:

- i. This research is limited to the context of the UAE public utilities sector.
- ii. A case study approach limits the ability to generalise the findings of the study.
- iii. Due to time constraints and the duration of programmes' life cycles, it is difficult to test the appropriateness of the proposed framework.

- iv. The researcher is an employee within FEWA, which provides advantages of ‘insider knowledge’ and improved access to data, but has the limitation that it potentially leads to bias in the data collection, analysis and interpretation.

1.9 Structure of the Thesis

The thesis is structured into seven chapters:

Chapter 1 – Introduction: This chapter covers the research overview, research problem, scope, research aims and objectives, research questions, the significance, research strategy, research limitations in addition to the structure of this thesis.

Chapter 2 – Literature Review, (Programme Management and Project Management): This chapter presents the literature review focusing on the concepts of project, project success and project management success. It addresses programme, programme management and programme success constructs. The chapter also covers the relationship between both disciplines in addition to other related concepts.

Chapter 3- Literature Review, (Programme Management Frameworks/Models and Standards): This chapter is divided into two sections, the first section presents some programme management theoretical frameworks and the second section concentrates on professional standards of Programme Management namely, ‘The Standard for Programme Management, by Project Management Institute (PMI), Managing Successful Programmes by The UK Office of Government Commerce (OGC) and the Japanese Project & Programme Management for Enterprise Innovation (P2M/KPM).

Chapter 4 – Research Approach and Methodology: This chapter includes both methodology and explanation of the methods used. Research philosophy, approach, strategy, design, sample and methods of data collection are presented in this chapter. This is in addition to the ethical considerations and research limitations of this study.

Chapter 5 – Case Study Results and Interpretation: This chapter concentrates on reporting, analysing and interpreting the data in order to identify the main findings and results.

Chapter 6 – Discussion of the Results and the Proposed Framework for Programme Success: This chapter presents and discusses the cases, providing an overall interpretation of the study data, relating them to critical aspects of the literature review. It provides answers to the research questions and highlights the theoretical and managerial implications. Finally, research limitations are also discussed in this chapter.

Chapter 7 – Conclusions and Recommendations: In this chapter, the conclusions of the study are presented along with their implications and associated recommendations for the organisation, academic researchers and practitioners. It also states the main contributions of this study and gives recommendations for future research.

The next chapter covers the literature review on project, project, project management, programme and programme management, their success and the relationship between both areas.

Chapter 2 Literature Review

Part 1: Programme Management and Project Management

2.1 Introduction

Over the past fifty years, project management has transcended its origins in fields such as engineering, aerospace and defence so that today it is used across almost all sectors to undertake a myriad change initiative (Pellegrinelli 2011). Project Management research has developed since the mid-1990s and has earned a place in the management sciences as an organizational mode (Garel 2013). He added that project management can be seen as a system for anticipating and rationalizing temporary collective initiatives or even as “The foundation of a new theorization of the firm” (Garel 2013, p. 663). Professional bodies such as the American Project Management Institute (PMI) and the UK Association for Project Management (APM) have grown rapidly and sought to professionalise the practices of project management. These associations have been promoting bodies of knowledge and offering various forms of accreditation to government, industry and education organisations. Projects have become a preferred way of working by many private, public as well as non-for-profit organisations which reflects the practical success of project management (Pellegrinelli 2011). As a result of the extensive use of projects particularly in large organisations, a need to coordinate and balance projects’ diversity and priorities has become an important issue (Partington, Pellegrinelli & Young 2005).

As a concept, programme management has grown among many sectors as a recognised and a high-profile approach that is used to implement strategy (Partington, Pellegrinelli

& Young 2005). Partington, Pellegrinelli and Young (2005) explain that the approach refers to the structures and processes that are used in coordinating and directing the multiple interrelated projects, which together constitute the strategy of an organisation. Moreover, Pellegrinelli (2011) confirms that the approach assists in deploying resources effectively as well as developing new capabilities and infrastructure incrementally towards achieving strategic goals and ambitions. Due to this importance and the growth in using programmes, it is required to understand the phenomenon of programme success and the related aspects of this phenomenon.

In this chapter, the researcher reviews the literature on programme and project management aiming to locate and discuss the issues and articles that are related to the researched topic and identify the current gaps in academic and practitioner knowledge which constitute the basis for the aims and objectives of this thesis. The chapter first presents the concepts of project and project management, followed by programmes and programme management in addition to other aspects related both disciplines.

2.2 Project and Project Management

2.2.1 Project

According to the Project Management Institute (PMI) Project Management Body of Knowledge, a project is defined as “A temporary endeavour undertaken to create a unique product, service or result” (PMBOK 2017, 9. 13). This definition implies that projects are unique and different from operational or day-to-day work. However, projects are often unique for the particular client (Korbijn 2014). A project can be considered as the achievement of a specific objective that involves a series of activities

and tasks which consume resources and should be performed according to a set of specifications and within a specific time frame (Munns & Bjeirmi 1996). A more comprehensive definition is given by Maylor (2001, p. 96) who characterises a project as "A finite activity, which is a point of convergence for business functions, theoretical disciplines and all parts of the value-stream." Additionally, projects are not similar to repetitive operational activities which require using the same procedures (Maylor 2001). This is an exceptional feature as every project has its own execution challenges (Mir 2012). Another key facet of projects is being an effective method of change (Pelligrinelli & Bowman 1994; Bryde 2003; Mir 2012). Despite the difficulty in defining a project due to the enormous variations in project's size, tasks, resources and the people involved (Gardiner 2005), there is a general agreement that a project is a combination of organizational resources that work together in order to create a new thing which is expected to provide a performance capability in both design as well as execution of the strategies of the organisation (Cleland & Ireland 2006). Further, Turner and Muller (2003) through reviewing the literature on project definitions and nature, identified five perspectives that are used in defining projects. These perspectives are: a production function; a temporary organisation; an agency for change; an agency for resource utilisation; and an agency for uncertainty management. Accordingly, they provide the following definition (Turner & Muller 2003, p. 7):

A project is a temporary organization to which resources are assigned to undertake a unique, novel and transient endeavour managing the inherent uncertainty and need for integration in order to deliver beneficial objectives of change.

A more comprehensive definition of the idea of a 'Project' which includes the various aspects discussed above was developed by Turner (2009, p. 2):

A project is an endeavour in which human, financial, and material resources are organized in a novel way to undertake a unique scope of work, of given

specification, within constraints of cost and time, so as to achieve beneficial change defined by quantitative and qualitative objectives.

Based on the above definitions, the characteristics of projects can be summarised as: temporary, unique, definite resources, set of activities to accomplish business results in addition to an organization structure which includes responsibilities that are defined in order to manage the project (PMBOK 2017; Shao 2010).

2.2.2 Project Management

Project Management (PM) methods and strategies are being adopted by business organisations across many sectors to achieve their strategic goals and objectives (Zdanyte & Neveranskas, 2011). PM is defined as a "Series activities embodied in a process of getting things done on a project schedule, cost and technical performance objectives" (Cleland & Ireland in Mir 2012, p. 17). Gardiner (2005) similarly noted that PM is concerned with the activities that contribute to managing a project successfully to achieve its objectives on time and to the specified cost, quality and performance. The modern PM methodologies have been utilized to manage different types of business change (Bryde 1997). Some of the developments in PM over the last twenty years draw attention to aspects such as, risk management, scheduling, structure, team coordination, and new technologies. Software packages have been developed to integrate various aspects of PM processes to allow efficient interaction through standardizing procedures, reports as well as data files (Shtub, Bard & Globerson 2005). PM is defined as: "The application of knowledge, skills, tools, and techniques to project activities to meet the project requirements" (PMBOK 2017, p. 4). PM is accomplished through applying and integrating a set of related processes, which are categorized into five 'Process' groups namely: initiating, planning, executing, monitoring and controlling,

and closing (PMBOK 2017). In other words, PM is about managing a process and the people involved in it; a project manager may or may not be involved in doing the work of creating the project's end product/service (Gardiner 2005). PM is concerned with the outcomes of the project. This has been highlighted by Pinto (ed. 1998, p. 6) “The discipline of defining and delivering successful projects”. The same has been emphasized in the definition of ‘Project Management’ by Cleland and Ireland (2006, p. 51):

Project management is series activities embodied in a process of getting things done on a project by working with project team members and other stakeholders to attain project schedule, cost and technical performance objectives.

The early definitions of ‘Project Management’ focus on project success and its criteria namely: time, cost and quality (Atkinson 1999; Jugdev & Muller 2005; Mir 2012). Though, in the recent studies ‘Project Management’ has been considered as a comprehensive discipline that covers other various aspects such as strategy, culture, interpersonal, organisation (Mir 2012) in addition to achieving beneficial change through projects as mentioned by Dixon (ed. 2000). In this regard, Turner (2009) recognizes five functions of PM which require to be managed in order to achieve beneficial change. These functions are: time, cost, quality, scope of work in addition to the organisation as illustrated in Figure 1.

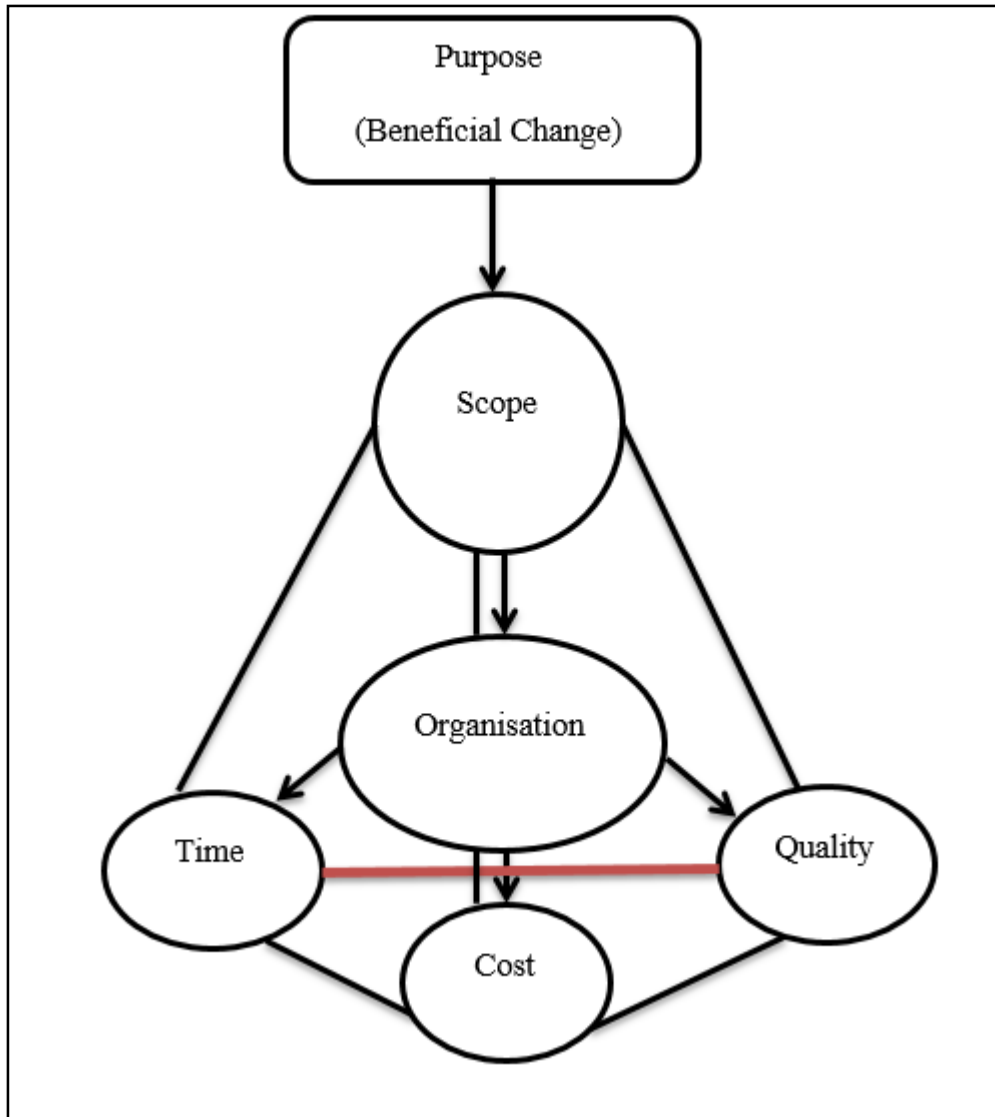


Figure 1: Five Functions of Project Management

Source (Adapted from R. Turner 2009, p. 7)

2.2.3 Project Success and Project Management Performance

Project success is normally defined in terms of the project success criteria that depend on project success factors known as CSFs which are the essential inputs and systems for delivering the success criteria (Mir 2012). Both components are explained below.

2.2.3.1 Project success criteria

Success criteria are the qualitative and quantitative measures that are used to judge the success or failure of the project. In other words, these measures are the dependent variables that are used to measure success (Muller & Jugdev 2012). There is an extensive literature available on project success criteria which shows that prior to the 1980s these criteria were mainly defined in relation to meeting the cost, time and quality aspects known as the 'iron triangle' (Mir 2012) shown in Figure 2:

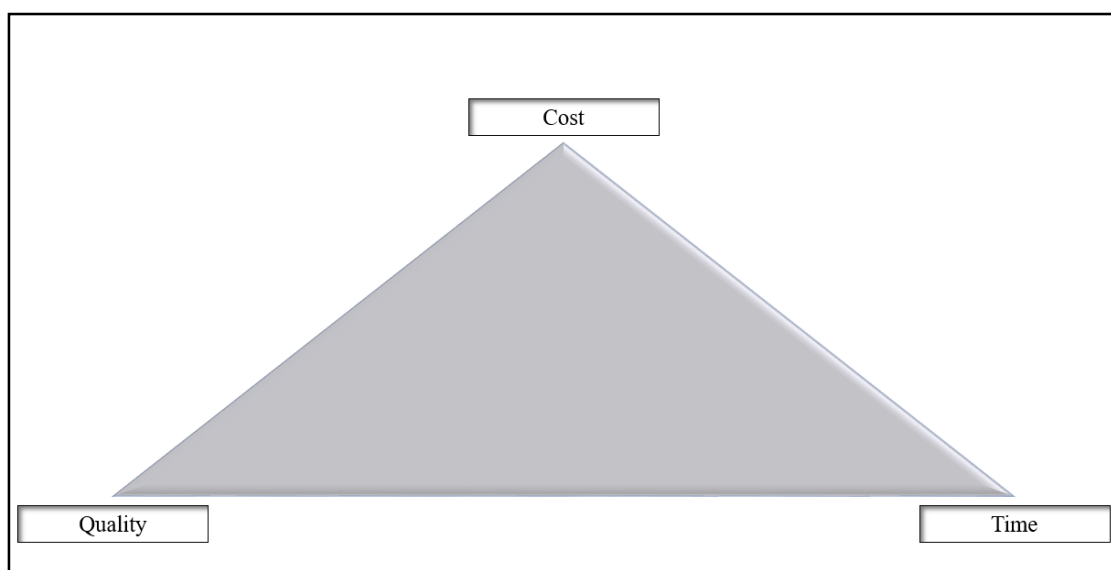


Figure 2: The Iron Triangle

Source: (Adapted from R. Atkinson 1999, p. 338)

The emphasis on 'iron triangle' implies that project managers focus during project execution on the day-to-day performance and not on achieving the ultimate business objectives which reflects an operational mind-set that is commonly reflected in the PM literature (Dvir, Sadeh & Malach-Pines 2006). Taking into account the three measures either individually or collectively could be misleading because a project which meets time, cost and quality may fail to meet customer requirements (Atkinson 1999). Therefore, Atkinson recommended including qualitative objectives along with the

quantitative ones. Likewise, Westerveld (2003) encouraged moving beyond these measures in order to determine project success and considered the approach as too 'narrow' in determining a project's performance. Several studies have suggested adding 'customer satisfaction' as an assessment criterion for project success (Mir 2012).

A retrospective review which was conducted by Jugdev and Muller (2005) to understand project success revealed that the focus in this area has shifted from the tactical level which is concerned with project efficiency (time, cost and scope) to a more strategic level which is concerned with effectiveness and creating value for the projects' stakeholders. Beside this, and from project-life cycle perspective, the focus of project success has expanded from the implementation phase to the planning, concept and close-out phases, covering the life-span of the product or service that was initially developed through the project, hence the complete lifecycle of the product (Muller, 2008).

Shao (2010) mentioned that the client acceptance aspect was suggested as the fourth criterion of project success by a number of authors namely (Pinto and Slevin 1988, Pinto and Rouhiainen 2001 and Baker et al. 1988) who named it customer satisfaction. Additionally, De Wit (1988) extended the success criteria to six measures namely: budget performance, schedule performance, client satisfaction, functionality, contractor satisfaction and project manager/team satisfaction. According to the later expansion, the stakeholders' perspective was added to the success criteria. Further, users' satisfaction was added by Lim and Mohamed (1999). Beside this, Freeman and Beale (1992, p. 8) stated that "Success means different things to different people", accordingly, they recommended inclusive success criteria to reflect different interests

and views of different stakeholders. Shao added that the same issue was confirmed by Baker et al. (1988) who proposed including the satisfaction level of four different groups of stakeholders: the customer, the developer, the project team, and the end-user (Shao 2010). Business results (Freeman & Beale 1992) and commercial success (Wateridge 1995) were suggested as success criteria which reflected new aspects. Nevertheless, in order for business results to appear, a certain amount of time is required (Shao 2010). In this regard, as Pinto and Rouhiainen stated (in Shao 2010, p. 45) "...not to assume that a project is a success or a failure too early in its life, before the final results have had an opportunity to come in". Therefore, the dimension of time has to be considered when measuring project success.

The research mentioned above went through further development led by Shenhar in addition to other researchers. Eventually, Shenhar and Dvir (2007) completed the framework of project success criteria with five success dimensions: project efficiency, impact on team, impact on customer, business success and preparing for the future. In line with these studies, Turner (2009) differentiated the levels of the success dimensions as, project output, project outcome and its impact. The critical times to assess the success of a certain project are during the project, at the end of the project, and months or even years after the project's end (Turner 2009). Further success measures related to various groups of stakeholders were also identified (Turner 2009).

The above research on project success criteria is summarised in Table 1 below:

The “Iron Triangle” (Cleland & Ireland 2002)	Pinto & Slevin (1988); Baker, Murphy & Fisher (1988); Pinto & Rouhiainen (2001)	De wit (1988)	Lim & Mohamed (1999)	Freeman & Beale (1992)	Wateridge (1995)	Shenhar, Dvir & Levy (1997); Shenhar, Dvir, Levy & Maltz (2001); Shenhar & Dvir (2007)	Turner (2009)
<ul style="list-style-type: none"> - Time - Cost - Performance 	<ul style="list-style-type: none"> - Time - Cost - Performance - Customer satisfaction 	<ul style="list-style-type: none"> - Budget performance - Schedule performance - Client satisfaction - Functionality - Contractor satisfaction - Project manager/ team satisfaction 	<ul style="list-style-type: none"> - Completion - Users’ satisfaction 	<ul style="list-style-type: none"> - Technical performance - Efficiency of execution - Managerial & organisational implications (especially, customer satisfaction - Personal growth - Manufacturability & business performance 	<ul style="list-style-type: none"> - Commercial success - Meet user requirements - Meet budget - Happy users - Achieve purpose - Meet timescales - Happy sponsor - Meet quality - Happy team 	<ul style="list-style-type: none"> - Project efficiency - Impact on team - Impact on the customer - Business success - Preparing for the future 	<ul style="list-style-type: none"> - Project output - Project outcome - Impact

Table 1: Summary of Project Success Criteria

(Adopted from J. Shao 2010, p. 49)

Sustainability in Project Management

Sustainable development is defined as “The development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland, 1987 in Tam 2017, p. 118). The definition concentrates on intergenerational equity and sustainability, which includes three main commitments: 1) Economic Sustainability that is concerned with profit increase through using the available resources (human, materials and financial) in an efficient manner, effective design, proper management along with planning and control; 2) Environmental Sustainability involves efficient use of natural resources, encourages the use of renewable resources, protect the soil, water, air from contamination in order to prevent harmful and irreversible effects on the environment; and 3) Social Sustainability , that

responds to society's needs which includes users, neighbours, community, workers and other project stakeholders (Tam 2017).

Sustainability is a new dimension that has been addressed in recent project management studies through the perspective of the triple bottom line: economic, environmental and social. "Sustainability has become a component of business success, and project management is one of the ways to get there ... If it's going to be part of the way a company operates, it has to be integrated into the way projects are managed" (Makower, J. in PMI, 2011, p. 1). The triple bottom line integrates social, environmental and economic responsibility aiming to create a rational use of the existing resources and to offer normal life for future generations (Gimenez, Sierra & Roden 2012). In other words, the aim of this recent trend is to identify key aspects of sustainability and their importance in project management contexts (Martens & Carvalho 2017). Practitioners in the field of project management view sustainability as a critical need for sustainable project management. Further, it is argued that project management processes should have sustainability driven strategies (Michaelides, Bryde & Ohaeri 2014). In this regard, incorporating sustainability's triple bottom line into the project management function will contribute to improving the intended project results (Martens & Carvalho 2017).

The 'sustainability' dimension was added to Shenhar and Dvir's model (2007) which treats the economic aspect of sustainability using two dimensions: success for both current and future business (Carvalho & Rabechini 2015). This new dimension of sustainability merges environmental as well as social aspects (internal: health and safety; external: external stakeholders and communities). It is worthwhile also

mentioning that according to Ika, Diallo, and Thuillier (2012), the success criteria in the development of international projects include relevance, efficiency, effectiveness, impact, and sustainability, which support the achievement of sustainability in the success context.

2.2.3.2 Project success factors

Success factors are project's elements that when influenced can increase the likelihood of a project's outcome success. These elements are considered as the independent variables which make project success more likely (Muller & Jugdev 2012). Wateridge (1995) points out that prior to identifying the appropriate success factors, project participants should agree on how success will be judged. This agreement has to be made at the beginning of the project.

Project success factors (CSFs) have been studied by many researchers who have developed several frameworks and models specifying a large number of project CSFs. The most well-known model is the one developed by Pinto and Slevin (1986) which consist of 10 CSFs namely, project mission, top management support, project schedule/plans, client consultation, personnel, technical tasks, client acceptance, monitoring and feedback, communication and trouble shooting. Another model developed by Morris (1988) identified success factors across the different stages of the project life cycle: formation, build-up, execution and close-out (Shao 2010). Dvir et al.'s (1998) model was developed based on a review of the literature on project success factors, identification of 400 managerial variables and examining the influence of the managerial variables on project success. Accordingly, the variables were combined into

four groups of 26 factors (Dvir et al. 1998). Moreover, the success factors identified as a result of this study are not universal for all types of projects because different projects are affected by different sets of success factors (Dvir et al. 1998). Cooke-Davies (2002) in his model of project success identified factors from the two different perspectives of project management success and project success. According to (Cooke-Davies 2002), the model consists of eight factors to achieve project management success (measured by the overall project's objectives) and another four factors for project success (measured by performance indicators such as time, cost and quality). All these frameworks resulted in many CSFs such as project objectives, project personnel, top management support, resources, communication and control, project planning, client consultation, personnel issues, technical issues, client acceptance, project control, communication and troubleshooting, etc. (Field & Keller 1998; Shtub, Bard & Globerson 2005). However, there is no agreed upon understanding of the factors that constitute project success in the PM literature (Mishra, Dangayach & Mittal 2011). Managing projects is often viewed as an organizational management practice, similar in importance to other practices in areas like finance, marketing, or human resource management (Kenny, 2003). Currently, there is an emphasis on the benefits resulting from achieving change through PM. The Association for Project Management Body of Knowledge adopts this perspective; PM is the "Most effective way of introducing unique change" (Mir 2012). It is considered as a combination of management, planning and management of change (Reiss 1993 in Atkinson 1999). Based on this review, it is difficult to categorize and reduce these factors to a manageable number (Mir 2012).

Project success and managing benefits

Projects are intended to realise business opportunities that are aligned with the strategic goals of the organisation (PMBOK 2017). A business case should be developed prior the project's initiation to outline the project's objectives, the required investment, financial and other qualitative criteria for project success. It is important to note that the business case is considered to be the main area for measuring success and progress throughout the lifecycle of the project (PMBOK 2017). This is performed through comparing the results against the objectives and the success criteria (PMBOK 2017). Further, the guide explains that projects are typically initiated as a result of strategic considerations such as, market demand, social need, legal or regulatory requirement, environmental matter (PMBOK 2017). The benefit management plan clarifies how and when project's benefits are to be delivered and the assessment measures that can be used (PMBOK 2017). This plan may include target benefits, strategic alignment, timeframe to realise benefits, benefits owner, metrics and risks (PMBOK 2014).

Based on the above review, a variety of ways have been adopted for measuring project success. Serrador and Turner (2014, p. 75) reflect that:

At the end of the project you judge success by whether the scope is completed within the constraints of time and cost, and the project's output is delivered to specification, in the months following the project, success is judged by whether the output performs as required and gives the desired benefit; and in the years following the project, success is judged by whether the organization achieves higher order strategic objectives that improve organizational performance”.

2.2.3.3 Project management success factors

There is a significant positive relationship between the success of projects and project management practices (Mir & Pinnington 2014; Serrador, & Turner 2015). Radujkovića and Sjekavica (2017) provide a summary related to project management success factors as shown in Table (2) below:

Project Management Success Factor	Category
Project manager competences	Project management competences
Project managers' emotional intelligence, soft project manager elements	
Stuff in project team	
Application of project management knowledge and skills from project manager and project team, as well as their coordination	
Organizational structure	Organisation
Organizational culture	
Project management tools and techniques	Project management methodologies, methods tools and techniques
Project management standards	

Table 2: Project Management Success Factors

(Adapted from Radujkovic & Sjekavica 2017, p. 609)

The factors presented in Table 2 are categorised into three types: elements related to project management competences, elements related to organisation, and the third category is related to project management methodologies, methods tools and techniques (Radujkovića & Sjekavica 2017).

2.3 Programmes and Programme Management

The concept of programme and programme management has emerged as a result of the extensive use of projects and the need to coordinate and balance their different interests and priorities. Programme management aims to: allocate resources effectively, develop

new capabilities for the organisations and infrastructure in order to achieve organisations' strategic goals and objectives (Pellegrinelli 2011). Programme management has been considered as a mechanism that coordinates and directs related projects (Ferns 1991; Gray 1997).

2.3.1 Programmes

Programmes are being widely used by organisations; this emergent tendency is called "Programmification" (Maylor et al. 2006). Programmes provide a transformational way for integrating projects with organizational strategies (Shao, Muller & Turner 2012). According to Rijke et al. (2014, p. 1198) "Programmes" consist of multiple projects that run in parallel or (partly) sequential". Nevertheless, the relationship which exists between a programme and a project is not similar to that between a project and a work package. The reason behind such difference can be referred to the fact that programmes are able to provide benefits that exceed those achieved through projects on their own (Rijke et al. 2014). As discussed in the previous section, a 'Project' is a "unique, transient endeavour undertaken to achieve planned objectives" (APM 2012 in Dutton, Turner & Lee-Kelley 2014, p. 747); while programmes are defined as a group of related projects and change management activities that work together towards achieving beneficial change for the organisation (Dutton, Turner & Lee-Kelley 2014). Dutton, Turner and Lee-Kelley (2014) add that a programme tends to focus on mission rather than a specific output; it has less well-defined scope, includes related business-as-usual activities and may also last for several years. Moreover, Rayner & Reiss (2013) asserted that many people would argue that programmes are designed in a way to deliver change rather than products. They clarified the distinction between projects and programmes writing that "Such people would argue that whilst each project delivers a product or

output, a programme brings together many such products or outputs and delivers an outcome, a change to the organisation” (Rayner & Reiss 2013, p. 5). A programme is seen as an effective mechanism of project governance (Shao & Muller 2011); it links projects to organizational strategy. Gardiner (2005) points out that programmes usually involve multiple competing projects. Special features of these projects are identified as: 1) shared or scarce resources that require prioritization and adjudication between projects; 2) interdependencies that need change management and coordination across projects as well as other non-project work; 3) common infrastructure among more than one project which allows cost and efficiency gains; and 4) shared risks which provides opportunities for managing and containing risks across projects at the same time Gardiner (2005).

According to MSP (2011, p. 5) a ‘Programme’ is defined as a:

Temporary, flexible organization created to coordinate, direct and oversee the implementation of a set of related projects and activities in order to deliver outcomes and benefits related to the organization’s strategic objectives. A programme is likely to have a life that spans several years.

In comparison, a project is a temporary organisation that usually exist for a much shorter duration to deliver one or more outputs in accordance with an agreed business case. A particular project may or may not be part of a programme (MSP 2011).

2.3.1.1 Types of programmes

Thiry (2015) explains that the reason behind classifying programmes or projects is to understand their impact on the organisation and to identify the best ways to manage

them. Further, Thiry has proposed three types of programmes based on the typical strategic development decision process (Thiry 2015), as explained below.

Strategic programmes, this type of programme aims to deliver medium-to-long-term-benefits. Such programmes support organisations' strategic initiatives that work towards transforming organisations or the way they do business. The outcome of this type is strategic or contextual and the focus is either structural or cultural (Thiry 2015). Moreover, strategic programmes form part of the strategy implementation portfolio. Examples of strategic programmes may include: 1) from a business perspective: organisational change, innovative product development, mergers or acquisitions, etc.; 2) from a social perspective: housing, health and other governmental programmes; 3) from a nongovernmental organisations perspective: disaster relief, human rights initiatives, etc. (Thiry 2015).

Tactical programmes, this type can be managed as sub-portfolios and are also called 'large-scale-system-programmes'. Although these programmes have a strategic outcome and structural focus, they are of a managerial, organisational, or technical nature. They have a high level of uncertainty and medium to low level of ambiguity (Thiry 2015). In terms of the decision input for this type, it is generally strategic with the intent to improve business performance through organisational efficiency. Projects are managed together in order to increase tactical benefits, improve performance or deliver new capabilities for the business (Thiry 2015). Tactical programmes are medium-to-long term and limited in time. They are reasonably predictable and focus on organisational efficiency. Examples of this type of programme may include, account management, Enterprise Resource Planning (ERP) systems, marketing, etc. Tactical

programmes, occasionally, are connected with complex projects, but in general, they consist of a number of different initiatives such as technical development, conformity, and training, which are all discrete projects. The objective of these projects is to deliver tactical level organisational benefits (Thiry 2015). In cases where the discrete projects within the programme are strongly related, as in the example of ERP, they should be managed as a programme or as a complex project, and if the projects are not really independent, as in account management, then, they could be managed as a sub-portfolio (Thiry 2015).

Operational programmes, are not considered as true programmes as their main focus is on incremental improvement. A programme of this type is concerned with maintenance of the performance of the organisation through a mix of operations and small short-term- projects (Thiry 2015). Based on this primary objective which is to consistently improve performance, the main decision input for operational programmes comes from operations and performance measurement. Typically, such types of programmes would be managed as a sub-portfolio of the organisation's operations portfolio. Examples of this type may include a career development programme, induction training, and IT upgrading. Operational programmes are ongoing, highly predictable and concentrate on the maintenance of the organisation's performance through applying mix operations and small short-term projects (Thiry 2015). Thiry (2015) points out that over time, some programmes evolve from strategic to operational as they move through more than one development stage throughout their complete life-cycle.

Another programme classification of programmes is provided by the MSP (2011); in reality, most programmes have a mix of the characteristics as explained below:

- 1) Vision-led programmes are driven from a clearly defined strategy.
- 2) Emergent type programmes, have evolved from a group of different projects and activities; when managed together, it may generate synergy and higher benefits.
- 3) Compliance programmes are forced upon the organization by law or regulations or compelling market forces.

2.3.2 Programme Management

The discipline of Programme Management has evolved from project management in response to the complexity of simultaneously managing multiple projects. Programmes and programme management were adopted initially within the Defense and Aerospace sectors in the USA (Shenhar & Dov 2004). The approach meant, acquiring, developing, maintaining and enhancing projects and not just coordination. It is seen as an integrated approach that assists in streamlining the effective delivery of projects (Shehu & Akintoye 2009). Programme management has various interpretations, the traditional one, views it as an extension of project management, emphasising planning and executing specific objectives (Lycett et al. 2004; Pellegrinelli 2002; Pellegrinelli 2011; Pellegrinelli et al., 2007). Based on this traditional viewpoint, programme management is considered as a mechanism to coordinate the performance of a group of related projects (Ferns 1991). The published literature provides many definitions of the term 'Programme Management'. The term is defined by Lycett, Rassau and Danson (2004, p. 289) as "The integration and management of a group of related projects with the intent of achieving benefits that would not be raised if they were managed independently. Whilst connected, this is distinct from portfolio management". In this regard, Rijke et al. (2014) stated recent developed views that are based on strategic

planning and attributes. According to these views, the role of programme management is more comprehensive as it considers value creation for the involved organisation beyond projects' performance within a specific programme. The term has been also defined by the three-programme management professional standards as stated below.

The Standard of Programme Management (PMI 2013, p. 6), defines programme management as:

The application of knowledge, skills, tools, and techniques to a program to meet the program requirements and to obtain benefits and control not available by managing projects individually. It involves aligning multiple components to achieve the program goals and allows for optimized or integrated cost, schedule' and effort.

The MSP standard (2011, p.6), defines Programme Management as:

The action of carrying out the coordinated organization, direction and implementation of a dossier of projects and transformation activities (i.e. the programme) to achieve the outcomes and realize benefits of strategic importance to the business.

Programme management aligns three main organizational elements namely: corporate strategy; delivery mechanisms for change; and the environment of business-as-usual.

The P2M Standard (2015, p. 36) clarifies that:

Program management aims at achieving the program mission for the implementation of the business strategy. In following this aim, program management consists of a series of processes to define and carry out several relevant projects and achieve the creation of value.

Based on the above definitions, programme management provides a framework that assists organisations in implementing business strategies, initiatives and managing multiple projects (Gardiner 2005). It deals with coordinating a group of projects that are designed in a way that would change the way an organisation performs (Rayener &

Reiss 2013). Although, many definitions of 'Programme Management' exist in the literature, they all focus on common attributes of selecting, planning, and managing the overall portfolio of projects in order to achieve a number of specific business objectives (Shehu & Akintoye 2010). While PM usually focuses on performance related to quality, cost and time, programme management works in a way that focuses more on the strategic level to produce interactions among projects. Focusing on strategic level aims to deliver a package of benefits through coordinating a series of interconnected projects (Lycett et al. 2004; Maylor et al. 2006 & Rijke et al. 2014). Therefore, programme management requires an approach that is different from PM (Rijke et al. 2014) that takes a broader organizational scope and considers the interactions between projects (Maylor et al. 2006; Shao et al. 2012; Young et al. 2012; Rijke et al. 2014).

Lycett, Rassau and Danson (2004) identified the main goals of programme management and categorized them into two sets. The first is related to goals of efficiency and effectiveness which are related to aspects that have to be addressed by project managers even in cases where related projects are carried out without overall co-ordination. It is believed that general improvement in managing efficiency and effectiveness can be accomplished through following an integrated approach to these specific aspects of management. The second is business focus goals that are concerned with the external alignment of projects with the requirements, goals, and drivers as well as the organizational culture. These goals are associated with defining a proper direction for the projects within a programme as well as for the programme as a whole (Lycett, Rassau & Danson 2004).

2.3.3 The Programme Management Life Cycle

In order for the programme to achieve its strategic objectives and realize benefits, the life cycle of the programme should allow: regular assessment of benefits, evaluation of the emergent opportunities and pacing of the process (Thiry 2015). In the same way, Reiss et al. (2006) claim that understanding each phase of programme’s lifecycle and the constituent elements provides the programme manager with a comprehensive checklist that can be used to ensure that everything is in place in order for the programme to succeed. It must also consider the ‘interdependence’ of component projects as a way of ensuring strategic alignment (Thiry 2015). This could be achieved through an iterative programme life cycle rather than being linear, include periods of stability for integration of benefits and learning, in addition to having a systems perspective (Thiry 2015). Moreover, executives and sponsors should become ‘leaders of change’ by taking full responsibility for three steps behind every programme decision: value creation, transition and value realization (Thiry 2015).

Based on the importance of programme lifecycle, the three-main programme management leading standards (PMI, MSP and P2M) outline the main programme phases are relatively consistent. Thiry (2015) compared the lifecycle across all three standards as presented in Table 3 below.

PMI (2013)	MSP (2011)	P2M (2015)
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Definition	Formulation	Identifying Programme	Mission Profiling (Strategic Goal Management)
	Preparation	Defining Programme	Programme Design (Agree Programme Architecture)
Benefits Delivery	Component Planning & Authorization	Manage Tranches	Integration Management of Programme Implementation (Programme Launch, Management of Goals, Closing)
	Component Oversight & Integration	Deliver Capabilities	Value Assessment Management (Ongoing Measurement of Results)
	Component Transition & Closure	Realise Benefits	
Closure	Programme Transition	Closing Programme	No Identification of Closing Phase (Open for Innovation)
	Programme Closure		

Table 3 : Comparison between Life Cycles in Leading Programme Management Standards

(Adapted from Thiry 2015, p. 136)

As shown in Table 3, all three standards agree on a formulation/definition stage that is conceptually and practically different from the deployment/execution stage (Thiry 2015). The definition stage involves identifying the needs, understanding the basic objectives of the programme and preparing the programme's business case. Moreover, the standards concur that there should be phase-gates instigated between each stage (Thiry 2015). The deployment stage, however, is handled in a different way across the three standards. The PMI standard calls it 'Benefits Delivery'. It is basically the

component (projects) management and transition. This step includes the transition and integration of deliverables in addition to the measurement of the benefits. MSP does not concentrate on the components of the programme but it considers a higher level of management that includes managing the tranches (cycles), delivering business capabilities and realizing benefits. P2M is similar to MSP in considering integration management (managing both programme cycles as well as components integration) and adding assessment management as a distinctive stage that is implied in the other standards (Thiry 2015). Both the PMI and MSP include a 'Closure' stage. Through this stage, the programme is wound down, feedback is collected and resources are reallocated. The PMI includes the final transition of the programme in this stage. P2M does not identify a clear closure stage as it is implied when value is achieved. Accordingly, the resources of the programme will be reallocated and post-programme assessment will be undertaken (Thiry 2015) which reflects the aspects of continuous improvement and innovation.

Thiry (2015) states that, it is the first time since the mid-nineties that all programme management standards have reached an agreement that programmes are more complex when compared with projects and require a cyclical life cycle; programmes are a means to execute the strategic objectives of organisations. Thiry (2016, p. 3) claims that "This is really a breakthrough in the acceptance of program management as a discipline distinct from project management".

2.3.4 Programme Success

The growth in popularity of using programmes has led to the need to better understand the phenomenon of programme success. As with projects, programme success is

defined in relation to programme success criteria and programme success factors. These two perspectives form the essential inputs and systems for delivering successful programmes.

2.3.4.1 Programme success criteria

Success criteria can be defined as both qualitative and quantitative measures that are used to decide whether the outcomes of the particular programme is a success or failure. Only a few studies can be found in the literature that offer measurement dimensions for programme success. Thiry (2002) suggested evaluating programmes from a life-cycle learning loop perspective. He argues that programmes are long-term processes and benefits are expected to change over time. The iterated evaluations of strategic benefits achievements as well as stakeholders' satisfaction have to be embedded in the programme control process (Thiry 2002). Moreover, benefits are measured regularly against both the benefits register and the blue print in order to ensure their alignment with the agreed objectives and benefits realization (Thiry 2015). It is extremely important to set intermediate benefits to monitor the progress towards the ultimate benefits in addition to engaging the stakeholders (Thiry 2015).

In 2011, Shao and Muller published a qualitative interview based research study on “The development of constructs of program context and program success”. Their research aimed at developing constructs for programme context and programme success. The authors collected data on the magnitude and mix of leadership competences required for managing successful programmes. As a result, six success dimensions were identified based on the extensive research on project success by

(Shenhar, Dvir & Levy 1997; Shenhar et al. 2001; Shenhar & Dvir 2007). These dimensions are explained below (Shao 2010):

- Business success. This success dimension measures programmes in terms of business results, such as increasing market share and reoccurring business.
- Stakeholder satisfaction. The dimension is concerned with measuring success based on programme impact on stakeholders, such as stakeholders' satisfaction, and stakeholders' engagement.
- Programme efficiency. According to this dimension, the success of the programme is measured in terms of efficiency indicators, such as time, cost, and functionality.
- Preparation for the future. This is another dimension which looks at aspects related to preparing organisations for the future. It measures success based on new markets, new technology, and improved organizational capability, etc.
- Social effects. This dimension measures successful programmes from aspects related to social effects, such as environment, value for the society, improvement of the quality of citizens' lives.
- Programme team. This dimension measures programme success from aspects related to the impact of the programme on team members. This may include team members' satisfaction with working in the programme, and improvement in the specialty through the programme, etc.

The study has also categorised key success factors in programmes as shown in Table 4. Shao and Muller (2011) had also developed a group of dimensions for programme

context which influence the success of programmes which will be further explained in the next Section 2.4.

Programme Success Criteria (Constructs)		Programme Success Factors	
1	Business success	1	Programme manager
2	Stakeholder satisfaction	2	Stakeholder/Collaboration
3	Programme efficiency	3	Networks/Context
4	Preparation for the future	4	Strategy/Goal alignment
5	Social effects	5	Process
6	Programme team	6	Plan
		7	Team
		8	Resources
		9	Culture

Table 4: Programme Success Criteria & Success Factors

(Adapted from Shao & Muller 2011, p. 954)

Based on their 2011 publication, Shao, Muller, and Turner (2012) conducted another quantitative research study for developing a measurement construct for programme success. The managerial implications reached is that programme results can be assessed in light of the programme success measurement constructs, that is from four main perspectives as explained below (Shao, Muller & Turner 2012, p. 41):

- Delivery Capability, measures the success of a programme from the perspective related to successfully delivering what the programme was intended to deliver whether stakeholders are satisfied with what is delivered, whether the proposed business results are achieved, and so on (Shao, Muller & Turner 2012).

- Organizational Capability, measures programme success from aspects related to its contribution to improving the capacity of the organization either from the ‘hard’ side (i.e. improving processes’ efficiency in their parent organisation) or from the ‘soft’ side (i.e. influencing the culture of the organisation, changing the business model or the way of doing business, etc.) (Shao, Muller & Turner 2012).
- Marketing Capability, measures the internal connection between the programmes and the strategies of the organisation. It considers the success of the programme from the marketing perspective (Shao, Muller & Turner 2012).
- Innovation Capability, measures successful programmes based on technological development aspects. (i.e new technologies have been developed within the programme). This capability indicates programme’s contribution to its parent organisation in relation to its preparation for future opportunities (Shao, Muller & Turner 2012).

As was mentioned earlier, programme success is being studied based on the existing theory on success. Table 5 below presents the four success perspectives resulting from Shao’s (2010) research and the related literature from the discipline of PM.

Success Construct Dimension	Elements Included	Related Literature
Delivery capability	Programme delivered with desired timeframe & budget	- Shenhar, Dvir & Levy 1997; - Shenhar et al. 2001;
	Programme met the functional requirements & user’s specifications	- Turner & Muller 2006 - Shenhar & Dvir 2007)

	Programme stakeholders satisfaction (programme team, customers, suppliers, sponsors, others)	
Organisational capability	Programme resulted in more efficient process & improved organisational capability	- Shenhar, Dvir & Levy 1997; - Shenhar et al. 2001; - Shenhar & Dvir 2007)
Marketing capability	Increased amount of reoccurring business & enhance the power of parent organisation	- Ansoff 1957
Innovative capability	New technology was developed through the programme which can be leveraged by other programmes	- Shenhar, Dvir & Levy 1997; - Shenhar et al. 2001; - Shenhar & Dvir 2007)

Table 5: Programme Success Constructs & Related Elements

(Adapted from Shao 2010, p. 203)

Shao, Muller, and Turner (2012) affirm that the delivery capability is considered as the most important dimension in programme success because programme management mainly focuses on delivering planned benefits or strategic objectives. Delivery capability reflects programme success from a tangible benefits perspective while the other three dimensions reflect success of programmes from an intangible benefits perspective. However, the four dimensions cannot be viewed in isolation. All four dimensions should be addressed for measuring the success of programmes (Shao, Muller, & Turner 2012).

Sustainability in Programme Management

Sustainability has become an important aspect in formulating programmes. In the context of a programme, sustainability is defined as “The promoting of positive and minimizing of negative sustainability impacts (economic; environmental; and social) within the process of coordinated management of related projects, which may include related business-as-usual activities that together achieve a beneficial change of a strategic nature for an organization and contributing to a sustainable society” (Tam 2013 in Tam 2017, pp. 120-121).

Tam (2017) mentioned that taking into account the emergent input in ‘a turbulent environment’, the program manager has to utilize the available information in order to identify various options for comparison and decision making. Once he/she takes the decision, the project manager will then take over the project(s) where sustainability has been considered (Tam 2017). A programme sustainability assessment framework was developed by (Tam 2010) based on the three pillars approach, economic, environmental, and social aspects. According to this framework, the programme manager is required to assess the suggested programme options based on the three dimensions of economic sustainability, environmental sustainability, and social sustainability before making a decision ‘Choice’. Depending on the context, the programme manager will raise a number of questions within each of the three dimensions to evaluate the impacts of the programme on sustainability (Tam 2017). Further details on the programme sustainability assessment framework is provided in the next chapter.

2.3.4.2 Programme success factors

Success factors are the independent variables that make programme success more likely (Muller & Jugdev 2012). In other words, success factors are the inputs & systems required to deliver the success criteria. Shehu and Akintoye (2009) conducted a pragmatic study in the construction sector on “The critical success factors for effective programme management”. This study found that while the relationship between project management and programme management is observed to be synergistic, the success factors for project management may be inadequate to those of programme management because the requirements of programme management and project management differ (Shehu & Akintoye 2009). As a result of the study, some factors were identified to be critical for successful programmes in the construction sector namely: planning and setting priorities; strategic review and approach; simplicity and easiness of techniques; learning and development; management infrastructure and understanding the programme and its stakeholders; clarity/consistency of vision and benefits focus; in addition to coordination of projects and managing the transition/changes.

In the following section, the researcher provides an explanation of the programme success factors that were listed in Table 4 by Shao and Muller (2011).

Programme manager competences

A programme manager is an important success factor in programme management. Managing programmes requires having a high level of leadership competences because

their focus is on long-term business results, benefit realisation, strategy achievement and value creation (Shao & Muller 2011). Competence is a broad concept and leadership competence is a subset of it. Martinelli, Waddell & Rahsculte (2014, p. 275) provide this definition which they believe is the best to describe the competences needed for programme managers to effectively manage their programmes “The knowledge, skills, and qualities of effective managers used to effectively perform the functions associated with management in the work situation”. In the research conducted by Shao and Muller 2011, the fifteen leadership competence dimensions Table 6 specified by Dulewicz and Higgs (2003) were used to assess programme managers.

Leadership Competence			
Intellectual Competences (IQ)	Managerial Competences (MQ)	Emotional Competences (EQ)	
1. Critical analysis & Judgement	4. Engaging communication	9. Self-awareness	
2. Vision & imagination	5. Managing resources	10. Emotional resilience	
3. Strategic perspective	6. Empowering	11. Motivation	
/	7. Developing	12. Interpersonal sensitivity	
	8. Achieving	13. Influence	
	/		14. Intuitiveness
			15. Conscientiousness

Table 6: Leadership Dimensions

(Adapted from Dulewicz & Higgs 2005, pp. 111-112)

The results indicated that the strategic perspective, engaging communication and intuitiveness were found as the most important dimensions for programme managers

(Shao & Muller 2011). The following Table 7 provides a detailed description of the three dimensions.

Leadership Competence	Definition
Strategic perspective	<ul style="list-style-type: none"> - Realizes the broader issues & implications. - Investigates the extensive range of relationships, balances short- & long-term considerations. - Sensitivity to the impact of actions & decisions across the organisation. - Identifies opportunities and threats. - Sensitivity to the needs of stakeholders & the implications of external factors on decisions & actions.
Engaging communication	<ul style="list-style-type: none"> - Energetic & enthusiastic communicator, engages others & gains support. - Communicates instructions & vision to staff. - Communications are tailored & focused to audience's interests. - Style of communication inspires staff & audiences & reflects approachability & accessibility.
Intuitiveness	<ul style="list-style-type: none"> - Takes clear decisions & drives implementation if presented with incomplete or unclear information using both rational & "emotional" or intuitive perceptions of key issues & implications.

Table 7: Definitions of Leadership Competences

(Adapted from Dulewicz & Higgs 2005, pp. 111-112)

Many researchers have studied competences required for program managers, such as Pellegrinelli (2002), Lycette et al. (2004), Thiry (2004), Partington, Pellegrinelli and Young (2005), McGuire (2002), and Pellegrinelli et al. (2007). The competences mentioned in these studies are: managing resources, managing interfaces, generating synergy, aligning with strategy, managing stakeholders, shaping context, dealing with uncertainty, and managing relationships. According to Shao (2010), the program management competence framework developed by Partington, Pellegrinelli and Young (2005), explained in Chapter 3, is considered one of the most comprehensive frameworks comprising of seventeen attributes categorised into three groups of relationships namely, between self and work; between self and others; and between self and programme environment (Partington, Pellegrinelli & Young 2005). In this regard, Shao (2010) clarifies that the four levels of competence represent a broader view from focusing only on the details towards a broader appreciation of contextual and future consequences. These levels are: 1) concern for delivery of programme scope; 2) concern for wider organizational impact of programme; 3) concern for achievement of high-level programme outcomes; and 4) concern for development of strategic capabilities (Partington, Pellegrinelli & Young 2005). The leadership competence is embedded in this framework (Shao 2010).

A programme manager's leadership style is another aspect that is related to this success factor. Shao and Muller (2011) found out that the leadership style depends on the programme situation or context. In contrast, Levine (2013) argues that the transformational leadership style is the most appropriate for managing programmes and complex projects. Programmes involve chaos and change and a programme manager needs to have the ability to deal with such situations (Levine 2013). A transformational

leadership style concentrates more on people as has been argued by Bass (1990). This means that, in the context of programmes, a programme manager needs to be: 1) Charismatic/Inspirational which means to inspire and excite team members to achieve the programme's objectives with more effort; 2) Intellectual stimulation involves encouraging the team to solve problems looking at different and new perspectives; and 3) Individualized consideration through considering different needs of individuals within his or her team to develop and grow. Furthermore, a programme manager must have the ability to encourage and accept change within the team, in addition to, effective communication which is a key competence to be able to perform well (Levine 2013).

Stakeholders

Stakeholders are those people who have an interest in a programme (Martinelli, Waddell & Rahschulte 2014) and can have a direct or indirect impact on the success of a programme (Reiss et al. 2006). The importance of stakeholders has been emphasised by Martinelli, Waddell and Rahschulte (2014) especially critical ones; they define a critical stakeholder as "Anyone who can influence either positively or negatively the outcome of a programme" (Martinelli, Waddell & Rahschulte 2014, p. 119).

Stakeholders have a major role to play during the programme's definition through identifying the expected business benefits, providing the required directions related to the capability concepts, in addition to defining the objectives of the programme. Early stakeholder identification by the programme manager is also considered to be important because such identification facilitates gaining a sense of their expectations along with their opinions, perceptions or any other personal agendas that could lead to affect the

overall programme outcome (Martinelli, Waddell & Rahschulte 2014). Due to the importance of this factor, it is necessary to have a proper system in place to manage stakeholders. Stakeholder management can be defined as the process related to managing those people and the inevitable political issues surrounding the programme (Reiss et al. 2006).

Strategy/goal alignment

This is an important success factor that is based on the fact that a programme was developed in order to provide a transformational way of integrating projects with organizational strategies (Shao, Muller & Turner 2012). A programme strategy's alignment is related to the activities that are linked to integrating and developing business strategies, organisational goals and objectives and the degree to which operations as well as performance meet these goals and objectives (PMI 2013). The strategy of the programme describes the way by which the programme team will achieve the strategic goals of the business that are intended to be achieved by the programme (Martinelli, Waddell & Rahschulte 2014). It is the role of programme managers to ensure the attainment of their programme's value proposition by delivering an integrated solution involving the collaboration of multiple interdependent projects with the business functions. Hence, the criticality of ensuring that there is alignment between business strategy and projects' execution (Martinelli, Waddell & Rahschulte 2014).

Programme team

This is considered one of the programme's critical success factors. According to the PMI (2013), the programme team comprises individuals who participate directly in the programme's activities or its components. Levin (2013, p. 304) clarifies that programme teams, "Tend to be large and complex, extending cultural, geographical, and organisational boundaries". This implies a need to pay careful attention to selecting programme members because appropriate skills, knowledge and experience in related areas of the programme are required (MSP 2011). In this regard, Martinelli, Waddell and Rahschulte (2014, p. 57) assert that "At the foundation of the execution engine are the teams of functional specialists whose knowledge, skills, and expertise are honed for creating new capabilities for the enterprise, its customers, and its stakeholders". The authors elaborate that, due to the complexity of programmes, the solutions created as a result of the work performed on the specific programme require systematic organisation into functional specialities (Martinelli, Waddell & Rahschulte 2014). Further, it is common for execution specialists to be part of functional departments within a company which serves the purpose of maximising the competency of the speciality. Accordingly, the functional departments assign their specialists to the programme as required (Martinelli, Waddell & Rahschulte 2014).

Resources

This is another critical programme success factor which encompasses people, assets, materials, funding and services (MSP 2011). The term covers shared resources (to be used by two or more projects) that should be planned and managed by the programme. Developing the plan of the programme involves identifying those resources. Minimising resource-sharing between projects will assist with preventing occurrences

of bottlenecks (MSP 2011). Alternatively, maximising the resource-sharing helps with promoting knowledge sharing, organisational learning, efficiency and smooth working (MSP 2011). It is evident that resources, especially people, often will have limited availability, specific skills and experience, therefore, planning programmes must take into consideration not disregarding the limits of competence, or else unrealistic plans could be developed (MSP 2011). The availability of competent resources is considered among the major challenges. Programme managers are required, as part of the planning process, to identify the type of resources needed and plan how they will be acquired, used, shared and managed in an effective way (MSP 2011). In other words, they are also required to secure and maintain the resources in order to complete the work, and achieve the strategic business and financial goals (Martinelli, Waddell & Rahschulte 2014).

Programme culture

This factor is related to the maturity level of an organisation that is related to the integration of different actors involved in realising strategic initiatives (Thiry 2015). One of the difficult aspects of developing a programme culture is for project managers to move on from an individual to a team accountability perspective (Martinelli, Waddell & Rahschulte 2014). Therefore, introducing a programme management system requires establishing a clear and a strong link among projects within the same programme. This is in addition to promoting the need for project managers to contribute to programmes rather than focusing on control-based performance goals (Thiry 2015). Martinelli, Waddell and Rahschulte (2014) point out that transforming the organisation to programme management is based on a belief in the need for a strong programme

management capability. This vision requires chiefly establishing common programme management processes, as well as understanding these processes effectively which in turn requires training and education. Another important aspect is that programme managers are obliged to learn and embrace cultural norms, beliefs and behaviours associated with each country that is represented on the programme team (Martinelli, Waddell & Rahschulte 2014). The programme manager must therefore be a champion of cross-cultural leadership and should act as a role model for effective, culturally sensitive behaviour (Martinelli, Waddell & Rahschulte 2014).

Programme management framework

Having a structured framework for managing programmes is another important success factor that assists organisations to deliver their strategic vision and realise the programme's intended benefits. Professional standards provide different frameworks and outline a programme lifecycle through which programmes benefits are managed and ultimately realised (Levine 2013). For example, the PMI 'Programme Management Standard' categorises a programme life cycle as pre-programme preparation, programme initiation, programme set up, delivery of programme benefits, and programme closure (Levin 2013). Other standards also provide similar frameworks that are addressed in Chapter 3 of this thesis.

Programme governance

Programme governance refers to the functions, responsibilities, processes and procedures that define the way a programme is setup, managed, and controlled (MSP 2011). Khan (2015, p. 7) defines the term as a:

Framework under which actors perform their activities within a defined regulated boundary. The framework comprises legislation, regulations, policies, processes, and a value system that assists organizations to meet their goals. It, however, does not manage the actions and activities of actors; rather it provides them with the environment under which they can determine their strategy and actions in order to deliver benefits to stakeholders.

Based on the above definitions, programme governance is interrelated with the process related to aligning internal stakeholders of the programme and anticipating external stakeholders to allow an efficient execution of the programme's strategy. This would result in adding value to the individual projects as well as the whole programme (Beringer, Jonas & Kock 2013; Too & Weaver 2014). Governance is linked to the framework of programme planning and strategy that are developed at the initiation stage (Rijke et al. 2014).

Programme management office

The role of the programme management office is another key factor for the success of programme management. The latter assists with integrating resources during the system of projects through programme governance, coordination and adaptation (Unger, Gemünden, & Aubry 2012; Rijke et al. 2014). Programme coordination is required to coordinate tasks, control performance and support project teams (Chen et al. 2013; & Rijke et al. 2014) in addition to depending on the availability of information, setting goals and the systematic decision making process in both projects and programmes (Teller et al. 2012; Martinsuo & Lehtonen 2007). Programme adaptation is required for addressing or anticipating contextual changes (Ritson, Johansen & Osborne 2011; Shao

& Muller 2011) in addition to depending on the fit between the programme and organizational strategies, programme structure, flexibility of procedures and the adaptability of a programme to its context (Shao, Muller & Turner 2012). Success factors such as programme governance, coordination and adaptation are interrelated and cannot be managed in isolation of each other (Rijke et al. 2014). This connection can be referred to the mutual dependencies between these factors and to the need for approaches of programme management that are both robust and flexible (Rijke et al. 2014). Finding a balance between the robustness and flexibility of approaches is important. Moreover, it is worth to state that dealing with changing dynamics and contexts is considered to be one of the most challenging aspects of programme management (Davies & Mackenzie 2014; Sanderson 2012).

2.4 Programme Context

Programme context is another important aspect for managing programmes which also contributes to their success. It is defined in the literature as "a dynamic cultural, political and business environment in which the program operates" (Pellegrinelli et al. 2007, p. 41). In other words, it involves the environment in which a programme operates (Reiss et al. 2006; Gary 2001) which usually links the administrative, technological, economic and socio-cultural factors (Hu, Chan & Le 2012). Effective programme management approaches should be adaptable to changing context and should be the responsibility of programme directors and managers (Muller & Turner 2012). An interaction exists between programme context and programme management "Programme is embedded in its context and aligned to the evolving organizational strategies, while simultaneously

sheltered from the external turbulent and uncertain environment" (Shao, Muller & Turner 2012, p. 38).

As a result of the qualitative study discussed earlier that was conducted by Shao and Muller (2011), a primary set of dimensions for programme context was developed. It included three aspects namely: programme typology, the scope of the programme and the characteristics of programme context. The latter dimension consists of four sub-dimensions: stability, harmony, support in addition to adaptability of programme context (Shao, Muller & Turner 2012). The study also clarified that the context of the programme does not directly interact with programme success but may facilitate or hinder other factors which have an impact on programme success. The low level of interaction between programme success and programme context indicates that the context of the programme is not a direct predictor of the success of a programme, but it might interact with other direct predictors, such as the programme manager's leadership competences, in order to predict the success of the programme (Shao & Muller 2011; Shao, Muller & Turner 2012). As programme types (industry, size, type and nature) are not manageable in many cases, it is usually determined prior to programme set-up. Programme managers must assert more effort in relation to managing characteristics of the programme context that are represented through organizational fit, programme flexibility, and organizational stability in addition to the availability of resources (Shao, Muller & Turner 2012).

Pellegrinelli (2002) highlights the role of programme managers and directors and their responsibility towards shaping the context for both projects and programmes. They have to shape, embed and align the programme to the organisation's growing needs in

addition to sheltering projects from the externally uncertain environment (Pellegrinelli 2002).

Based on the results reached by (Shao & Muller) which was among the few studies to identify constructs of programme context, three aspects were identified that provide an understanding of the concept of programme context, programme type, scope of the programme context, and the characteristics of programme context (Shao & Muller 2011). Each of these aspects includes several sub-aspects and some of these sub-aspects have their constitutional components (Shao & Muller 2011). Table 8 presents the concept of programme context with aspects and sub-aspects.

Concept	Aspect	Sub-Aspects
Programme Context	Programme type	<ul style="list-style-type: none"> - Application area - Configuration - Change-Driven - Size - Timeline - Lifecycle Stage
	Scope of programme context	<ul style="list-style-type: none"> - Parent organisation - Outside parent organisation
	Characteristics of programme context	<ul style="list-style-type: none"> - Stability - Support - Harmony - Interaction

Table 8: Programme Context Constructs

(Adapted from Shao & Muller 2011, p. 952)

Shao and Muller (2011) analysed the four categories (stability, support, harmony & interaction) which resulted in illuminating the characteristics of programme context. The stability of the programme context, includes the stability of the organizational structure, policy and processes, in addition to the stability of the external political, economic, and environment domains, and the relationship with programme stakeholders. The support from the programme context includes top management support, the availability of programme resources, and organizational learning in the parent organizations. The harmony of the programme context includes good relationships with top management, functional departments, and stakeholders. The interaction represents the fit between both programme context and the programme (Shao & Muller 2011).

Measuring programme context constructs comprises four programme context factors (Shao, Muller & Turner 2012):

- Organizational fit measures the fit between the programme and its organizational context that is related to organizational strategies, cultures, and the structures of the internal power.
- Programme flexibility measures the flexibility of programmes which is related to programme structures and procedures.
- Organizational stability measures the stability of the programme's parent organization. As the parent organization encapsulates the programmes, its stability is considered as a prerequisite for programme management.
- Resource availability measures the extent to which resources are available for programmes. Resource refers to a wide range of resources particularly including

human resources and financial resources. Resource availability is a prerequisite for programme management.

According to the study conducted by Shao, Muller and Turner (2012), programme context was operationalised through programme types and programme context dimensions (represented by organizational fit, programme flexibility, organizational stability and resource availability). The results indicated that there is no significant interaction between programme success and programme context. In other words, the measurement construct for programme success is constant over different types of programme contexts (Shao, Muller & Turner 2012). Further, the researchers concluded that whereas “The context of the programme may not directly interact with programme success, it sets the managerial context for programme management, and may facilitate or hinder other factors to impact on programme success” (Shao, Muller & Turner 2012, p. 46). In this regard, Pellegrinelli et al. (2007), Lycett et al. (2004), and Pellegrinelli (2002), have advised that programme context requires careful attention by programme managers and directors.

The studies mentioned in the previous section have provided an understanding about programme success but offer only some indication on the specific constructs related to programme success (Shao, Muller & Tuner 2012), in addition to the evaluation of programme success based on benefit realisation provided by professional standards.

2.5 Programme Management versus Project Management

Programme management originates from the project management discipline, although, it has some other theoretical bases in organisational theories, strategy, product development manufacturing and change (Artto et al. 2009). There are similarities and differences between both concepts. The comparison given in this section covers eight aspects namely, scope, change, success, leadership, role, responsibilities, main tasks and control (Thiry 2015).

Scope. Project management focuses on performance that is related to quality, cost and time; the scope is limited with specific and defined objectives and deliverables (Lycett Rassau & Danson 2004; Maylor et al., 2006; Rijke et al. 2014; Thiry 2015). In contrast, programme management has broad scope with flexible boundaries (Thiry 2015). It operates at a strategic level in order to create synergies among projects and deliver benefits. Creating synergy requires coordinating between a series of interconnected projects (Lycett, Rassau & Danson 2004; Maylor et al., 2006; Rijke et al. 2014).

Change. In projects, processes are implemented in a way that avoids and controls change (Thiry). While in programmes, it is essential to change the programmes' elements to maximise benefits and to maintain alignment with changing strategic objectives (Weaver 2010). Changes are expected from both inside and outside of the programme (Thiry 2015). Furthermore, change is seen as an opportunity (Thiry 2015) which reflects the key focus of programme management that lies in delivering value, working closely with both operational and strategic elements of the organisation (Weaver 2010).

Success. In project management, success is measured in terms of budget, time and quality and to a certain level of customer satisfaction (Thiry 2015). While in programme management, success is measured on the bases of value creation, benefit realisation and return on investment (Thiry 2015).

Leadership. Thiry (2015) states that in projects, transactional leadership style is predominantly followed by project managers because they mainly focus on making rational decisions and resolving conflicts (Thiry 2015). Turner and Muller (2006) point out that a project manager's leadership style depends on the type of the project such as, its industry area, strategic importance, life-cycle stage, complexity, and the project manager's demographic characteristics (e.g. age, location) (Turner & Muller 2006; Shao 2010). For programme management, the programme manager follows a facilitating leadership style, managing powerful stakeholders, making intuitive decisions (Thiry 2015). Further, Shao and Muller (2011) point out that leadership styles are dependent on programme context. Leadership competences that are required for programme managers appear to be higher than those required for project managers (Shao & Muller 2011).

Role. According to Thiry (2015) project management is concerned with managing the project's tasks, parameters and outputs, while in programme management projects pacing and interfacing is the key role for delivering benefits (Thiry 2015).

Responsibility. Project management focuses on performance and creating efficient deliverables (Weaver 2010) based on the specified parameters, while programme management focuses more on implementing strategic decisions, developing

opportunistic strategies (Thiry 2015) and maximizing benefits (Weaver 2010). It should be noted though that both areas actually complement each other (Pellegrinelli 2011; Thiry 2002; Rijke et al. 2014).

Main Tasks. Thiry (2015) argues that project management mainly focuses on the tactical and operational aspects. The project manager's role is limited to managing the activities which occur from the project's initiation up until its closure (e.g. scope negotiation, defining work breakdown structure (WBS), and minimizing adverse risk). Thiry (2015, p. 30) states that "When project management is limited to the processes between the attribution of a mandate to the project manager and the project closing, it is assumed that the project deliverables can be accurately described and that any required handover or transfer period is outside the scope of the project". According to this view, the distribution of responsibilities and the distinction between projects and programme will be clearer (Thiry 2015). Moreover, in programme management, it has been agreed that it oversees the role of project manager and it links projects to the business strategy. The main tasks undertaken are: coordinating component projects resources and main deliverables, marketing the programme, and developing and maintaining team spirit among project managers (Thiry 2015).

Control. In project management, this aspect is related to monitoring and controlling the different tasks and parameters against the base line, in addition to providing regular reports to the project's sponsor (Thiry 2015). Whereas 'control' in programme management focuses on evaluating component projects' deliverables and resources utilization against the expected benefits; as well as providing reports to the business stakeholders (Thiry 2015).

The above comparison is summarised in Table 9 below.

Area	Project	Programme
Scope	Projects have limited scope with defined objectives and deliverables	Programmes have broad scope with flexible boundaries to achieve planned medium-term business benefits.
Change	Change should be avoided, processes are implemented in a way that keeps change managed and controlled.	Change is expected from inside and outside the programme. It is seen as an opportunity and programme managers are prepared to manage it.
Success	Measured in term of budget time and quality; a degree of customer satisfaction is considered.	Measured in financial terms return on investment (ROI), value creation, and benefits realisation.
Leadership	Follow a transactional leadership style, authority-based directive style, manage subalterns, conflict resolution and rational decisions making.	Follow facilitating style, managing powerful stakeholders, conflict resolution and intuitive decision making.
Role	Managing tasks parameters and project output.	Projects pacing and interfacing; benefits delivery.
Responsibility	Delivering projects output as per parameters, reporting, performance – based focus.	Implementing strategic decisions, and developing opportunistic strategies
Main tasks	Negotiating scope, defining work breakdown structure (WBS), minimising adverse risks, managing the delivery of projects products. Maintaining project team stamina,	Coordination of component project resources and key deliverables, marketing programme and regularly build business case, developing and maintaining team spirit among

	motivating, monitoring and controlling external team.	project managers and the contribution to the overall programme
Control	Monitoring and controlling various tasks and project parameters against the baseline; regular reporting to the sponsor of the project.	Evaluating component project deliverables and the use of resources against the expected benefits; reporting to business stakeholders.

Table 9: Detailed Comparison between Projects and Programmes

(Adapted from Thiry 2015, pp. 32-33 & PMBOK 2013, p. 8)

In conclusion, programmes take an open system view and search for change in permanent organizations. In turn, projects are mainly based on the theory of product development (Arto et al. 2009). As previously mentioned, programme management is looked at from strategic planning and attributes, assigning a broader role to programme management that is related to creating value for the participating organisations which is beyond the performance of projects in a particular programme (Thiry 2002; Thiry 2004; Young et al. 2012). In general, it is used as a way of creating portfolios of projects (Gray, 1997; Rijke 2014) strategy implementation (Partington 2000; Partington et al., 2005; Rijke 2014), in addition to generating change in the ways of doing business (Pellegrinelli, 1997; Thiry 2004; Rijke et al. 2014).

2.6 Portfolio & Portfolio Management

Thiry (2015) mentions that until recently, there was an unclear boundary and confusion between programmes and portfolios and what distinguishes them. LaBrosse (2010)

clarify that ‘Project Portfolio Management’ (PPM), provides organizations with a method to analyse and manage a group of current or proposed projects to gain benefits that are not available if they were managed on an individual basis. According to the (PMBOK 2013, p. 9) “A portfolio refers to projects, programs, sub portfolios, and operations managed as a group to achieve strategic objectives. The projects, or programs of the portfolio may not necessarily be interdependent or directly related”. Another definition of ‘Portfolio’ is provided by MSP (2011, p. 285) “The totality of an organisation’s investment (or segment thereof) in the changes required to achieve its strategic objectives”. In relation to portfolio management, it is defined as “The centralized management of one or more portfolios to achieve strategic objectives” (PMI 2013, p. 166). Further, PPM is a set of business practices that connects projects with other operations (Levine 2005). Levine (2005, p. 1) clarifies that “Project portfolio management brings projects into harmony with the strategies, resources, and executive oversight of the enterprise and provides the structure and processes for project portfolio governance”. In this regard, LaBrosse (2010) summarised the benefits of PPM as: 1) aligning the portfolio of projects with organization’s strategy and goals; 2) utilizing resources through focusing on high-priority efforts; 3) eliminating redundant, underperforming and outdated projects; and 4) continuously monitor performance of key projects and take corrective actions as needed.

Through comparing the definitions of portfolio and programme, it is clear that the main difference between both concepts is that projects within the programme must be related, and coordinated in a way to achieve a common objective, while, projects within the portfolio may not be related and managed efficiently (Shao 2010). In summary, portfolios provide organisations with an effective means to manage a collection of

investments and work that are important for achieving their strategic objectives (PMI 2013).

2.7 The relationship between Programme Management and Project Management

Projects are initiated during the course of the programme. The main responsibilities related to programme management include namely, planning the programme, identification and planning for benefits realization and sustainability, identification and control of the interdependencies among projects, addressing escalated issues among the projects within the programme, in addition to tracking the contribution of each project and the non-project work to the consolidated programme benefits (PMI 2013). Moreover, the integrative nature of programme management processes involves coordinating processes for each of the projects or programme. This coordination applies across all activities related to programme management. It also involves managing processes at a higher level compared to those associated with individual projects (PMI 2013). Risks are an example of this type of integration and they require resolution at the programme level. The reason for this is that they involve multiple projects or cross projects and hence cannot be addressed at the individual project level (PMI 2013).

The Programme Manager manages the overall programme and provides guidance to project managers (PMI 2013). The main role of the programme manager is coordination between projects, however, he/she does not directly manage the individual components (PMI 2013). Thiry (2015, p. 30) states that:

Most practitioners and writers now agree that the discipline that oversees the role of the project manager and connects projects to the business and strategy is programme

management and that the programme manager should be the sponsor of the project when the project is part of a programme.

According to Martinelli, Waddell and Rahschulte (2014), the role of the programme manager can vary greatly from one company to another based on the way the programme management function is implemented. Within project-oriented organisations, programme managers have a tendency to occupy an operational support role which involves coordination and facilitation activities; whereas the programme managers within programme-oriented organisations play an expanded role which includes team leadership and business management and accordingly they have also to play a large integration role (Martinelli, Waddell & Rahschulte 2014).

The interactions between a programme and its components tend to be iterative and cyclical. The information flows during the planning phase are predominantly, but not exclusively, from the components of the programme to the programme. Early in the programme, it directs its individual components to align and achieve the desired benefits (PMI 2013). Later in the programme, these components, through programme governance processes, report on project status, risks, changes, cost, issues and other information that affect the programme (PMI 2013).

Figure 3 illustrates the interaction of information flow between programme and PM:

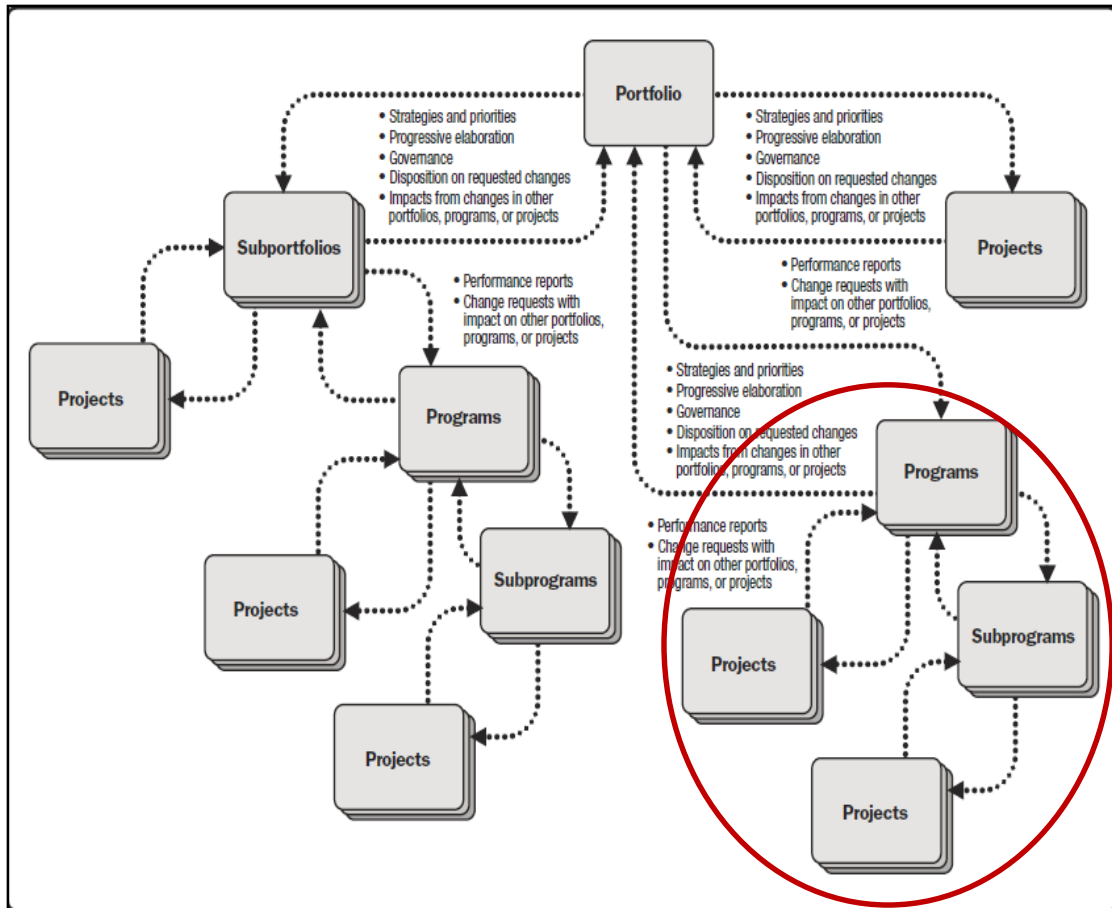


Figure 3: Interaction Between Program Management and Project Management

(Adapted from PMI 2013, p. 10)

Although the term ‘Programme’ was not used until the 1990s, the U.S. Military argues that they were the first to develop and practice programme management. The Manhattan Project (1942-1945) which led to producing the atomic bomb was the first to use programme management (Martinelli, Waddell & Rahschulte 2014; Dorb 2009). In the early 1950s, programme management practices were used on the Atlas Programme to create the ICBM Intercontinental Ballistic Missile, led by the US Air Force (Shenhar & Dav 2004; Martinelli, Waddell & Rahschulte 2014). In this regard, Martinelli, Waddell and Rahschulte (2014) assert that the first documented evidence of programme management dates back to 1957 when the first programme office was formed which

was called the Special Project Office (SPO) within the U.S. Department of Navy. This office was established to manage the underwater ballistic missile system. After that, the management control procedure PERT was developed, as part of the Navy Polaris program. Together with the CPM approach, which was developed in parallel by Dupont mainly for construction projects, PERT and CPM turned out to be the basic planning tools and were almost synonymous with project management (Shenhar & Dav 2004). In the early 1970s, the programme management discipline became popular across the U.S. Department of Defense and it was officially taught in the Defense System Management College (Martinelli, Waddell & Rahschulte 2014). This means that a different approach evolved during the 1970s as organizations realised the need to manage complex projects mastered by different disciplines. The challenge, in this case, was to ensure integration, teamwork in addition to ensuring that the team performs as a unified entity. Managers were expected to orchestrate various complex operations (Laufer, Denker, & Shenhar, 1996). During the 1980s, the third generation of project management started, when the main drive was uncertainty reduction to a manageable level. At this phase, the challenge was seen as to make stable decisions that stand the test of time and protect against uncertainties. The accelerated pace of business during the 1990s made time-to-market the driving factor in many industries. The dominating management style can be coined as simultaneity, which means integrating tasks and people while differentiating between them at the same time (Laufer, 1997). Goals and means are not resolved sequentially and separately, but rather simultaneously and interactively.

Based on the literature review and the evolution of the programme management discipline, the researcher has identified the development in measuring programme success since the early stages of programmes as presented in the following Table 10:

Period	Programme Success Criteria
1940s-1960s	Programme efficiency, Business success (revenues & profits)
1970s-1990s	Business success, Programme efficiency, Programme team, Preparing for the future, Stakeholder satisfaction (limited to customer satisfaction)
2000-2017	Business Success, Stakeholder satisfaction (customers, suppliers, contractors, etc.), Programme efficiency and effectiveness, Preparing for the future, Social effects & Programme team.

Table 10: The Evolution of Programme Success Measures

Although, business success is a common success criterion, it meant different things in all three stages. So, during the first phase (40s-60s) it would basically mean revenues and profits, while during the second phase (70s-90s) it included additional aspects related to achieving objectives, branding, etc. In the most recent phase (2000-2017), business success includes value creation, benefit realisation, achieving vision and strategic objectives. The same evolution applies to the stakeholder section, where new categories have been added to stakeholders.

2.8 Summary of Themes Emerged from the Literature Review

On reviewing the literature related to projects, programmes and their success, the following themes emerged:

- Projects have become a preferred way of working by many modern organisations and they are performed to manifest the organisations' strategic objectives. Project success is defined in terms of project success criteria that depend on project critical success factors (CSFs). Shenhar and Dvir (2007) developed the framework of project success criteria with five success dimensions: project efficiency, impact on team, impact on customer, business success and preparing for the future.
- Sustainability is a new success dimension addressed in recent project management studies. Incorporating sustainability's triple bottom line into the project management function will contribute to improving the intended project results (Martens & Carvalho 2017).
- The concept of programme & programme management has emerged as a result of the extensive use of projects and the need to coordinate and balance their different interests and priorities. Programme management aim to: allocate resources effectively, develop new capabilities for the organisation in order to achieve its strategic goals and objectives.
- The growing interest and focus on programmes have led to the need to better understand the phenomenon of programme success as the success factors for project management are inadequate to those of programme management because the requirements of both disciplines differ. Only few studies are found in the existing literature that are related to measuring programmes' success especially in the government sector of the UAE.

- Since programme management has its roots in project management, sustainability could be added as a success criterion for the UAE government programmes.

2.9 Chapter Summary

In this chapter, the context of the study has been identified through a literature review which covered the concepts of project and programme management and their success. The emphasis has been on the concepts of measuring programme success and the related aspects. Examination of the existing literature reveals that there is a gap in the area of measuring programme success.

The following chapter outlines some theoretical frameworks and models from the literature of programme management in addition to three leading programme management standards.

Chapter 3 Literature Review

Part 2: Programme Management Models Frameworks and Standards

3.1 Introduction

This chapter comprises two main sections, the first section provides an overview of some programme management theoretical frameworks and the second section covers three major programme management professional standards.

3.2 Programme Management Theoretical Frameworks

In this section, the researcher presents some theoretical frameworks and models which were developed by researchers and practitioners and found in the existing literature on programme management. It is worthwhile to mention that some frameworks are general ones and other were developed for certain sectors or for covering specific programme aspects as will be explained in the following section.

3.2.1 A Framework of Programme Organizational Capability for the Success of Construction Megaprojects

This pragmatic framework was developed by Hu, Chan and Lu (2015) for managing programmes in the construction sector. It consists of 24 factors based on a case study of the Shanghai Expo construction. The 24 programme organizational factors (POFs) were identified from the literature on programme management in addition to interviews with concerned officials within the specific case being studied. These 24 POFs

represent almost all of the main issues that are related to a programme's organization in managing megaprojects. It also provides an overall picture of building and operating a programme organization in practice. The POFs are grouped under three categories which represent three kinds of organizational capabilities for the success of construction megaprojects in China from the client's perspective, namely, environmental capability, core capacity and motivational capability (Hu, Chan & Lu 2015). The proposed model is demonstrated in Figure 4. The characteristics of the conceptual model are as follows (Hu, Chan & Lu 2015):

The first category which is the environmental capability refers to the capability of a programme organization to understand and respond to the context of the project and its potential changes. In the contemporary environment programme organizations are established in order to conduct long-term activities and operate in a changing environment; therefore, contextual understanding and strategic management are key to constructing and sustaining an effective programme organization. The two POFs involved in this category are contextual elements in programme organizations as they represent the environmental capability (Hu, Chan & Lu 2015).

The second category consists of 18 POFs which refer to the hard side of a programme organization in managing megaprojects. These are the normative and technical elements of a programme organization that are required to construct its core capacity. The POFs here represent the coordination and integration capabilities of programme organizations needed to control dispersed executions. In practice, these POFs should possess both coordination and integration roles, such as PMO, cost management, functionality and quality management (Hu, Chan & Lu 2015).

The third category consists of four POFs that refer to the soft side of the programme organization which is used to sustain its dynamics in the process of delivering megaprojects (organizational life cycle). Compared with project organizations, programme organizations often have a life cycle of five years or even longer, thus, developing motivational capability has become essential for clients in order to maintain the programme organization's effectiveness. The motivational capability in this framework consists of four cultural–cognitive POFs. In Hu, Chan & Lu's (2015) study, motivational activities within a project had a positive relationship with the project size.

The limitations of Hu et al.'s (2015) framework are: it was proposed based on a construction megaproject case study, the proposed framework consists of a large number of success factors (POFs) which may cause potential overlaps in the scopes of some POFs. Moreover, this framework was based on a literature review on programmes and programme management between 2000 and 2010. Nonetheless, it provides a thorough and pragmatic understanding of many of the major issues of programme organizations in megaprojects.

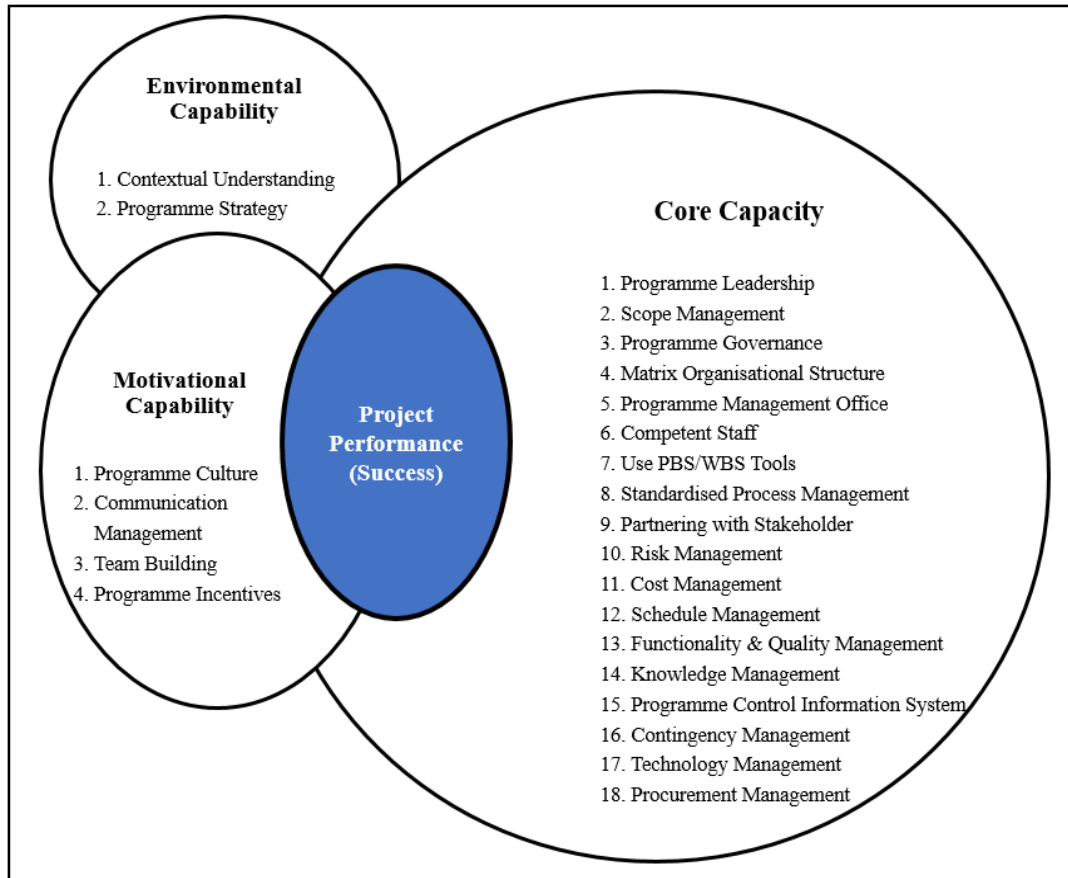


Figure 4: A Framework of Programme Organizational Capability for the Success of Construction Megaprojects

(Adapted from Y. Hu, A. Chan & Yun, Le 2015, p. 54)

3.2.2 Analytical Framework for Measuring Programme Management Effectiveness

This framework was developed by Rijke et al. (2014) to explore the way in which programme management can contribute effectively to the design and delivery of megaprojects. ‘The Room for the River’ in the Netherlands was selected as a case study to achieve this objective because the programme is considered a success based on indicators related to its budget, time, quality as well as stakeholder satisfaction. In other words, these indicators show high programme management performance upon completion of the planning and design stage of its 39 river widening projects. The analysis of this programme was based on the existing literature on programme and

project management, document analysis and face-to-face semi-structured interviews. Six attributes for effective programme management were used for analysing the interactions between project and programme management (See Figure 5). These attributes are: programme vision, priority focus, planning framework, governance, coordination and adaptation.

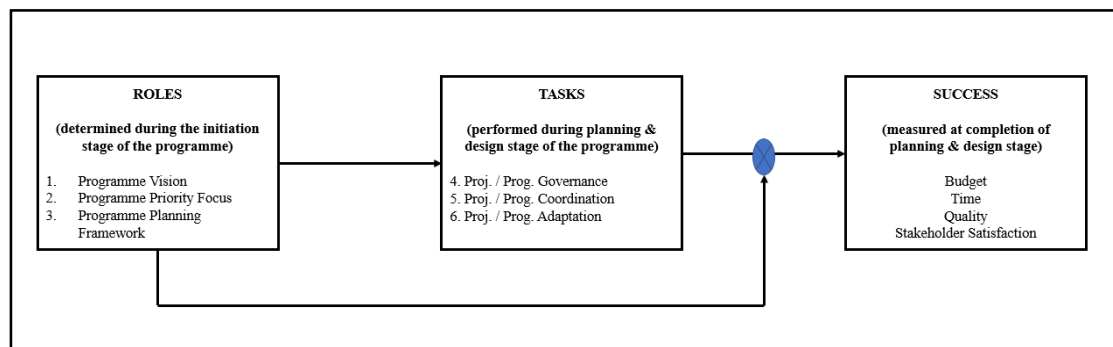


Figure 5: Analytical Framework for Measuring Programme Management Effectiveness

(Adapted from J. Rijke et al. 2014, p. 1200)

As it is illustrated in Figure 5, attributes 1-3 are determined during the initiation stage of the programme. Attributes 4-6 are performed during the planning and design stage of the programme by both the programme management office and the programme team (Rijke et al. 2014). The analysis of the programme of Room for the River reveals a combined strategic/performance focus at both levels namely: programme and project management which allows a collaborative approach amongst programme and project management (Rijke et al. 2014). This approach encourages effective stakeholder collaboration, coordination and adaptation of the programme to contextual changes, newly developed insights and flexibly responding to the changing needs of the subsequent planning stages, which positively contribute to the programme's overall performance (Rijke et al. 2014). This means that programme success cannot only be

attributed to effective programme management, but also to the contextual changes that positively affect programme success (Rijke et al. 2014).

3.2.3 The Model for Leadership Competence Based Theory of Program Success

This model was developed by Shao (2018) based on leadership competence-based theory of project performance and extended to the program level (Shao 2010). It is developed consistent with the theoretical perspectives of contingency theory and leadership competency theory (Shao 2010). The (15) leadership competences are categorised under three categories, namely, Intellectual Competences (IQ), Managerial Competences (MQ), and Emotional Competences (EQ) as shown in Table 11.

Leadership Competence		
Intellectual Competences (IQ),	Managerial Competences (MQ),	Emotional Competences (EQ)
1. Critical Analysis & Judgement	4. Engaging communication	9. Self-Awareness
2. Vision & Imagination	5. Managing resources	10. Emotional resilience
3. Strategic perspective	6. Empowering	11. Motivation
	7. Developing	12. Interpersonal sensitivity
	8. Achieving	13. Influence
		14. Intuitiveness
15. Conscientiousness		

Table 11: Leadership Competence Model (after Dulewicz & Higgs, 2003)

(Adapted from Shao 2010, p. 79)

The key construct of the model is the interaction of leadership competences with programme context. As it is illustrated in the model in Figure 6 from left to right, the construct of leadership competences is considered as the input component. This implies that programme managers must have a threshold level of leadership competences prior to managing a programme (Shao 2018). They should develop their competences through leadership training and/or through work experience. By developing these competences programme managers can interact more effectively with the context of the programme (Shao 2018). Nevertheless, situational requirements, such as programme governance and organizational culture strategies can constrain or at least influence the interactions with programme context (Shao 2018). The appropriate interactions between leadership competence and programme context results in achieving programme success. So, programme success is the output component in this model. Further, it is asserted that an appropriate flexible programme governance, which is adaptive to organizational context, will lead to more opportunities to manage the programme successfully. Conversely, if programme governance does not fit with organizational context, it will negatively affect programme success (Shao 2018).

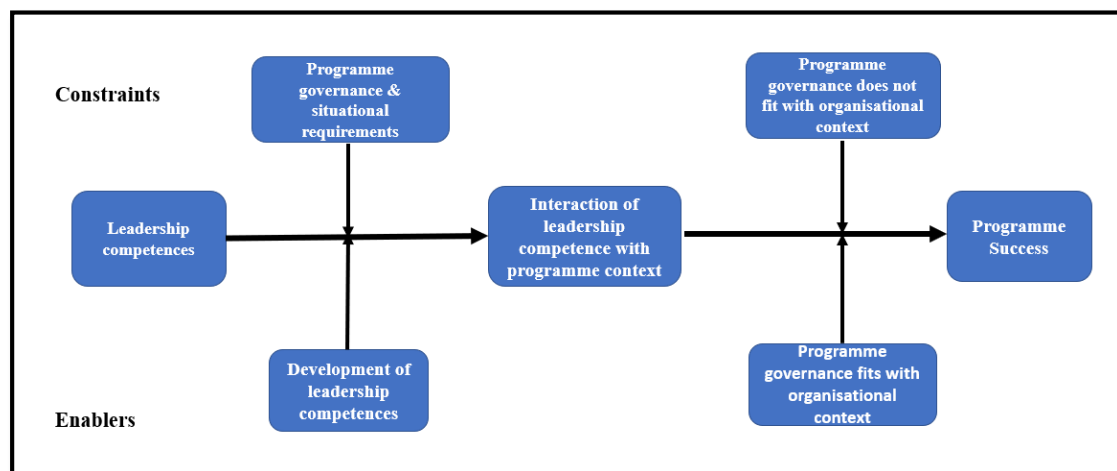


Figure 6: Model for the Leadership Competence Based Theory of

Programme Success

(Adapted from J. Shao 2018, p. 118)

3.2.4 Programme Based Learning Framework

The Programme Based Learning framework was developed by Dutton, Turner and Lee-Kelley (2014) based on the '4 I' learning model (knowledge, learning, barriers and influencer). The model is based on the essential principle that learning is experienced at three main levels, the individual, the group and the organisation. The levels are linked by social and psychological processes, intuiting, interpreting, integrating and institutionalise (Dutton, Turner and Lee-Kelley 2014). These four processes occur at the three levels as shown in Table 12:

Levels	Processes
Individual	Intuiting, interpreting
Group	Intuiting, interpreting
Organisation	Integrating & institutionalise

Table 12: Links Between Learning's Levels & Social and Psychological Processes

Knowledge at each level is seen as a 'stock'. Stocks that move from the individual level to the group level and then embed in the organisation level are considered as 'fed forward'. On the other hand, stocks that move from the organisation level to the group and individual levels are considered as 'fed back' (Dutton, Turner and Lee-Kelley 2014). Accordingly, organisation learning, here, can be expressed as the creation of knowledge stock at each of the three levels combined with the flow of knowledge within and across levels. The '4 I' framework was augmented by introducing three

forms of impediments to learning, actional-personal, structural-organisational and societal-environmental (Dutton, Turner and Lee-Kelley 2014).

Although, the '4 I' model maps logically to a single programme, the assumption of organisation learning causes a strain between assimilating new learning (exploration) and using what has been previously learned (exploitation) in a multi-programme environment (Dutton, Turner and Lee-Kelley 2014). In other words, programme-based learning is considered as a challenging area because it involves both within-programme learning and programme-to-programme knowledge transfer (Dutton, Turner and Lee-Kelley 2014). The model as depicted in Figure 7 incorporates the in-programme learning (vertical structure) and the parallel vertical structure represents the potential for cross-programme learning. The horizontal linking structure denotes the enterprise programme office (EPO) function.

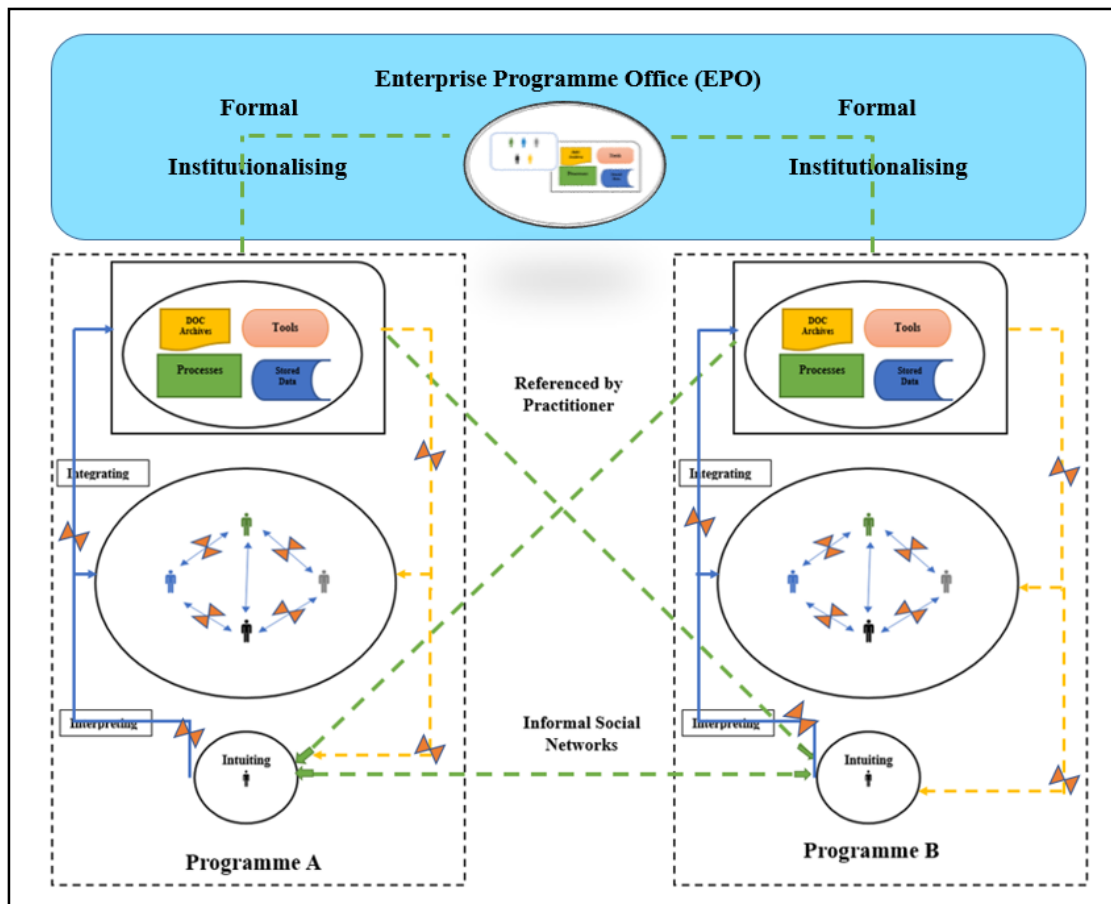


Figure 7: Programme Based Learning Framework

(Adopted from C. Dutton, N. Turner & L. Lee-Kelley 2014, p. 756)

Based on the organisation which was used for the research study, the authors proved the validity of '4 I' model and barriers were also identified in line with the existing literature. Cross-programme knowledge transfer, happens most significantly through personal social networks or peer-to-peer forums (i.e. primarily individual-to-individual). Moreover, detailed and internalised knowledge from one programme can be transferred by practitioners during their movement between programmes. Individuals can be 'signposted' to explicit codified knowledge by others. However, there was limited evidence related to group-to-group, cross-programme learning. The EPO in the case organisation (being studied) did not look as if it provides important

knowledge transfer (Dutton, Turner and Lee-Kelley 2014). These findings can be seen in the proposed framework in Figure 7.

3.2.5 Contingent Governance Framework for Programmes (CGFPrg TM)

The contingent governance framework was designed and developed by Khan (2015). It suggests that, at any given point in time, the programme’s governance framework, in terms of scope, function, structure, and mechanism, should be aligned with the attributes and the context of the programme (Khan 2015). This framework consists of two core components, the first is influential factors (IFs) and the second is the governance framework elements (GFEs).

Influential factors are factors that influence the design of programme governance frameworks. The impact of some of those factors is considered during the initial design of the governance framework. These factors may include, but are not limited to, the programme’s attributes, and corporate governance framework. Other factors may have an impact during the execution of the programme such as programme performance (Khan 2015). Table 13 shows IFs that have an impact on the design and implementation of the programme governance framework.

Influential Factor	Type of Influence
Corporate governance	Organisational factor
Organisational governance paradigm	Organisational factor
Social & cultural impact	External factor
Legislation, regulation, and standards	External factor
Benefits delivery mechanism	Programme attribute
Programme structure	Programme attribute

Programme uncertainty & complexity	Programme attribute
Programme lifecycle stage	Programme attribute
Strategic value	Programme attribute
Programme performance	Programme attribute

Table 13: Influential Factors (IFs)

(Adapted from Khan, M. 2015, p. 182)

Governance framework elements are dimensions that need to be addressed during designing the framework. These elements are: governance domains, governance functions, governance institutions and governance mechanism. The elements are explained below.

Governance domains, identify the programme's different areas that are to be governed. Programme governance functions are applied in order to provide a monitoring function over assets that should be supervised to achieve the intended objectives of the programme. These assets include, programme structure and processes, programme decisions, and programme resources.

Governance functions, define different functions performed by different entities. These functions include activities such as defining the benefits of the programme, designing and implementing the governance framework, and ensuring strategic alignment in addition to other related activities.

Governance institutions and roles, identify the people and groups that need to be involved in governance such as the sponsor, programme management office, and programme governance board. Governance bodies differ dependent on the type of the programme to be governed and/or the organisation.

Governance mechanism, defines the mechanism of governance and how it will be conducted (stage gates and programme audits). This means that governance mechanism differs from one programme to another. Accordingly, organisations adopt different mechanisms to govern their initiatives based on the relevant influential factors.

The above-mentioned elements should be designed based on the IFs in a way that is economically viable, resulting in an efficient governance framework design that will improve programme performance. This framework is illustrated in Figure 8.

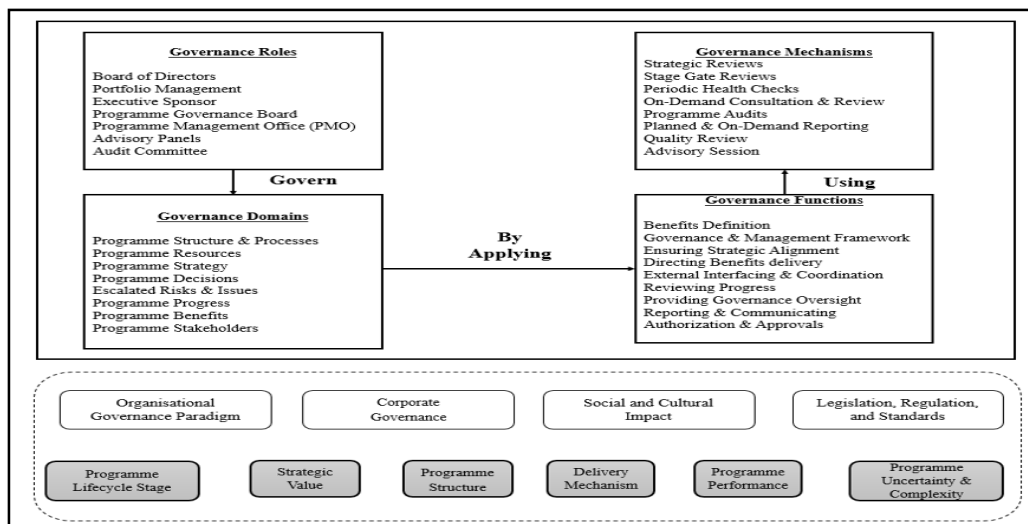


Figure 8: The Conceptual View of the Contingent Governance Framework for Programmes

(Adapted from M. Khan 2015, p. 186)

According to the framework illustrated in Figure 8, the governors of the programme supervise the different domains of the programme by implementing an accurate balance of support, control and surveillance through the governance functions. The functions

are implemented using the governance mechanisms which are adopted by the organisation (Khan 2015).

3.2.6 The Model of Programme Management Competence

The multi-attribute multi-level model of programme management competence was developed by Partington, Pellegrinelli and Young (2005) through the use of the interpretive approach known as phenomenography. The framework consists of 17 key attributes of programme management work and each is conceived at four levels in a hierarchy of competence (Partington, Pellegrinelli & Young 2005) as shown in the following Table 14. The attributes are arranged into three groups: the first group represents the relationship between manager and the programme work, the second group represents the relationship between the manager and the programme team, and the third group represents the relationship between the manager and the environment of the programme (Partington, Pellegrinelli & Young 2005).

Attribute	Level 1 Concern for Delivery of Programme Scope	Level 2 Concern for Wider Organisational Impact of Programme	Level 3 Concern for Achievement of High-Level Programme Outcomes	Level 4 Concern for Development of Strategic Capabilities
Relationship Between Self & Work				
S1. Granularity of Focus	Well-planned detail	Summary plan & broad understanding of internal impact outside project	Level 2 plus personal involvement in selected detail when deemed necessary for stakeholder benefits	Level 3 plus strong future orientation & understanding of external context
S2. Emotional attachment	Detached, factual	Need to be associated with successful delivery of organisational benefits	Passionately committed to achievement of programme outcomes	Committed to delivery of external outcomes; able to disconnect
S3. Disposition for action	Trouble-shooter; procedural	Proactive, analytical; procedural	Experimental, reflective; flexible approach to programme rules & procedures	Intuitively reconfigures & realigns the organisation; makes the programme rules
S4. Approach to role plurality	Adopts a focused, single role	Fulfills multiple roles, but is uncomfortable with role conflict	Copes by adopting a clear position when roles potentially conflict	Takes on multiple roles to integrate divergent interests
Relationship Between Self & Others				
O1. Relationship with team	Supportive & responsive to requests for help	Seeks detachment; uses 'need to know' approach to interaction	Social, inclusive, paternal, but prepared to drive hard	Confidence-inspiring leader with charisma and credibility who can get people to modify their natural behaviour
O2. Approach to conflict & divergence	Not considered legitimate-seeks procedural solution	Considered legitimate-seeks procedural solution	Considered legitimate – seeks negotiated solution	Encourages creative solution through subtle facilitation
O3. Education & support	Help others solve their problems	Directs others where to look to solve their problems	Coaches in how to influence	Coaches in context to enable Influence
O4. Use of questions	Own clarification	1+ challenge others	2 + encourage creative thinking	3 + redefine problem; reframe Purpose
O5. Expectations of others	Expect contracted effort	Expects special effort when required	Exploits individuals_ talents	Extends individuals_ talents

Relationship between self and programme environment				
E1. Adaptive intent	Do what has worked in the past	Adapt self to suit environment	Adapt environment to suit self	Adapt environment to suit purpose
E2. Awareness of organizational capabilities	Assumes departments can deliver	Aware of shortcomings. Pushes for delivery	Aware of shortcomings, prepared to go outside without hesitation	Aware and prepared to go outside after exploring internal possibilities
E3. Approach to risk	Analyze, report, monitor. Manage out internal risks	Attempt to manage out all risks	Prepare extreme contingency	Be ready for the consequences of failure
E4. Approach to face-to face communications	Report objective facts in consistent style	Provide analysis and opinions in consistent style	Level 2 plus sell vision of outcome in style more sensitive to audience	Level 3 plus cultural sensitivity
E5. Approach to governance	Use standardized reporting hierarchy	Create stable support structures both ways	Adapt/create control procedures to specific/dynamic situations	Embedding programme in organizational management structures
E6. Attitude to scope	Defined until changes authorized	Influences scope through cost benefit analysis	Chooses among trialed alternatives	Shaped to meet emerging and changing needs
E7. Attitude to time	Schedule driven; Reschedule when necessary	Planning for possible work, recognizing mobilization time	Aware of the rate at which the environment can absorb or accommodate change	Conscious of issues of timeliness and maturity
E8. Attitude to funding	Budget driven	Points out consequences of under funding	Aware of budget ambiguities and financial uncertainty	Creates budget from achievement

Table 14: The Model of Programme Management Competence

(Adapted from Partington, Pellegrinelli & Young 2005, pp. 91-92).

The conclusion of Partington et al.'s (2005) research is that individuals who hold lower order conceptions do not recognise or appreciate behaviours, attitudes and actions stemming from higher-order conceptions. In other words, while people may readily acknowledge individual's good performance with a higher-order conception, they explain the performance in terms of their own, lower-order conception (Partington, Pellegrinelli & Young 2005). Moreover, the study found that regardless of the many years of experience in project and programme roles, many participants included in the study held lower-order conceptions. Their performance was not in any way inadequate, they had simply approached their work as they conceived it, and that had been deemed adequate (Partington, Pellegrinelli & Young 2005).

Finally, the study revealed three important consequences. First, the results help in explaining why success, or even excellence, in project management is unlikely, on its own, to be a reliable guide to potential performance in the context of managing complex strategic programmes. Individuals tend to simply search for re-creating the approach and environment which they have experienced and it served them well on simpler, more defined initiatives. Second, some senior managers' support and direction could be preventing rather than promoting the development of competence – namely acquiring and applying higher order conceptions (Partington, Pellegrinelli & Young 2005). Furthermore, senior managers who themselves hold lower-order conceptions may be poor role models, setting limited expectations and exhibiting lower-order behaviours. Under these situations higher-order behaviours are not likely to be recognised and

rewarded, and they may even be deemed wasteful, unsuitable or disruptive. Finally, the results suggest that establishing organizational processes for programme management that are based mainly on the principles of project management could be supporting, enabling and encouraging the dominance of lower-level conceptions (Partington, Pellegrinelli & Young 2005).

3.2.7 The Integrated Programme Management Cycle Model

This model was developed by Thiry (2002). It acknowledges that there are ‘deliberate’ or planned strategies and ‘emergent’ or unplanned strategies. Thiry (2002) argues that projects are based on clear and well-defined objectives as well as deliverables, which means that they are deliberate strategy. The project management process which is initiated at a high level of uncertainty, at the outset, consider the use of tools and techniques such as work breakdown, risk analysis and planning, followed by quality, time and cost control. These methods are designed in a way to accelerate the knowledge of the project situation through collecting information and simulation. All of these methods and processes aim to reduce uncertainty (Thiry 2002). The deliberate strategy is considered only part of the process which takes place after a decision is being made. Thiry (2002) asserts that the ‘emergent’ inputs which will result in triggering the need for change, should also be a concern to the programme manager requiring assessment as to whether they are a simple modification in the parameters of the project or are situations that would initiate an entire new series of actions (Thiry 2002). The learning loop addresses the required processes that manage both deliberate and emergent inputs as well as the decision-making processes which lead to its resolution (Thiry 2002).

Thiry (2002) highlights that project management processes cover only the implementation part of the strategy process while there are three other key elements in strategic management that require consideration: the process of decision making in itself, the appraisal of its benefit during the implementation and, the changes that could impact on the execution. Such changes will be triggered by either the emergent inputs or failure to achieve the intended benefits (Thiry 2002). The model of the cycle of integrated programme management is illustrated in Figure 9.

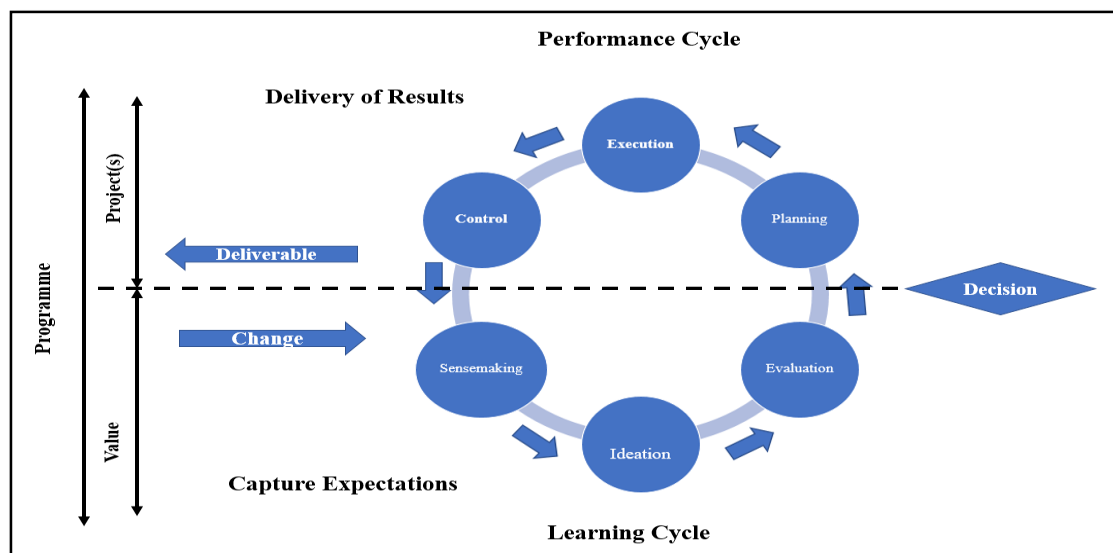


Figure 9: The Integrated Programme Management Cycle Model

(Adapted from M. Thiry 2002, p. 223)

In summary, the performance-based uncertainty reduction project tools and techniques are most suitable for dealing with complicated, uncertain situations and may also be appropriate to complex, ambiguous ones. The proposed model combines a learning/value loop with performance/project loop to form a full programme

management framework (Thiry 2002). Further, the learning loop should be part of both project reviews and programme appraisals in order to achieve strategic benefits along with stakeholders' satisfaction on delivery (Thiry 2002).

3.2.8 Programme Benefit Model

The programme-benefit model was among the first models of programme management. It was developed by scholars and practitioners aiming to encompass their experiences from various sectors, in the UK and overseas. As a result of their analysis, three programme generic models were developed: strategic, business-cycle and single-objective. These models were developed and the potential benefits that programme management can bring to organisations were identified and classified under three major categories, meeting business needs, savings, and reducing risk (Ferns1991).

Designing programmes to reap benefits

Programme management benefits can only be optimized if projects are organized in specific ways. Therefore, it is recommended to optimize programme design through considering the potential benefits to the organisation at the earliest possible stage (Ferns 1991). The first phase of programme design is to establish a matrix of all projects mapped against each other as shown in Figure 10. The matrix can be completed with interface and linkage information that should be classified by the potential benefits of relating the projects together. For instance, interfaces between projects may reap potential benefits such as: resource/skill sharing, engineering/software commonality, market-research commonality, contractor commonality (Ferns 1991).

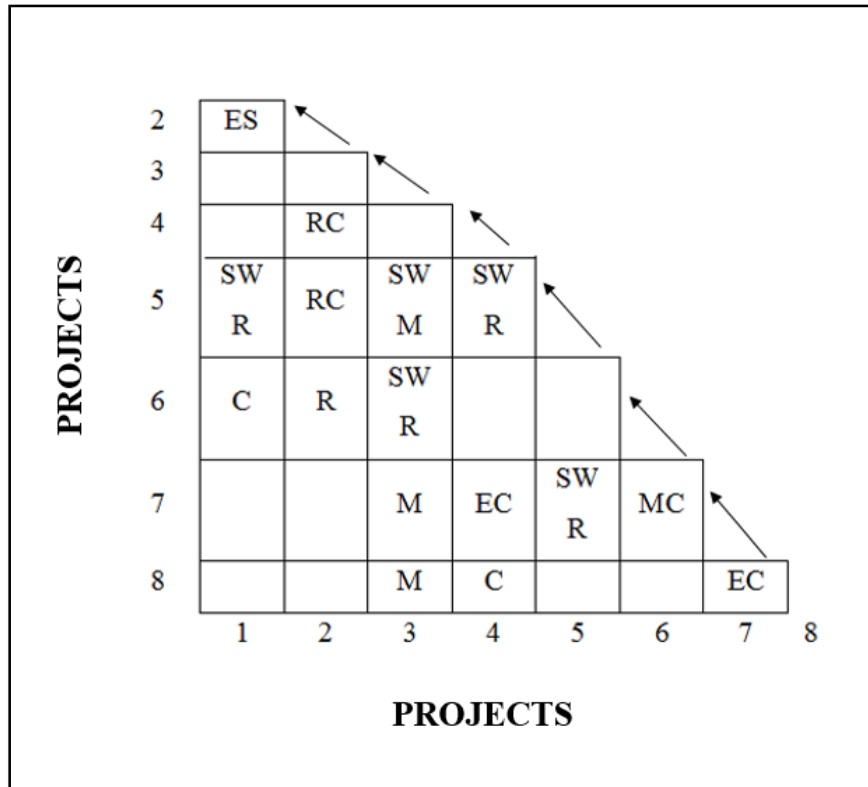


Figure 10: Programme-Benefit Model

(Adapted from D. C. Ferns, 1991, p. 155)

A database model was design to facilitate its application in order to develop the best grouping of projects, and list the benefits that the particular grouping of projects has the potential to deliver. The model can be run for any number of chosen programmes. A relative ‘link score’ is provided to evaluate whether or not the projects would, for example, be best grouped into two or three programmes. The link score also relates to the category of benefit that can be expected from that grouping of projects. Table 15 shows an example of a typical output.

Programme A		Programme B	
Projects 1,2,3,5,6		Projects 4,7,8	
Programme Benefit	Link Score*	Programme Benefit	Link Score*
Resources (R)	6	Engineering contractors (EC)	2
Software (SW)	3		3
Contractors (C)	3		
* A measure of the strength of project relationships within a programme			

Table 15: Output of Programme-Benefit Model

(Adapted from D. C. Ferns 1991, p. 155)

This model which was developed in the early 1990s provided a simple method used to group projects into programmes in a way that enables delivering the intended programmes benefits (Ferns 1991).

3.2.9 Program Sustainability Assessment Framework

This framework adopts a three pillars approach of economic sustainability, environmental sustainability, and social sustainability. It builds on the integrated program management cycle model by Michel Thiry (2002). The assessment of a programme's sustainability depends on programme context. This means that sustainability considerations differ from one programme to another.

The framework as illustrated in Figure 11 shows that when a programme is developed by the team through sensemaking, ideation and elaboration in the learning loop, sustainability considerations have to be included in the 'Choice' process. This implies

the importance of ensuring that the different options or related projects of the programme selected will deliver economic benefits in addition to considering environmental and social sustainability to be critical issues that ensure the long-term success of the business.

Assessing programme options during the elaboration process for choice aims to promote positive sustainability impacts and minimise negative impacts among all three dimensions. Moreover, the programme manager along with the members of the programme's team should be able to develop competence related to various sustainability issues, and to identify the impacts of the project options. Further, Tam (2010, p. 23) states that "The programme manager should be capable of making a balanced decision, or even a trade-off on chosen solutions with a target to maximize overall positive sustainability effects".

The assessment of sustainability is therefore an integral part of the learning loop instead of something that is performed after the programme has been chosen based on purely economic considerations. When the selected programme is being established, the project managers will be responsible for sustainability of their respective projects. Similarly, programme managers should refer to their previous programme and project experience, including the nature of the programme and its context to identify appropriate potential impacts of interest. The list under various sustainability dimensions in the framework as presented in Figure 11 is non-exhaustive, nevertheless, it can be considered as a starting point for programme managers to identify appropriate sustainability requirements for assessment.

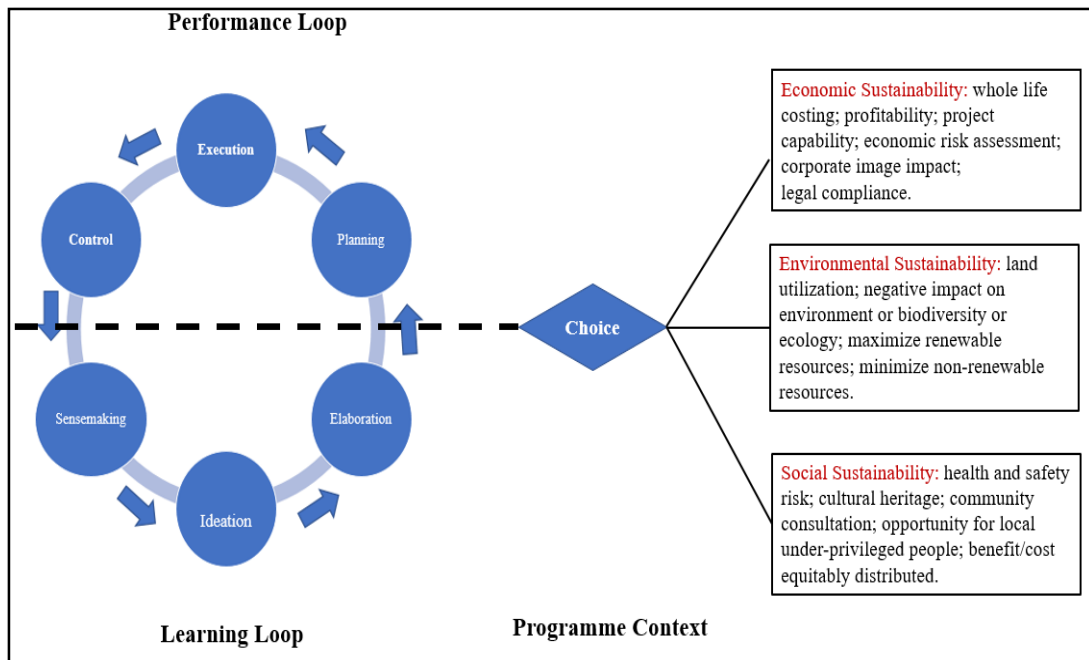


Figure 11: Programme Sustainability Assessment Framework

(Adapted from G. Tam 2010, p. 23)

3.3 Programme Management Standards

Currently there are three widely known programme management professional standards. These standards are: ‘The Standard for Programme Management’ published by Project PMI, The MSP- ‘Managing Successful Programmes’ in the UK (OGC) and ‘P2M Project & Programme Management for Enterprise Innovation’ promoted by the Project Management Association of Japan (PMAJ) (Thiry 2015). The UK Government was the first to issue a set of professional standards for programme management. These standards concentrate on the objectives of programme management ‘to achieve benefits that are of strategic importance’. The PMI standard was the first to acknowledge that programmes involve elements related to the ongoing operations. Finally, the PMAJ framework represented programme management as an evolution and a move from

second to third generation of project management (Thiry 2015). In the following sections the three standards are presented.

3.3.1 The Standard for Programme Management (PMI)

The Standard for Programme Management describes the way organizational strategy establishes the structure of programme and portfolio management. It presents information related to programme management which is generally recognized as good practice and provides the necessary steps to successfully manage most programmes (PMI 2013).

According to The Project Management Institute (PMI 2013, p. 4) a 'Programme' is defined as "A group of related projects, subprograms and program activities that are managed in a coordinated way to obtain benefits not available from managing them individually". Programmes as well as projects deliver benefits to organisations. Benefits are achieved through generating value, enhancing the existing capabilities, facilitating business change, maintaining an asset base, offering new products and services to the market, or developing new capabilities for the organisation (PMI 2013). Programme benefits could be realised incrementally throughout the duration of the programme, or at the end of it. Figure 12 illustrates a group of projects within a programme with discrete benefits which contribute to consolidated benefits as defined by the programme.

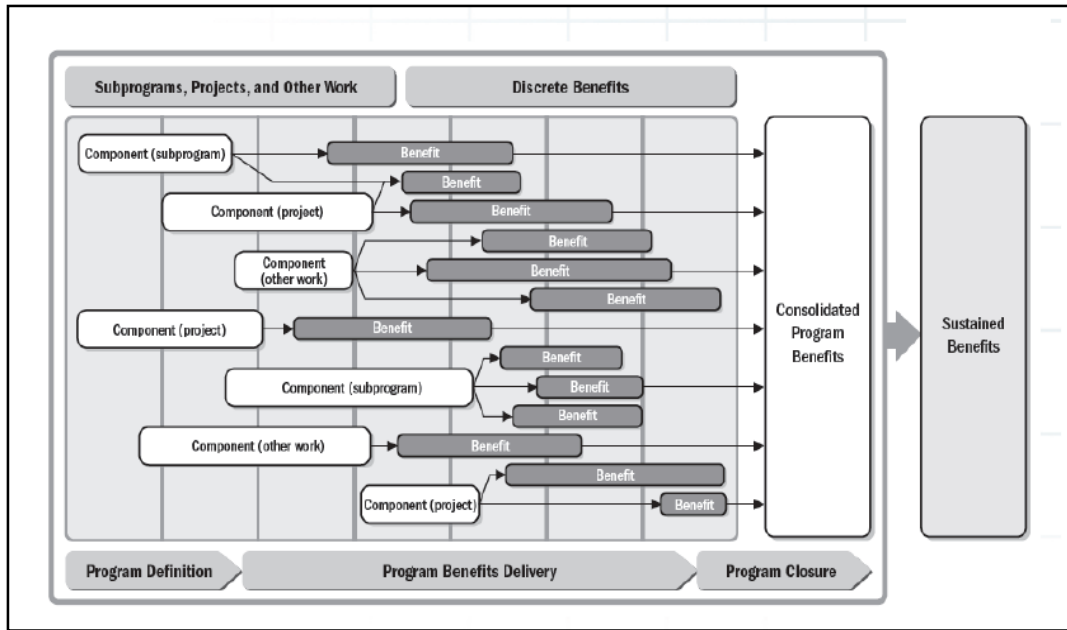


Figure 12: Program Benefits Management

(PMI 2013, p. 5)

The standard provides an overview framework which consist of ‘Performance Domains’ and the ‘Supporting Processes’ Figure 13. Detailed explanation is provided in the following sections.

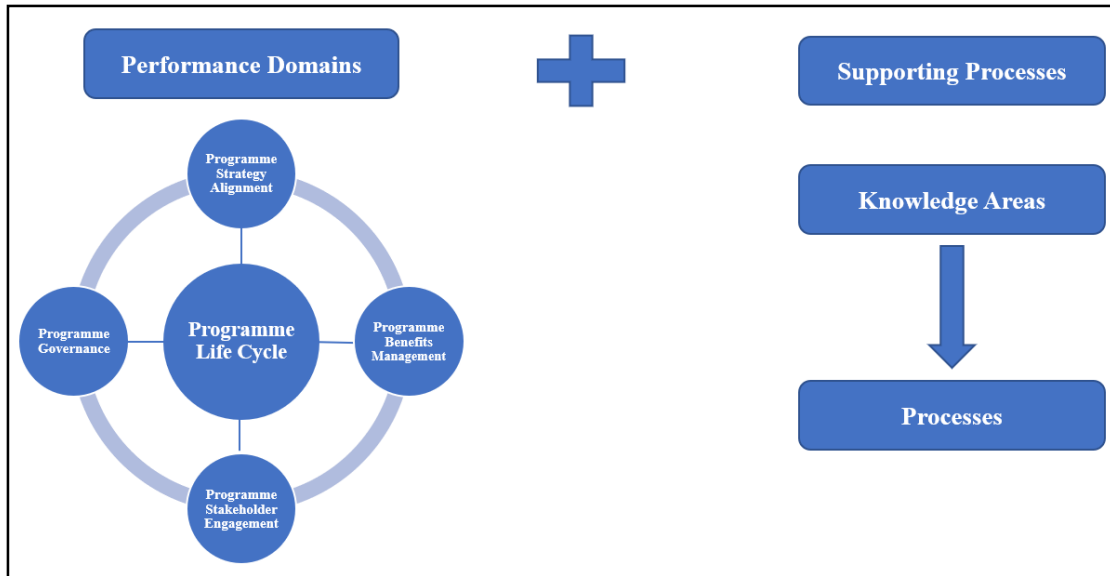


Figure 13: Programme Management Framework Overview

(Adapted from E. Zanotti 2013, p. 10)

3.3.1.1 Programme management performance domains

The ‘Program Management Performance Domains’ are described as complementary groupings of related areas of activity, concern, or function that distinctively characterise and differentiate the activities within each domain throughout the full scope of the programme management work (PMI 2013). These performance domains consist of the programme management framework and are vital to the success of the programme. Programme managers perform work within multiple programme management performance domains throughout all phases of programme management. The performance domains and their definitions are explained as follows (PMI 2013):

Programme strategy alignment

Programme strategy alignment is related to the identification of opportunities and benefits that would lead organisations to achieve their strategic objectives, through program implementation. The strategic focus of programmes is a key difference between programme and project management. Programmes are designed in a way that is aligned with the strategy of the organisation in order to ensure the realization of organizational benefits. The programme strategy alignment domain includes namely: organizational strategy and programme alignment; programme roadmap; and environmental assessments.

Programme benefits management

The program benefits management domain consists of elements that are essential for conducting successful programmes. It deals with defining, creating, maximizing, delivering, and sustaining benefits that are delivered by the programme. The purpose of this domain is to direct the attention of programme stakeholders (that is programme sponsors, programme manager, project manager, programme team, programme governance board and other stakeholders) towards the outcomes and benefits provided by various activities that are undertaken during the duration of the programme. A benefit is defined as “an outcome of actions and behaviours that provide utility, value, or a positive change to the intended recipient” (PMI 2013, p. 34). Some benefits can easily be quantified and include concrete or fixed conditions such as achieving organisation’s financial objectives. Other benefits cannot be easily quantifiable such as the improvements related to employee morale or customer satisfaction. Programme Benefits Management requires continuous interaction with other performance domains during the duration of the programme. Programme Benefits Management interactions

are namely: benefits identification; benefits analysis & planning; and benefits delivery; benefits transition and benefits sustainment.

Programme stakeholder engagement

According to the PMI (2013, p. 45), a stakeholder is “an individual or group of individuals who has an interest in the program and can influence or be influenced by its process or outcomes”. In other words, stakeholders involve all those who will interact with the programme in addition to those who will be affected by programme implementation. It is the responsibility of the programme manager to identify, study, categorize and track stakeholders. Stakeholders could be internal or external to the programme. They also could have a positive or a negative impact on programme’s outcome. It is essential for the programme manager to be aware of the various stakeholders in order to understand and address the programme’s changing environment. Due to the importance of stakeholders and their potential impact on programme benefits realization, it is important to balance their interests and focus on the notion of stakeholder engagement (PMI 2013). The domain of stakeholder engagement proceeds through three activities namely: programme stakeholder identification; stakeholder engagement planning; and stakeholder engagement.

Programme governance

Programme governance, is related to systems, methods, practices and processes that are used by the sponsoring organization to monitor, manage, and support the programme. Programme governance is performed through the actions of a review and decision-

making body that is charged with approving recommendations made regarding a programme under its authority. The body is referred to as the programme governance board (PMI 2013). The programme manager is responsible for managing programme's interactions with the board and the latter is responsible for providing the appropriate support for conduct of a programme. Establishing programme governance is very important especially in programme environments that are highly complex and uncertain. This uncertainty and complexity requires adaptive responses to outcomes and information that become available during the programme.

Programme life cycle management

Programmes are carried out in order to deliver benefits by developing new capabilities or enhancing existing ones. In order to achieve this goal, programme managers integrate and manage multiple components of the programme which includes sub-programmes, projects as well as other work for the delivery of the intended benefits. The life domain spans the duration of the programme and contributes to and receives support from other domains as well as from the programme supporting processes. Programmes are implemented through three main phases namely, programme definition, programme benefits delivery and programme closure.

The Performance domains described earlier run at the same time for the duration of the programme. The programme manager and the programme team perform their tasks within these domains. The degree of activity required within a specific domain at a specific time depends on the nature and complexity of the programme. Work within these domains is iterative in nature and repeated frequently (PMI 2013). Further, these

performance domains interact with each other during the course of the programme depending on the programme itself and its components. All domains interact with each other with a variation in both the degree and intensity of interaction (PMI 2013, p. 20).

3.3.1.2 Programme management supporting processes

Programme management supporting processes address a higher level of analysis compared to those on the project level. The programme level supporting processes enable a synergistic approach to the aim of delivering the desired benefits of the programme. Those processes require coordination with the organisation's management functions. The programme management supporting processes Figure 14 for groups of functions in the organisation are listed and explained below.

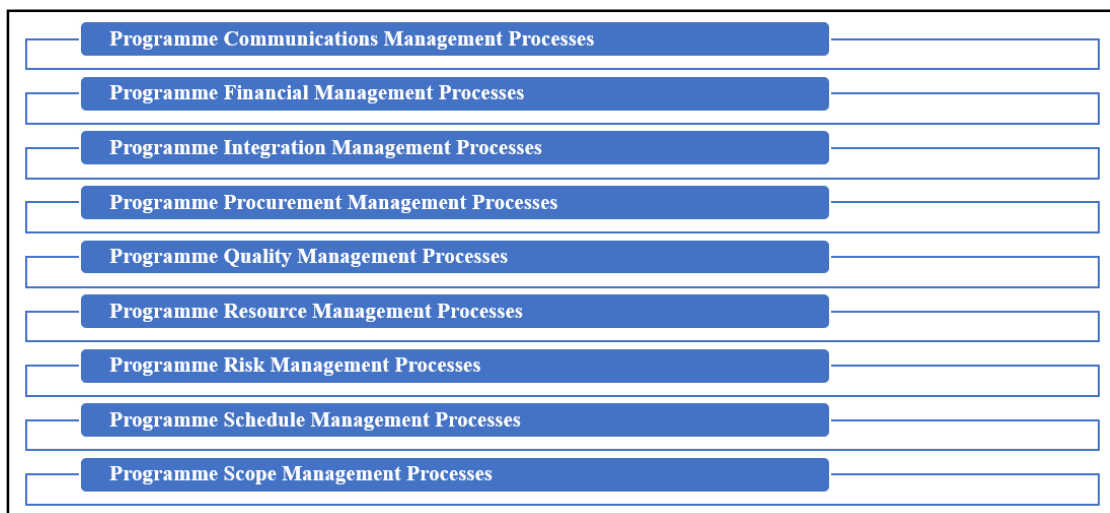


Figure 14: Programme Management Supporting Processes

(Adapted from E. Zanotti 2013, p. 16)

Programme communications management

Programme communications management involves activities that are required to facilitate timely and proper generation, collection, distribution, storage, retrieval, and ultimate disposition of programme information. These activities are essential to connect both people and information that are necessary for successful communications and decision making. It is worth mentioning that managing internal as well as external communications within and across the programme is an area that cannot be underestimated or overlooked.

Programme financial management

Programme financial management includes activities that are related to the identification of the programme's resources and financial resources, integration of the budgets of the programme's components, development of the overall programme's budget, and the control of costs through the duration of both the components and the programme.

Programme integration management

Programme integration management involves activities needed to identify, define, combine, unify, and coordinate multiple components within the programme. It coordinates different activities across the programme management life cycle.

Programme procurement management

Programme procurement management is concerned with activities required to secure products and services to assist the programme in delivering the intended benefits. All involved activities at the programme level must be targeted at optimizing procurement for the components. Programme managers have to ensure that the programme correctly implements all organizational policies when handling financial transactions that involve legally binding agreements.

Programme quality management

Programme quality management includes activities of the performing organisation which define programme quality policies, objectives, and responsibilities in order for the programme to be successful. Every component of the programme contributes to its quality and all quality activities must be monitored and controlled.

Programme resource management

Programme resource management is concerned with ensuring that all required resources (people, equipment, etc.) materials are available (when needed) and allocated to project managers to enable their projects to deliver benefits for the programme.

Programme risk management

According to the PMI (2013, p. 95) a programme risk is defined as “an event or series of events or conditions that, if they occur, may affect the success of the program.” Risks can be classified as either positive and often referred to as opportunities or negative

which is referred to as threats. These risks happen as a result of the interactions between programme components. Programme risk situations, plans, status, and effectiveness of the continual or completed risk responses should be included within the reviews of the programme. All modifications that result from the reviews and other changes in risk have to be entered in the risk response plan.

Programme schedule management

The programme schedule management activity determines both the order and timing of the components needed to achieve the benefits of the programme, estimates the amount of time required to perform each component, identifies important milestones during the performance of the programme, and documents the outcomes. It further includes the sequence in which individual components are to be implemented, the programme roadmap, in addition to the milestones to be measured in order to keep the overall programme on track and within the defined constraints. Programme components consist of both its unique activities and the projects that will deliver the primary scope of the programme. Often, a high-level programme master schedule is developed during the early stages which specifies the benefits and major outputs to be achieved from each of the components. Project managers build detailed schedules for their projects. Whenever components schedules are developed, the programme master schedule may need to be updated.

Programme scope management

Programme scope is concerned with defining the required work to deliver programme benefits. Programme scope management includes all activities involved in planning and managing the scope of the programme. It aligns the scope of the programme with its goals and objectives. It also requires systematic classification of the work into deliverable component products designed to deliver associated benefits. The main objective of scope management is to develop a detailed statement of the scope of the programme, break down the programme work into deliverable components, and develop a plan for managing the scope throughout the programme's duration.

3.3.2 Managing Successful Programmes (MSP) (OGC)

Managing Successful Programmes (MSP) is a model that consists of a set of principles and processes for managing a programme. The model was developed by the OGC and is widely used across the world. It has been established as the de facto standard for programme management (Sowden 2011). A programme is composed of a number of projects identified by an organisation that together will deliver a set of objectives. The objectives of the programme are typically at the strategic level so that the organisation can achieve benefits and improvements in its business operations (Sowden 2011). The three key elements of MSP are shown in Figure 15 'Principles', 'Governance Themes' and 'Transformational Flow'.

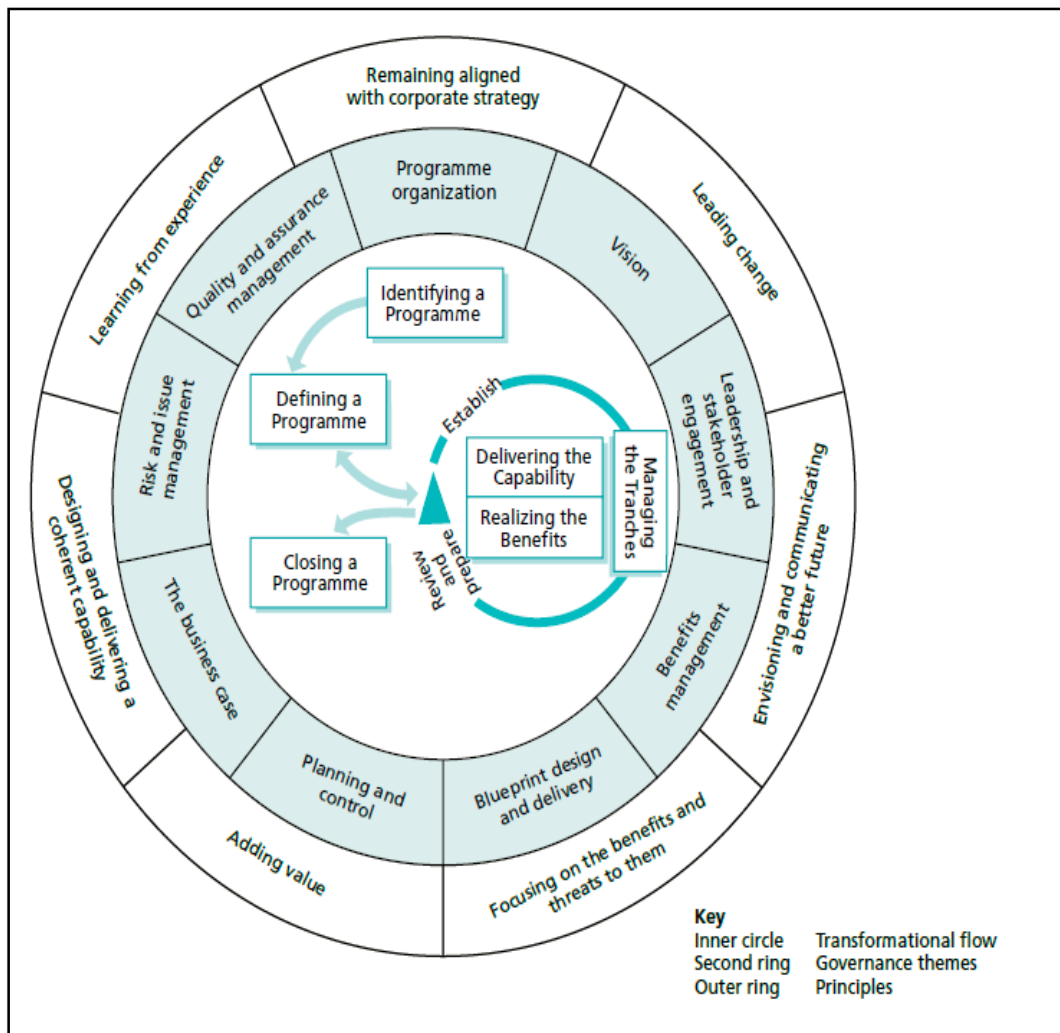


Figure 15: MSP Framework and Concepts

Copyright © AXELOS (MSP™ 2011, p. 6)

Programme management principles

Managing Successful Programmes is a principle based framework that provides a common understanding for all programmes because the principles are: ‘universal’ and can be applied to every programme; ‘self-validating’ as they have been proven in practice; and ‘empowering’ as they provide practitioners of this framework with added ability or power to influence and shape transformational change towards success (MSP 2011). The principles reflect the characteristics of successful programmes. If these

principles are considered along with the governance themes and the transformational flow, then it is more likely that the programme will achieve its objectives (MSP 2011). These principles are: remaining aligned with corporate strategy; leading change; envisioning and communicating a better future; focusing on the benefits and threats to them; adding value; designing and delivering a coherent capability; and learning from experience.

Governance themes

Governance is “the control framework through which programmes deliver their change objectives and remain within corporate visibility” (MSP 2011, p. 27). For a programme to be successful, it needs to have clear and open governance. MSP’s nine themes provide guidance in relation to concepts that continue through the life of the programme to allow maintaining suitable controls that keep the programme on course (MSP 2011). These themes Figure 16 are namely: programme organization; vision; leadership and stakeholder engagement; benefits management; blueprint design and delivery; planning and control; the business case; risk and issue management; quality and assurance management (MSP 2011).

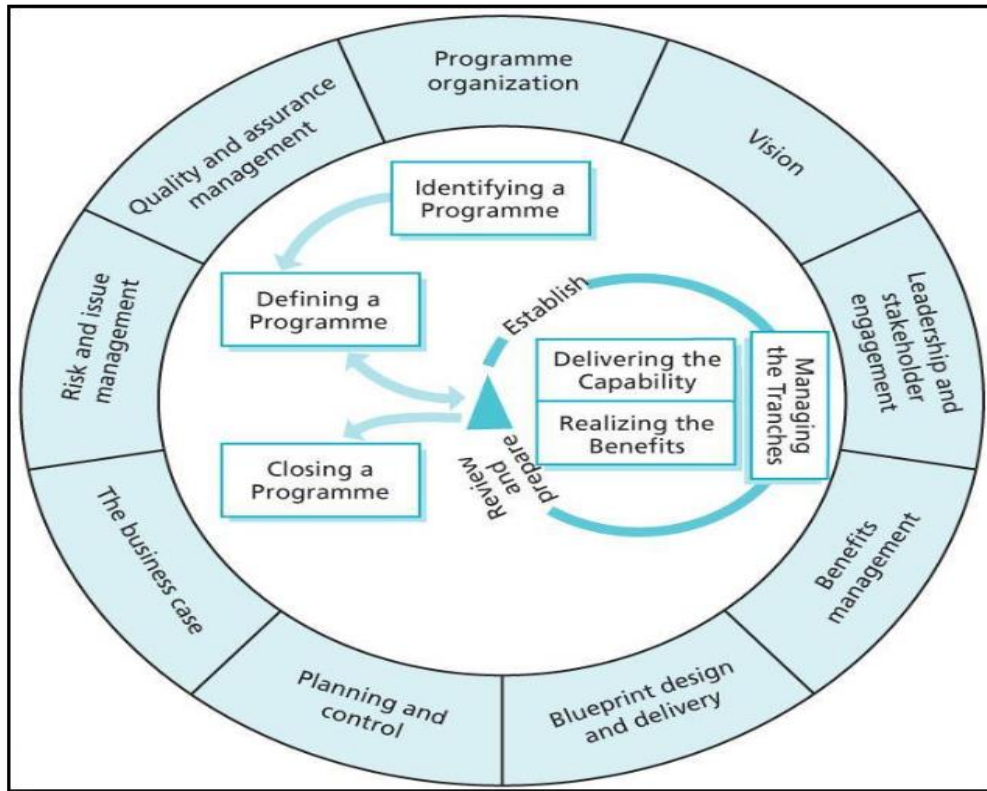


Figure 16: The MSP Governance Themes Overview

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Transformational flow

Delivering transformational change is the main goal of MSP. The transformation is achieved through a series of repeated and interconnected steps as shown in Figure 17.

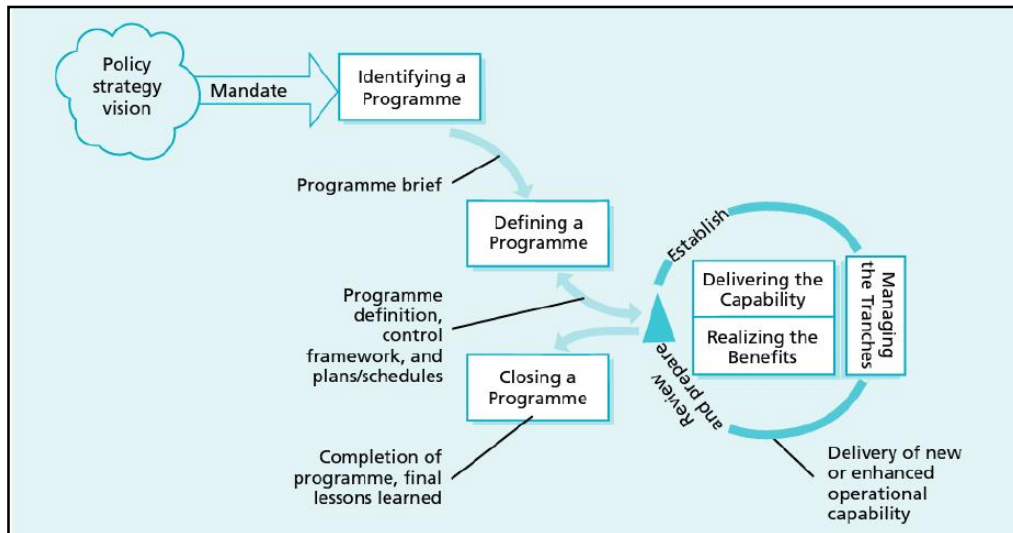


Figure 17: Overview of the Transformational Flow

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The transformational flow happens based on the main processes and key control documents involved in delivering an MSP Programme. More than one iteration is required for each process before the next one begins. This is particularly true for processes related to delivering capability and realizing the benefits as programmes regularly deliver their changes through more than one tranche. The flow provides a route for the programme’s lifecycle which consists of six processes (MSP 2011). These processes are: identifying a programme; defining a programme; managing the tranches; delivering the capability; realizing the benefits; and closing a programme.

3.3.3 PMAJ-Project & Programme Management for Enterprise Innovation (P2M/KPM)

Project and programme management (P2M) is the first Japanese project and programme management standard for enterprise innovation. It was developed by Professor Shigenobu Ohara in 2001 with the support of the government (Ministry of Economy and Industry) along with professional associations (Siang & Yih 2012). The standard is

managed by the Project Management Certification Centre. It aims to achieve several goals namely: creating a strategic framework for innovation to improve corporate values in PM methodologies; and providing a way for Japanese enterprises to develop more innovative approaches to compete successfully in the global business environment (Siang & Yih 2012). Areas for innovation include: decisions to be made in relation to downsizing or withdrawing from unprofitable projects, investing in potential projects, restructuring team members or projects, in addition to assessing employees' performance. The intention is that this innovation and improvement help to ensure the success of projects and programmes (Siang & Yih 2012). P2M has a combination of entry-level project management, program management, as well as eleven segment management frames namely: project strategy management, project systems management, project target management, risk management, relationship management, communication management, project finance management, project organization management, project resource management, information management, and value management (Siang, Yih & Pneng 2013).

Programme management from the P2M perspective is defined as "an undertaking in which a group of projects for achieving a holistic mission are organically combined. Multiple projects that have weak relations with one another or are independent are not regarded as programs" (Ohara 2005, p. 29). Siang, Yih and Peng (2013, p. 106) explain that "The basic context of P2M defines program and program management as a practical capability to respond to external changes, allowing flexibility that copes with ambiguity, complexity, uncertainty, and expandability". A central characteristic of the P2M framework is to concentrate on multiple project management vs. single project management. The main difference between both is that single PM achieves results

through applying an individual or particular process, while complex PM realizes a value or mission through a series of projects to accomplish specified objectives (Ohara & Asada 2009). Figure 18 shows the transformation of PM from single PM to complex management.

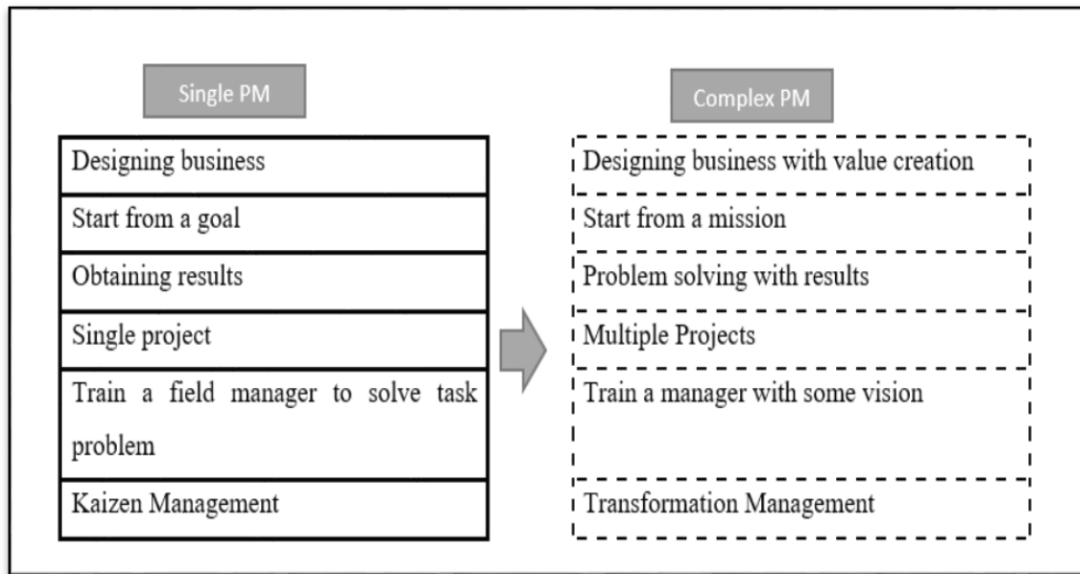


Figure 18: Single PM to Complex PM

(Adapted from S. Ohara & Asada 2009, p. 193)

According to P2M, the essential requirement of a value-creating undertaking in programmes, is represented by a series of grouped projects that constitute the programme. This requires solving complex issues that involve different concepts in several ways and includes rich contents and contexts that encourage developing road maps to achieve solutions. Such complexity needs integration of various factors such as politics, economy, society, technology and ethics. The combination and integration of these factors generally determines the size, dimensions and the scalability of programs (Ohara 2005). Combining multiple projects and programmes reflects the complexity that arises from the interfaces between projects in combination with

overlapping project life cycles. This is in addition to the basic attributes of single projects, where the duration of the programme tends to be longer and the uncertainty is likely to be higher due to facing substantial changes in the environment. Figure 19 illustrates the basic attributes of Programme.

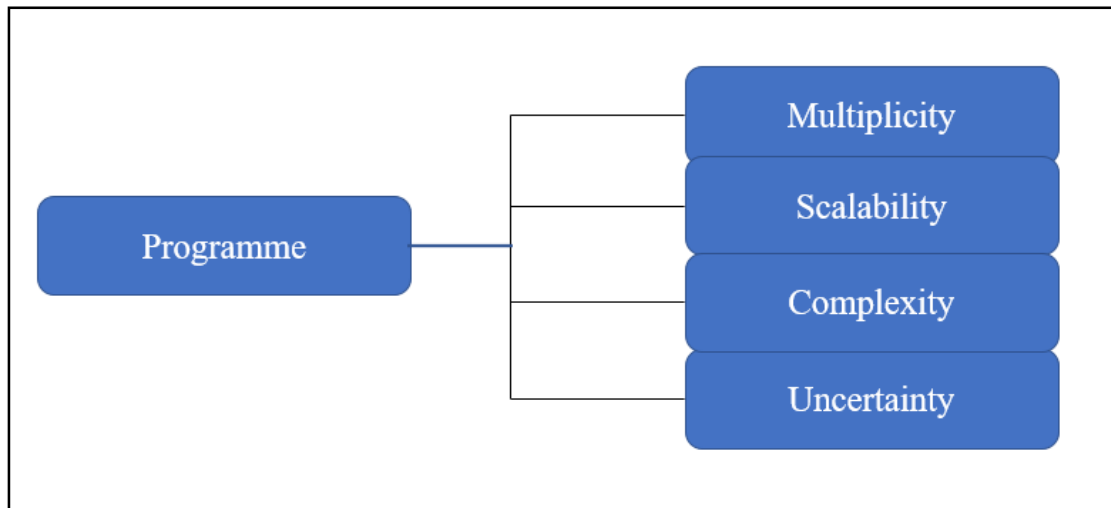


Figure 19: Basic Attributes of Programme

(Adapted from S. Ohara 2005, p. 29)

Managing projects that are likely to lead to a more effective programme outcome when divided into smaller modular projects as they become more flexible in responding to situational changes than when they are constituted as fixed projects managed separately. Ohara (2005, p. 30) defines a “modular project” as “The minimum management unit of a project, which maintains the basic attributes of a project and allows for acquisition of a completed product”. When the size of a project increases beyond a certain level, it is recommended that managers re-organize the project as a programme. The aim of such reorganization is to achieve a more flexible approach to dealing with a complexity of issues or situational changes by treating the original phases

as modular projects. Figure 20 depicts the relationship between projects and programmes.

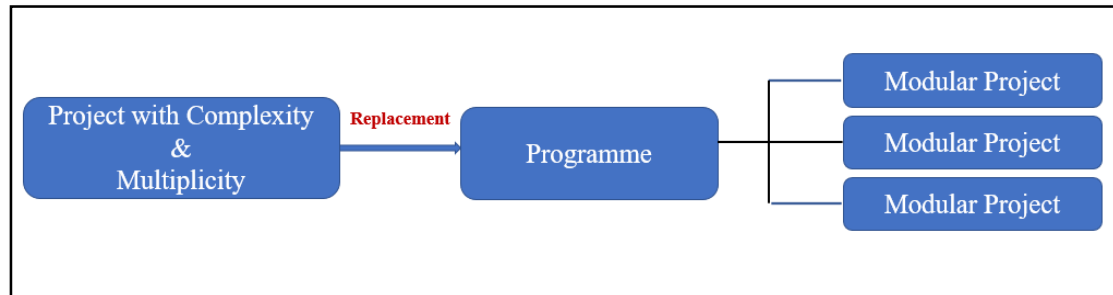


Figure 20: Relations between Project & Programme

(Adapted from S. Ohara 2005, p. 30)

Value creation by programme management

Ohara (2005) clarifies that programme management provides organisations with a framework of capability that allows flexible adaptation to changes in the external environment. This can be achieved through developing ways to deal with such changes and contribute to a holistic mission. Such capability involves the integration of activities to enhance holistic value and to achieve the mission through optimizing the relationships between projects. Ohara (2005) explains that programme management through P2M involves achieving project integration from an overall perspective to enhance the total value of a programme which is the core capability for mission-performing project professionals. Integration means organic and meaningful unification of multiple projects. It requires wisdom, ideas, ability and dedicated effort which lead to avoiding redundancy, waste, unreasonableness and hazards, eliminating unevenness, and creating value (Ohara 2005).

Basic principles of integration activities

As has been argued in this chapter, programme management activities are at a higher level compared to PM. It centres on harmonizing the structure among projects and their interactive mechanisms and necessitates proactively reacting to changes with an overall vision and sharp insight. The overall role of programme management is to facilitate the ability of the organisation in responding to changes in the external environment through planning, monitoring, intervention, coordination, alternative selection, in addition, to initiating changes across all related projects. The concept of integration consists of four basic principles namely: zero based approach; flexibility to changes; competence based; and value assessment (Ohara 2005).

The four types of values Figure 21 are considered as essential guidelines for management to make decisions when facing environmental changes related to value positions, market competition or technological innovation. An advantage of programme management methods is that they can inform management decision making based on well-balanced, programme-specific qualitative and quantitative indicators, providing visual measures to gauge planned effectiveness, suggest enhancement and trigger modifications in the programme through pre-evaluation, in-progress evaluation and post-programme assessment.

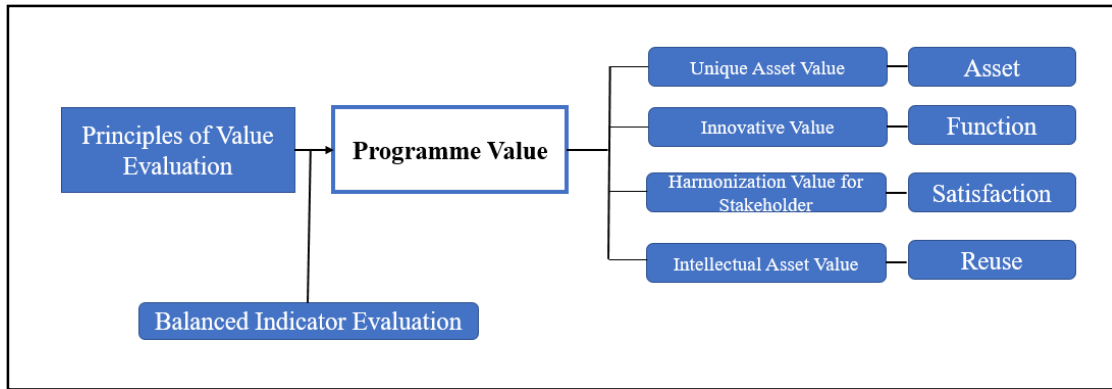


Figure 21: Value Assessment Principles and Programme Values

(Adapted from S. Ohara 2005, p. 32)

The programme management steps namely are: defining, sharing a common view, building a common base and using the skill for integration management. These steps are shown in Figure 22.

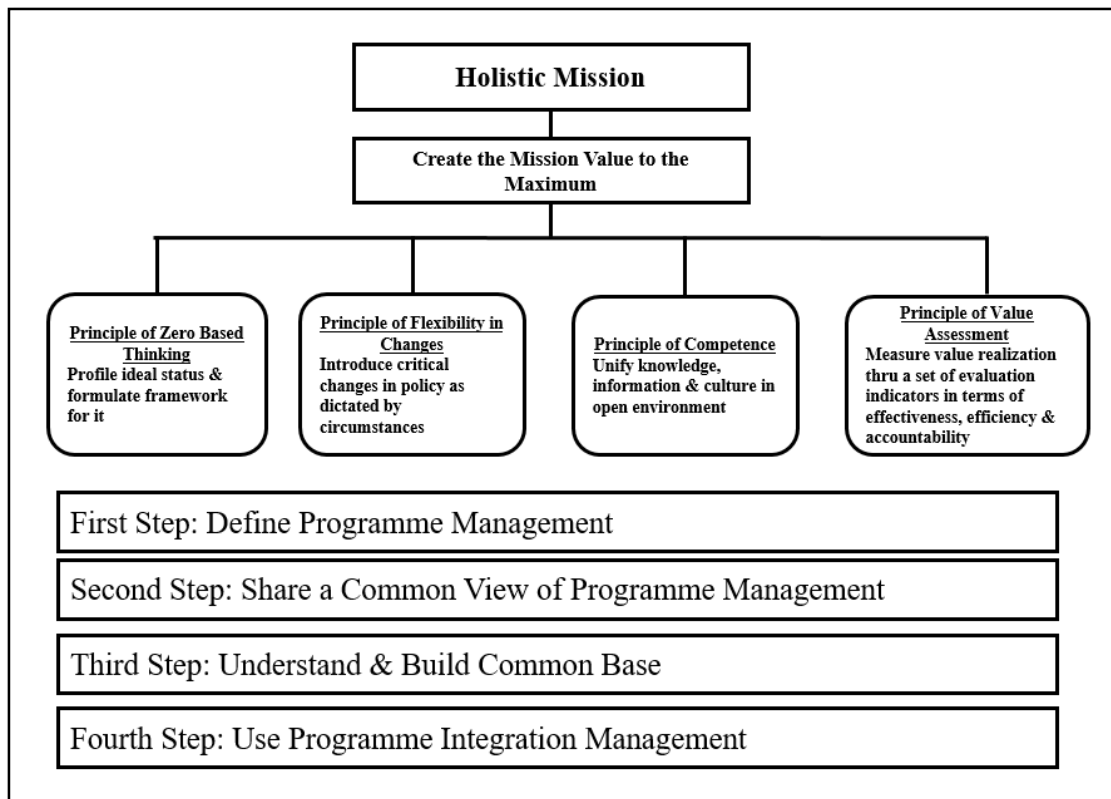


Figure 22: Step Approach in Programme Management

(Adopted from S. Ohara 2005, p. 33)

Framework of practical capability of programme management

Demonstrating Programme capability requires an understanding of the basic attributes of the programme that constitute the basic framework; the ‘common view’ which is required for programme management; principles of project management, together with project segment management, most of which are also valid in program management. The overall framework has to be managed in a changing context, Ohara (2005, p. 34) clarifies that “Although program management have its own areas of competence, frames and attributes. It is not prudent to regard program management as existing in a vacuum”. He further elaborates that in P2M, the relationship among program management, project management and segment management is standardized as an

overall framework which is based on the common view (Ohara 2005). Figure 23 presents the Framework for programme management capability.

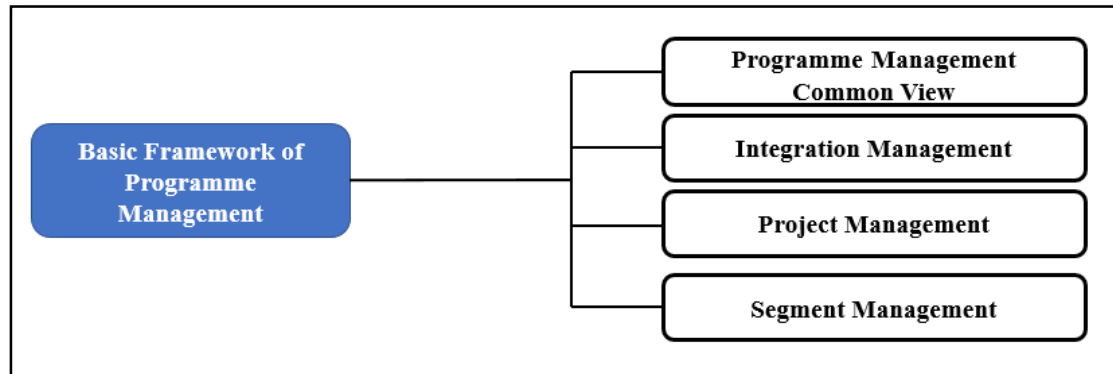


Figure 23: Basic Framework for Programme Management Capability

(Adapted from S. Ohara 2005, p. 34)

Kaikaku project management (KPM)

KPM is an advanced version of P2M which was developed when the Japanese companies experienced a deflationary depression. So, in order to survive and recover, the Japanese looked for solutions in the 'kaikaku' (reforms or innovative reforms) of business management, organization and technology (Siang, Yih & Pneng 2013). KPM is seen as a method which explores the enhanced methodology of strategy implementation in the form of lateral and cross functional collaborations (Siang & Yih 2012), as shown in Figure 24.

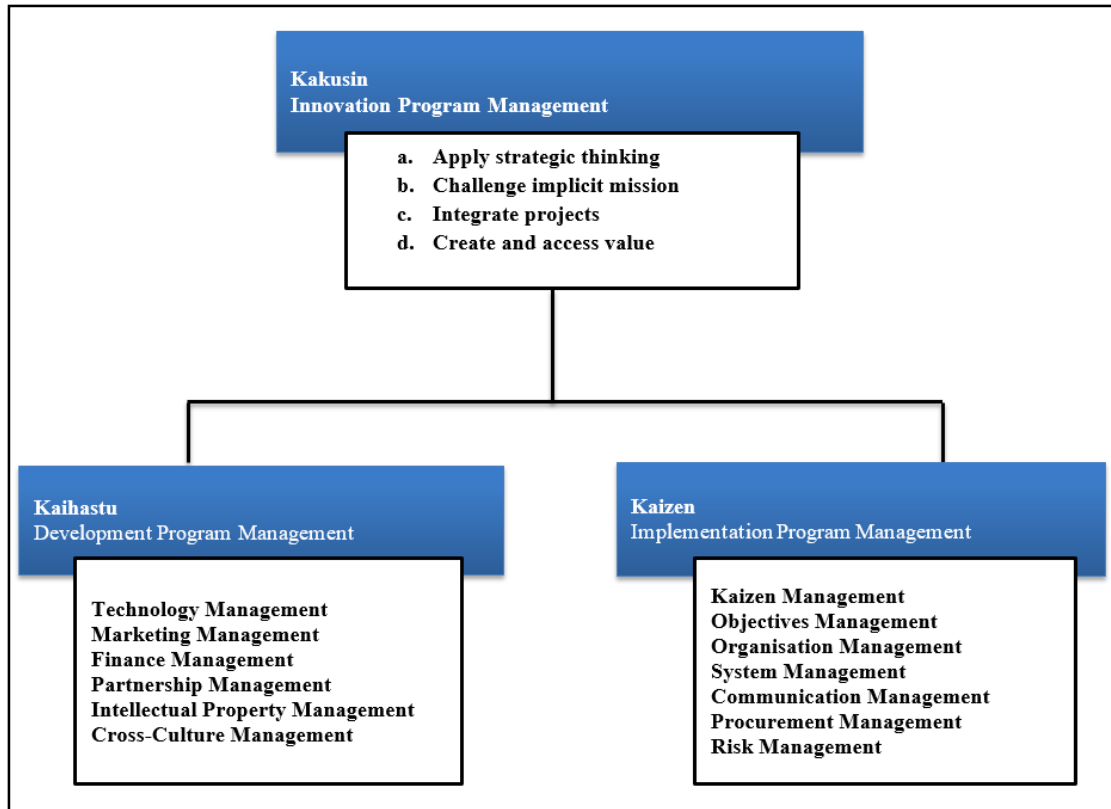


Figure 24: KPM Knowledge Framework

(Adapted from L. Siang & C. Yih 2012, p. 194)

The framework consists of three important elements for successful performance: 3K- *kakusin* (innovation), *kaihatsu* (development), and *kaizen* (improvement). *Kakusin* is doing anything that is related to creating new ideas, devices or processes based on combining new knowledge; *kaihatsu* is the challenge to obtain the latest knowledge and information; and *kaizen* is the continuous efforts for improvement at the work-floor level. In P2M, there was no classification in relation to those elements (*kakusin*, *kaihatsu*, and *kaizen*); in organizational models, 3S (scheme, system, service) project models related to the lifecycle in value creation paradigm are proposed. KPM is the core management for integration and innovation through a 3S/3K combined methodology (Siang, Yih & Pneng 2013).

The features of programme management and enterprise innovation, along with its outline of the knowledge framework is illustrated in Figure 25. The “Project Management Tower” illustrates an overview of P2M which involves four sections. The first section, 'Project Management Entry', describes "how to make a first step as a professional". The second section 'Project Management', explains the basic definition in addition to project management's framework. The third 'Program Management' presents programme management that involves multiple projects. The fourth section 'Project Segment Management' lists eleven segments of PM. These segments can be used separately or in a combined manner for individual tasks and challenges of PM and program management. P2M assists project professionals to enhance their competence and capability to apply the right knowledge to project specific tasks and challenges.

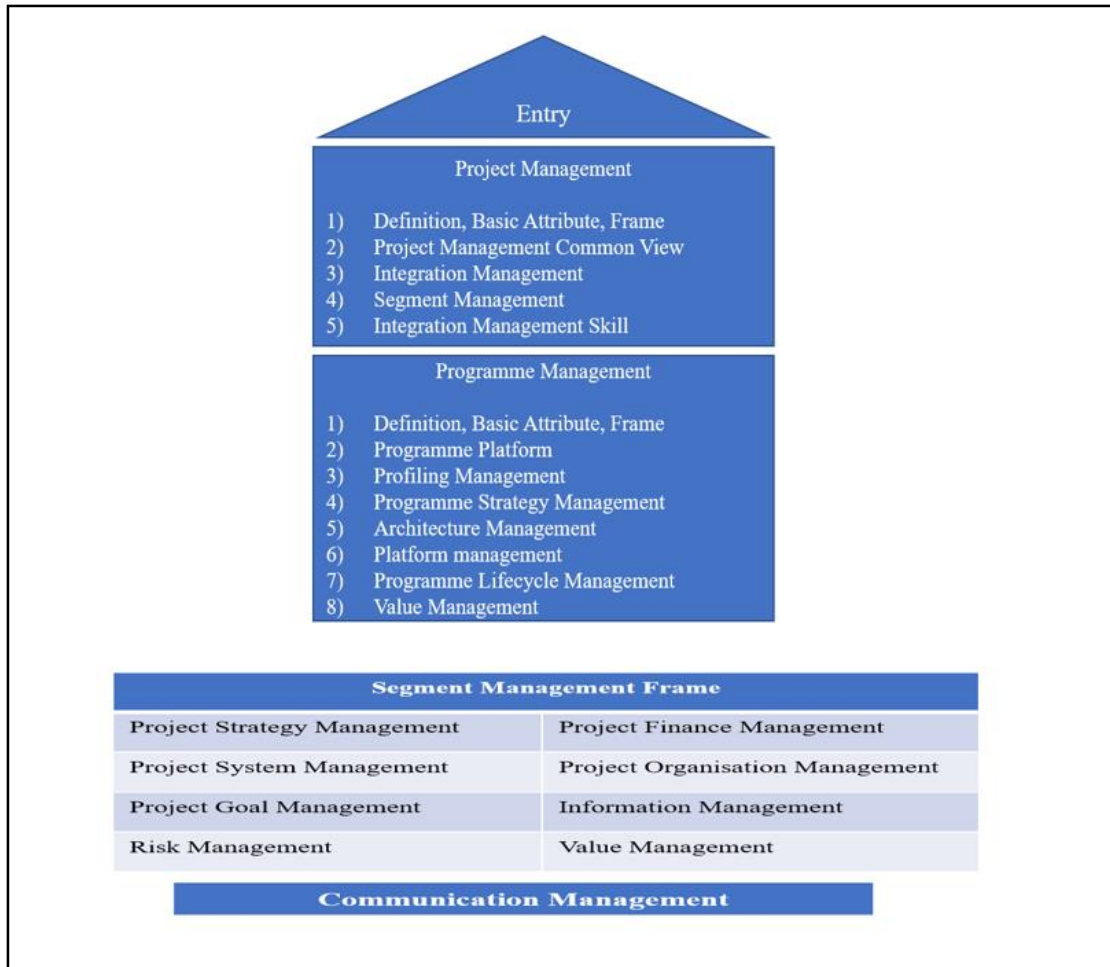


Figure 25: Programme Management & Enterprise Innovation

(Adapted from S. Ohara 2005, p. 14)

3.3.4 Comparison of Programme Management Leading Standards

According to Thiry (2016), all three standards (MSP; PMI; and P2M) cover slightly different aspects of the entire range of endeavours relevant to programme management, but agree on the main principles.

The PMI standard defines five associated performance domains: strategy alignment, benefits management; stakeholder engagement; governance and life cycle management. Its life cycle represents programme management as a process of adaptive

change, which supports the idea that the strategy and plan of a programme can and will change to deliver its proposed benefits (Thiry 2016).

The MSP standard states that it can deal with various types of programmes but is more appropriate for business transformation (OGC, 2011). Thiry (2016) argues that the standard could be used in a “scaled down” form for the type of projects/programmes that are described as technical or low in unpredictability, however, the standard may become “less appropriate” for societal programmes characterised by high unpredictability (Thiry 2016). This insight is valuable as it identifies that there will be a variety of programme contexts and challenges, and each needs to be managed in slightly different ways (Thiry 2016).

Finally, Thiry (2016) mentioned that PMAJ programme management is seen as an extension of the strategy where: “After the program mission is gained from the business strategy as a concept, a program is created to carry out the program strategy” (PMAJ, 2015, p.32 in Thiry 2016, p. 2). According to P2M, programmes are considered as a central part of organizations that have to face the globally competitive environment through adopting innovative approaches and methodologies (Thiry 2016). The standard divides programmes into two main categories: creative or transformation-type programmes that can be categorized as ambiguous and intended to create something totally new and/or dramatically transform the existing situation; and operation-type programmes that have already agreed upon objectives and create values such as increased profit and new knowledge (Thiry 2016).

In summary, the PMI Standard for programme management presents a strong framework for managing programmes in real-life contexts. It emphasises the relationship between programme management and change management (Thiry 2015). The MSP provides methodologies that aim to deliver business benefits, through covering topics like governance, leadership and stakeholder engagement, business realization, and transformational change in addition to capability improvement. The P2M concentrates on integration and relationships, hence demonstrating the Japanese ‘ba’ culture where enterprises are understood as communities that aim to create value through innovation. Consequently, it promotes creativity and close teamwork (Thiry 2015).

3.4 Summary of the Themes Emerged from the Literature Review

Throughout this chapter, the researcher presented a number of programme management theoretical frameworks in addition to the three international standards of programme management. The following themes have emerged:

- There is a number of theoretical programme management frameworks. Each of these frameworks focus on specific aspect of programme management such as governance, effectiveness, life cycle learning loop, and sustainability assessment. Though, none of these frameworks or standards provides a comprehensive approach to manage programmes successfully.
- Different international ‘Programme Management’ professional standards emerged and almost all of these standards advocate evaluating programme success through benefit realisation.

- There is a need to have a comprehensive framework that assists organisations from the government sector to manage their programmes successfully.

3.5 Chapter Summary

The first section of this chapter provided some theoretical frameworks and models that were developed by researchers and practitioners. Some of these frameworks are general ones while the others focus on specific aspects of programme management such as knowledge, governance. In the second section of the chapter, an overview of the leading programme management standards that are recognized worldwide. Key aspects of each of the standards were explained. Finally, a comparison between all three standards was presented with a special focus on the life cycle stage of each of them.

Chapter 4 Research Methodology

4.1 Introduction

The purpose of this chapter is to provide the rationale for adopting the case study as the most appropriate, selected research methodology to develop a conceptual understanding of the phenomenon of programme success in the UAE government sector. Throughout the chapter, the researcher explains the methodological choices and the research process followed in this thesis. The chapter is divided into two main sections. The first section presents the underlying research philosophy, ontology, epistemology and methodology and the second section discusses the research design adopted in order to understand the phenomenon of programme success.

Selecting a qualitative approach follows logically from the exploratory aim of this thesis which concerns exploring the various measurement dimensions for programme success in the context of 'Utilities Sector' in the UAE Government Sector. The thesis seeks to achieve several objectives that will fill the gap in the existing literature about programmes' success because it will identify, describe, explain and evaluate programme management criteria and critical success factors (CSFs). It will also develop constructs of programme context and programme success. Moreover, the research is intended to identify appropriate programme management models that can be used by government organisations to successfully implement programmes. Finally, it is intended that the results of this thesis will provide practitioners with an improved understanding of programmes that will enable them to achieve more successful outcomes. The contributions of this thesis are seen as being directed to the PM field of research and

practice in this particular setting. It seeks to reveal new aspects of the phenomenon of programme success and programme management.

4.2 Research Philosophy

Research philosophy relates to the development of knowledge and the nature of that knowledge. The objective behind conducting a research study is to develop knowledge in a particular area. Research philosophy is defined as an “Overarching term relating to the development of knowledge and the nature of that knowledge in relation to research” (Saunders, Lewis & Thornhill 2012, p. 680). Adopting a specific research philosophy involves making important assumptions in relation to the way in which the researcher views the world. Such assumptions will underpin the research strategy and the methods chosen as part of that strategy. Although, the adopted philosophy will be influenced by practical considerations, the main influence is likely to be the researcher’s specific view of the relationship between knowledge and the process by which it is developed (Saunders, Lewis & Thornhill 2012).

Easterby-Smith, Thorpe and Lowe (2002) clarify that the relationship between data and theory is an important issue which has been debated by philosophers for many centuries. Such philosophical issues should be considered by researchers otherwise, the quality of management research can be affected. These issues are central to the concept of research design (Easterby-Smith, Thorpe & Lowe 2002). They further argue that it is essential to understand the research philosophy for three main reasons. The first reason is that it mainly helps researchers in identifying the most appropriate research design. It also involves taking into account the type of required evidence or data. In

addition, it impacts the way data will be collected and interpreted to lead to academically rigorous answers to the research questions under investigation. The second reason is that philosophy can assist the researcher in recognizing the best design as well as the limitations of certain approaches. The third reason for the philosophical stance to be so important is that it can help the researcher to identify and create designs that go beyond his or her experience. It also suggests ways to adapt research designs to constraints related to various subjects or knowledge structures (Easterby-Smith, Thorpe & Lowe 2002). In other words, the research methods to be used and analysis techniques adopted by the researcher are determined by his or her underlying philosophical view of the reality of what is being investigated (Shao 2010). Shao explains that:

Qualitative and quantitative analysis techniques do not necessitate a particular view of the nature of reality, privilege a specific research theme and research method, or determine the truth value of data or the relationship between researchers and their research subjects. It is ontology and epistemology rather than methods which are the determinants of good social science (Shao 2010, p. 88)

Based on the objectives of this thesis, the researcher has chosen a philosophical perspective prior to deciding on the methodology and methods. The thesis follows the interpretative approach. The decision was taken by the researcher because the area of programme management and programme success is new to the UAE and the interpretative approach supports exploring and understanding human ideas, actions and interactions in specific contexts (Glesne 2011).

4.2.1 Research Paradigm

The notion of research paradigms has grown out of the work of Thomas Kuhn who published “The Structure of Scientific Revolutions” in 1962. Kuhn used the term ‘paradigm’ to describe the progression of scientific discoveries in real life instead of

how they are subsequently reconstructed within textbooks and academic journals (Easterby-Smith, Thorpe & Lowe 2002). “Paradigms are frameworks that function as maps or guides for scientific communities, determining important problems or issues for its members to address and defining acceptable theories or explanations, methods, and techniques to solve defined problems” (Usher 1996, p. 15 in Glesne 2011, p. 5). Glesne further explains the word ‘paradigm’ as “A framework or philosophy of science that makes assumptions about the nature of reality and truth, the kinds of questions to explore, and how to go about doing so” (Glesne 2011, p. 5). He adds that every research study is informed by a higher-level theory. A researcher’s role is to identify what philosophical and theoretical perspectives inform the type of work they choose to conduct. According to Glesne (2011), higher-level theories and philosophies that guide the work of social scientists are classified into four paradigmatic families namely: positivism, interpretivism, critical realism theory and post structuralism. Each group should be viewed as a “loosely bonded grouping” of assumptions, philosophies and theories, having several related schools of thoughts (Glesne 2011). Lewis and Thornhill (2002) talk about four different perspectives of research philosophy namely, positivism, realism, interpretivism and pragmatism which will be explained in the following sections. However, many social scientists insist that there is no agreement on how many paradigms exist or on how the associated methodologies should be divided (Glesne 2011).

4.2.1.1 Positivist paradigm

Positivism is “The epistemological position that advocates working with an observable social reality. The emphasis on highly structured methodology to facilitate replication,

and the end product can be law-like generalizations similar to those produced by the physical and natural scientists” (Saunders, Lewis and Thornhill 2012, p. 678). Esterby-Smith, Thorpe and Lowe (2012) hold that the main idea of positivism is that the social world exists externally. They further state that properties of the world should be measured through the use of objective methods. This would lead to accuracy in results compared with results based on subjectivity through sensation, reflection or intuition (Esterby-Smith, Thorpe & Lowe 2002). The ontological beliefs of positivist researchers include a fixed reality, external to people, and which can be measured and apprehended to the same degree of accuracy (Glesne 2011).

According to this paradigm, the aims of researcher is to make generalisations about social phenomena, explain their cause, and create predictions related to those phenomena. This knowledge is gained through objective observations, measurements and carefully designed experiments (Glesne 2011). In general, research methods begin with a specific theory about the phenomena under study. Several hypotheses are proposed, based on that theory. They are then tested through methods that are designed in a way to preserve objectivity and to keep researchers away from subjects to ensure they do not influence their behaviours and responses (Glesne 2011). Data collected is reduced to numerical indices or quantifiable bits of information and statistical or quantitative techniques used to analyse the collected data (Glesne 2011). Furthermore, researchers prefer to collect data about observable reality and try to find regularities and causal relationships in order to create law-like generalisations similar to those produced by scientists (Saunders, Lewis & Thornhill 2012).

4.2.1.2 Interpretivist/constructivist paradigm

Interpretivism is a form of social science research that grew initially out of the work of Immanuel Kant and was expanded by other philosophers whom we refer to as 'Idealists'. They believe that the world cannot exist independently of the mind or of ideas. Glesne (2011) referred to what Schwandt (2007) suggested, that is 'Idealists' do not necessarily hold that the natural and social worlds are unreal or nonexistent; they rather see that there is no direct understanding of the world as it is always interpreted through the mind . The purpose of social science, according to interpretivism, is to understand human ideas, actions and interactions in specific contexts or in relation to the wider culture (Glesne 2011). According to this paradigm, it is important for a researcher to understand the differences that exist between humans as social actors (Saunders, Lewis & Thornhill 2012). A researcher should not then make pre-assumptions about the nature of the subjective world. He or she should instead go out and explore it through observation and data collection. This is what 'inductive' research is (Gill & Johnson 2010). Besides, interpretivism provides a methodology that assists in investigating individual's beliefs rather than investigating an external reality (Christie et al. 2000).

The ontological belief accompanying interpretivism represents "A world in which reality is socially constructed, complex and ever changing" (Glesne 2011, p. 8). It is important to explore the way people interpret and make meaning of objects, events, actions, and perceptions. Such realities are then seen as existing in individual's mind and as social constructions. This means that individualistic perspectives interact with language and thoughts of the wider society. Hence, accessing the perspectives of several members of the same social group about some phenomena may result in having cultural patterns of thought and action for that specific group (Glesne 2011). According

to interpretivism, a study design tends to concentrate on in-depth, long-term interactions with relevant people in one or several sites. Researchers will observe, ask questions, and interact with participants. They will also analyse situations and look for patterns without reducing the multiple interpretations to numbers, nor to a norm (Glesne 2011). As a result, the write-up will be highly descriptive using qualitative methods of data collection and analysis (Glesne 2011).

4.2.1.3 Critical Theory paradigm

The critical theory can be characterized as a perspective that questions much of the normative basis of political and social realities. It often argues in favour of what is considered to be appropriate ethical behaviour that should be adopted in social democracies (Irene 2014). It plays a transformative role by changing the status quo so that once participants become aware of how oppressed they are, they can act to transform the world (Irene 2014). Critical theorists aim to show the practical, morale and political significance of specific communicative actions (Gill & Johnson, 2010). Moreover, they investigate how a certain social structure can produce and reinforce distorted communicative actions that shape its members' lives (Gill & Johnson, 2010). Research following the critical theory paradigm critiques historical and structural situations of oppression and search for ways to transform those situations (Glesne 2011).

4.2.1.4 Realism paradigm

Realism is a branch of epistemology that shares some similarities with positivism as it assumes a scientific approach to the development of knowledge (Saunders, Lewis & Thornhill 2012). The paradigm is also sometimes known as ‘critical realism’ or ‘post positivism’ (Christie et al. 2000). The essence of realism is that objects exist independently of the human’s mind, or that there is an external reality (Saunders, Lewis & Thornhill 2012; Sobh & Perry 2005). Sobh and Perry (2005) explain that this external reality is made up of abstract things that are born in people’s minds even though it exists independently of any person. It “is largely autonomous, though created by us.” (Magee 1985, p. 61 in Sobh & Perry 2005 p. 1199). This assumption reinforces collecting and understanding the collected data (Saunders, Lewis & Thornhill 2012). According to Saunders, Lewis and Thornhill (2012), there are two types of realism. Direct realism considers that whatever we see is what we get. The second type of realism indicates that what we experience are sensations, and that the images of the things that we see in the real world are not the direct elements (Saunders, Lewis & Thornhill 2012). They further argue that a critical realist’s position which implies that the social world is continually changing is much more aligned with the objectives of business and management research that focus on understanding the ‘reason for phenomena as a precursor to recommending change’ (Saunders, Lewis & Thornhill 2012, p. 137).

Burrell and Morgan (1982) summarize four categories of social science paradigms. These paradigms represent the main belief system of management researchers according to their perspective on ontology of research and society’s nature (Saunders, Lewis & Thornhill 2012). Morgan (2007) summarized the four basic versions of paradigm: The four versions consider paradigms as ‘shared belief systems’ that influence the type of knowledge researchers pursue and the way they interpret the

collected evidence. The main difference among all four versions is the level of generality of that belief system (Morgan 2007). The description below moves from the most general to the most specific versions of paradigms. The relevance of each version for questions about combining qualitative and quantitative methods is also discussed:

- Paradigms as worldviews. This perspective treats paradigms as a way of experiencing and thinking about the world which includes beliefs about morals, values, and aesthetics (Morgan 2007).
- Paradigms as epistemological stances. This version of paradigms treats the best known epistemological stances (e.g., realism and constructivism) as distinctive belief systems that affects the way research questions are asked and answered. It also takes a narrower approach through focusing on one's worldviews related to issues within the philosophy of knowledge (Morgan 2007).
- Paradigms as shared beliefs among members of a specialty area. This version sees paradigms as shared beliefs within the community of researchers who share consensus in relation to most meaningful questions to be asked and most appropriate procedures to be followed in order to answer those questions (Morgan 2007)
- Paradigms as model examples of research. This is the final and most specific version of paradigms which treat them as model examples to show how research is conducted in a given field. This perspective provides newcomers with an opportunity to learn how a field addresses its central issues (Morgan 2007).

Morgan (2007) clarifies that the hierarchy from specificity to generality of the four versions of paradigm concepts explained above are not mutually exclusive, rather

complementary with each other across various levels of the hierarchy of ontology, epistemology, methodology, and concrete research model to help people understand a given phenomenon. The first perspective of the paradigm concept is from the ontological perspective to examine the nature of the subject of interest. The second perspective is from the epistemological stance to explain how to identify and acknowledge the knowledge that is related to the subject of interest. The third perspective is from methodological view to design the framework of a research and process to inquire about the knowledge related to the subject of interest. The fourth perspective discusses the specific research model with which the given research questions can be addressed (Shao 2010).

Based on these four perspectives of research paradigm, the philosophical issues of this study will be unfolded through discussing the ontology, epistemology, and methodology along with the research model.

4.2.2 Ontology

Ontology is a major aspect of research philosophy. It is critically important for it to be identified at the beginning of the research process as it affects the choice of research design. It is about the essence and meaning of reality that researchers strive to explore (Saunders 2005). The term ‘Ontology’ is defined by (Saunders, Lewis & Thornhill 2012, p. 676) as a “branch of philosophy that focuses on the nature of being, existence and reality”. March and Stoker (ed. 2010) assert that ontological questions concentrate on the nature of ‘being’ and is often used to refer to beliefs, related to reality or kind of things that make up the world (Glesne 2011). In other words, ‘ontology’ is linked to central questions on whether social entities need to be perceived as objective or

subjective. Hence, objectivism and subjectivism can be considered as two significant aspects of ontology (Research-methodology 2017).

Bryman (2012, p. 713) explains that objectivism “is an ontological position that asserts that social phenomena and their meanings have an existence that is independent of social actors”. Whereas, ‘Subjectivism’ which is also known as constructionism or interpretivism can be defined as “ontological position which asserts that social phenomena and their meanings are continually being accomplished by social actors” (Bryman, 2012, p. 710).

In this thesis, the researcher adopts a subjectivist/interpretivist approach to ontology which perceives that entities and social phenomenon are created from the perceptions and the resulting actions of the social actors concerned with their existence (Saunders, Lewis & Thornhill 2012). In other words, reality is socially constructed and involves individuals’ interpretation of their circumstances (Partington 1997). This implies that the knowledge comes from deep understanding by the researcher of the meanings that constitute the individuals’ views of reality. The role of the researcher is to reinterpret and reconstruct those meanings (Partington 1997).

4.2.3 Epistemology

Epistemology is essential in any form of research because it is about the way we know whether or not any claim, including our own which we make about the phenomena is warranted (Gill & Johnson 2010; Shao 2010). So, it is about ‘how we know’ which is connected to the concept of ‘truth’ (Gill & Johnson 2010). The term is defined by Glesne (2011, p. 280) as “A philosophy that deals with the nature of knowledge or the

ways in which we know the world and justify our beliefs about the world”. It is also defined as “The study of criteria by which we can know what does and does not constitute warranted or scientific knowledge” (Gill & Johnson 2010, p. 191). The authors here, clarify that ‘Epistemology’ consists of the concepts of knowledge, science, and model along with testability. In other words, it attempts to provide answers and justification related to what counts for knowledge, how knowledge is acquired, how knowledge claims are justified, and how to define the relationship between the researcher and what is being researched (Arda 2016; Shao 2010). Sommerville (2007) argues that the view that knowledge is hard, objective and tangible demands the researcher plays an observer role in order to see knowledge as personal, subjective and unique which enforces being involved with his/her subjects. In this regard, Audi (2003, p. 220) states that “Knowledge arises in experience. It emerges from reflection. It develops through inference. It exhibits a distinctive structure”.

The epistemology and theoretical perspectives of a research study depend on the type of research paradigm used by the researcher, which means that researcher’s views on what constitutes acceptable knowledge could change according to different research paradigms. (Saunders, Lewis & Thornhill 2012). Hence, researchers possess a need to address philosophical choices in order to identify the type of data to be collected, the sources of data, and the way to interpret the data related to the research questions, while designating the limitations of practical approaches (Easterby-Smith, Thorpe, & Lowe, 1991). This means that accepting a specific epistemology leads researchers to adopt methods that are characteristic of that position. On the other hand, where a certain range of methods is employed in a specific study, it is possible to infer that the researcher

holds perhaps implicitly, a corresponding epistemology (Easterby-Smith, Thorpe & Lowe 2002).

Within a qualitative research study, subjective evidence is based on the views of individuals, as knowledge is known through people's subjective experiences. This research follows an interpretive paradigm in which people create and combine their subjective and intersubjective views as they interact with their surroundings (Orlikowski & Baroudi, 1991). Further, through following an interpretive case study, the researcher aims to interpret the data by developing categories and supporting/challenging the assumptions made in relation to them (Zainal (2007). The researcher realizes the contexts to understand the meanings of what people are saying, hence minimizing distance or 'Objective Separateness' between the researcher and the researched (Lincoln and Guba, 1988). From an epistemological view, knowledge is acquired through a strategy or a method that supports induction which is gained from particular situations and personal experience (Mack, 2012).

4.2.4 Methodology

The term 'methodology' is defined by Glesne (2011) as "A theoretical framework that guides how researchers come to know what they know. The methodological framework includes assumptions about what is of importance to study, what constitutes legitimate knowledge, and what counts as evidence for making knowledge claims" (Glesne 2011, p. 282). It clarifies how the inquiry should proceed and involves analyzing assumptions, principles and procedures in a specific approach to inquiry (Glesne 2011). The term 'method' means the techniques and procedures that are used in order to obtain and analyse research data such as questionnaires, observations, interviews in addition to

statistical as well as non-statistical techniques (Saunders, Lewis & Thornhill 2012; & Glesne 2011). Table 16 below sums up the definitions mentioned above.

Term	Definition
Ontology	The branch of philosophy that focuses on the nature of reality or being.
Epistemology	The branch of philosophy that focuses on the nature of knowledge and what constitutes warranted or valid knowledge.
Methodology	A theoretical framework that provides researchers with a guide on how a research should be undertaken. The framework includes theoretical and philosophical assumptions upon which research is based and their implications for the adopted method(s).
Method	Techniques and procedures used for collecting and analysing data (i.e. interviews, observations, questionnaires, etc.)

Table 16: Definitions of Terms

There are two main empirical research approaches: deductive and inductive. With the deductive approach, theories are explored and hypotheses are developed. Then, data is collected to test and confirm the developed hypotheses. On the other hand, with the inductive approach, data is collected and analysed to lead to the emergence of a new theory (Saunders, Lewis & Thornhill 2012). Figure 26 below compares and contrasts both approaches.

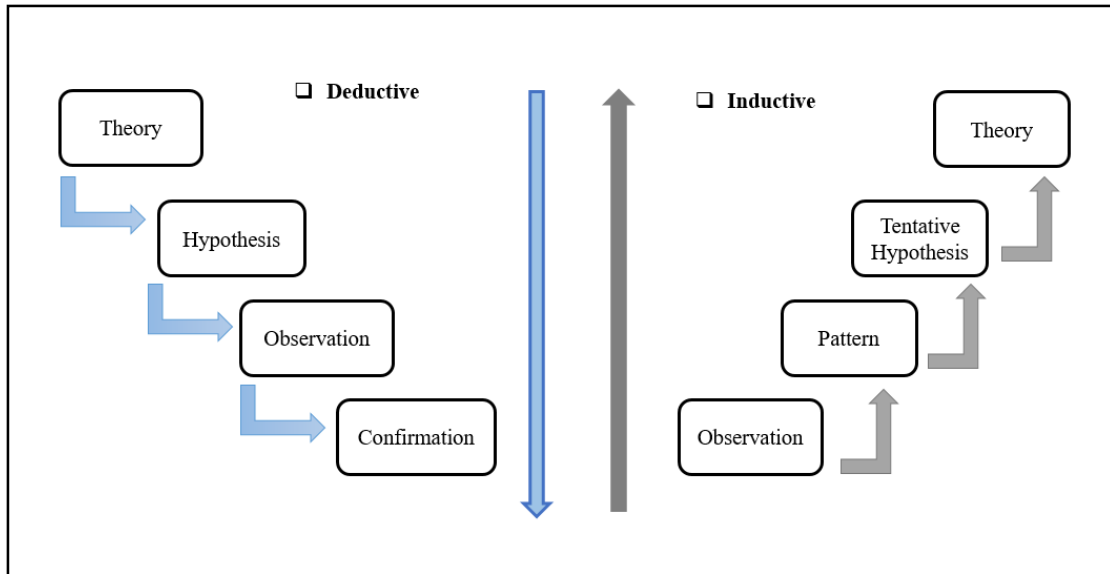


Figure 26: Deduction versus Induction

(Adapted from W. Trochim, 2006)

In this study, the researcher takes an inductive data driven approach as she wished to investigate the topic of programme success in order to gain an insight of the phenomenon and develop a theoretical explanation through data collection and analysis (Saunders, Lewis & Thornhill 2012). The approach is intended to allow meanings to develop and emerge from the collected data where patterns and relationships result in building theories (Saunders, Lewis & Thornhill 2012).

4.3 Research Design and Methods

In order to meet and fulfil the aims and objectives of the research and gain an in-depth understanding of the various measurement criteria for programme success in the government context, a qualitative interpretative research approach was selected and deemed as the most appropriate for the topic at hand. The decision to use the qualitative approach is largely rooted in the scarcity of data available on programmes and their

success measures in the UAE Government sector. Qualitative research has gained further credibility not only in exploring processes and practices but also in measuring and identifying programmes and projects success factors as done by several academics, such as Shao and Muller (2011); Verburg, Sijtsema, and Vartiainen (2013); Legris and Colletterte (2006); and Sage, Dainty, and Brookes (2014). It has gained an increasing amount of interest for management researchers (Gill & Johnson, 2010) and has proven to be a valuable approach because it identifies new variables and relationships. Moreover, qualitative research exposes and helps understanding the complexity of various processes in addition to clarifying the impact of the social context (Shah & Corley 2006).

4.3.1 The Case Study Approach

A case study approach is selected as the most appropriate to achieve the objectives of this study. It was mentioned in Chapter 1 of this study, that the research questions are concerned with exploration, description and understanding the phenomenon of 'Programme Success'. Hence, there is a need to concentrate on histories related to programmes as well as contemporary events more specifically the approach used in FEWA to manage programmes and the criteria and factors affecting their performance, progress and success. Case study data is generated from wide range of sources. In this thesis, the specific sources of data are interviews, archival data (documents) and observation. Baxter and Jack (2008) highlight that case study research lends itself to including a variety of methods to achieve data credibility. Accordingly, the researcher decided that a 'case study' would be suitable to address the research questions for this thesis as case study focuses on understanding the dynamics existing within single settings (Eisenhardt 1989).

Miles and Huberman (1994, p. 25) define a case as “A phenomenon of some sort occurring in a bounded context”. Zainal (2007) explains that a case study method allows a researcher to thoroughly examine the data that exists within a specific context. He further, explains that essentially case studies explore and investigate contemporary real-life phenomenon depending on detailed contextual analysis of limited events or situations and their relationships (Zainal 2007). Glesne (2011) explains that a case study involves in-depth and often longitudinal examination that is collected through observation, interviews and other sources mainly document review and analysis. She clarifies that “The write-up is often descriptive and holistic, rather than thematic, although comparisons of more than one case frequently lend themselves to a search for patterns” (Glesne 2011, p. 22).

Yin (2014, pp. 16-17) provides a comprehensive twofold definition which covers the scope and features of case study research:

- 1) A case study is an empirical inquiry that investigates a contemporary phenomenon (the “case”) in depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident.
- 2) A case study inquiry copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result. It relies on multiple sources of evidence, with data needing to converge in triangulating fashion, and as another result. Moreover, the case study benefits from the prior development of theoretical propositions to guide data collection and analysis.

Since programme success in the UAE government sector has not been studied and understood, the research design for this study follows an exploratory and descriptive approach that will provide subjective as well as interpretive understanding of the phenomenon under study (Arshad, Ahlan & Ibrahim 2013). Considering the definition by Yin tends to confirm the suitability of using case study approach to achieve the aims

of this study as he believes that the use of case study research is basically to answer ‘why’ and ‘how’ questions (Yin 2017).

4.3.2 Research Design

Having selected case study as the most suitable approach to this research, it is important to define the five components of a research design as follows (Yin 2017):

- 1) The case study’s questions. The research questions developed in Chapter 1 are concerned with exploring, describing and understanding what models/approaches are deployed by FEWA to manage their programmes and how would these models contribute to their success. It is worth mentioning that the ‘what’ questions are not concerned with ‘how much/many’ rather they are concerned with research exploration, theory development and developing propositions for further enquiry (Partington 1997). Similarly, the ‘how’ question is an exploratory one. Accordingly, the types of questions confirm the appropriateness of the case study approach; the questions are considered the first important component of the study’s design.
- 2) The study’s propositions, if any. Exploratory studies have a legitimate reason for not having propositions, although they still should state the research purpose (Yin 2017). So instead of propositions, the design for an exploratory study should state the purpose, in addition to “The criteria by which an exploration will be judged successful or not”. (Yin 2014, p. 30). For this thesis research, the purpose is to identify success factors and criteria in order to develop a framework that would assist FEWA and other practitioners to manage programmes in a successful manner.

- 3) Unit of analysis - the case. Yin (2017) identified two main steps that ought to be considered: defining the case and bounding the case. Studying the research questions and propositions helps to identify the relevant information that should be collected; “The more a case study contains specific questions and propositions, the more it will stay within feasible limits” (Yin 2014, p. 31) and as a result will lead to favour one unit of analysis over another. Once the general definition of the case has been established, it is important to clarify boundaries of the case. This means that the researcher has to identify what will be included within the case and what will be excluded outside of it (the identified context of the case study). This also includes specifying the time boundaries of the case. The researcher would then be able to determine the scope of the data to be collected about the subject (phenomenon) and to exclude other external data (the context). Given the focus of this research study on ‘programme success’, the unit of analysis is the programmes, their context and the programme’s managers.
- 4) Linking data to propositions. There are different analytic techniques available to the researcher and choices have to be made based on judgement about how they might suit the case study research which will help the researcher to create a solid foundation for subsequent analysis and interpretation. In the absence of pre-existing propositions (component 2), this component may be considered as the link between the aims of the research, the data and the emerging propositions which will result from the research and will offer possibilities for further investigation.
- 5) Criteria for interpreting the case study findings. This component arises when statistical analyses are relevant. However, much case study analysis does not

rely on the use of statistics finding other ways to examine and explore the research phenomenon. Yin (2014) explains that when doing a case study, it is important to have an alternative strategy through identifying and addressing rival explanations for the research findings. “The more rivals that have been addressed and rejected, the stronger will be your findings” (Yin 2014, p. 36). For this study and due to the scarcity of relevant literature on the concept of programme success the researcher considers theories related to project success, project performance and leadership.

4.3.2.1 Multiple case design

A ‘multiple case’ design has been selected as it is often preferred to a single case design. The evidence from multiple cases is often seen as more compelling and the overall study is considered as being more robust (Herriot & Firestone 1983; Yin 2017). Yin (2009, p. 15) clarifies that “case studies, like experiments, are generalizable to theoretical propositions and not to populations or universes”. In this sense, the case study, like the experiment, does not represent a “sample” and in doing a case study, one’s goal will be to expand and generalize theories (analytic generalization) and not to enumerate frequencies (statistical generalization). Hence, the logic of replication for multiple case studies is similar to the one used in multiple experiments, which means that each case must be carefully selected so that it either predicts similar results ‘a literal replication’ or predicts contrary results for anticipated reasons ‘theoretical replication’ (Yin 2014). Moreover, Yin added that the logic behind replication procedures should reflect some theoretical interest. This replication approach to multiple-case studies is shown in Figure 27.

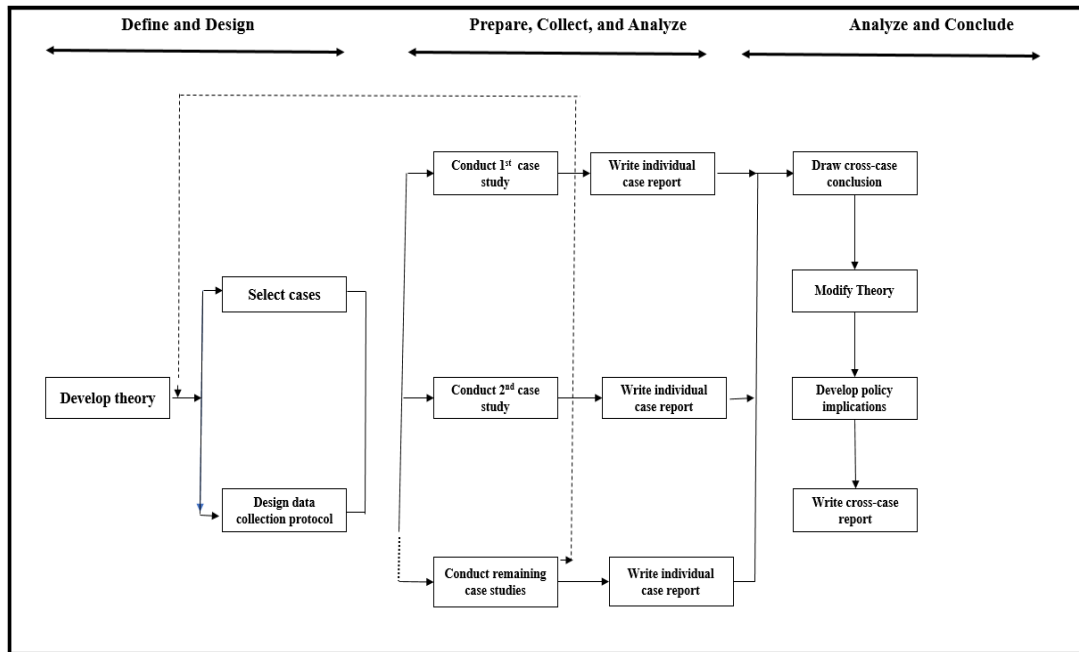


Figure 27: Multiple Case Study Procedure

(Adapted from R. Yin 2014, p. 60)

The study involves multiple cases and multiple units of analysis, or in other words multiple embedded case studies (Yin, 2009) as shown in Figure 28. The units of analysis as mentioned above are namely: the programmes, the context and the programmes' managers. The embedded design allows the researcher to examine the programmes at the operational level throughout their lifecycle to enable the identification of success measures.

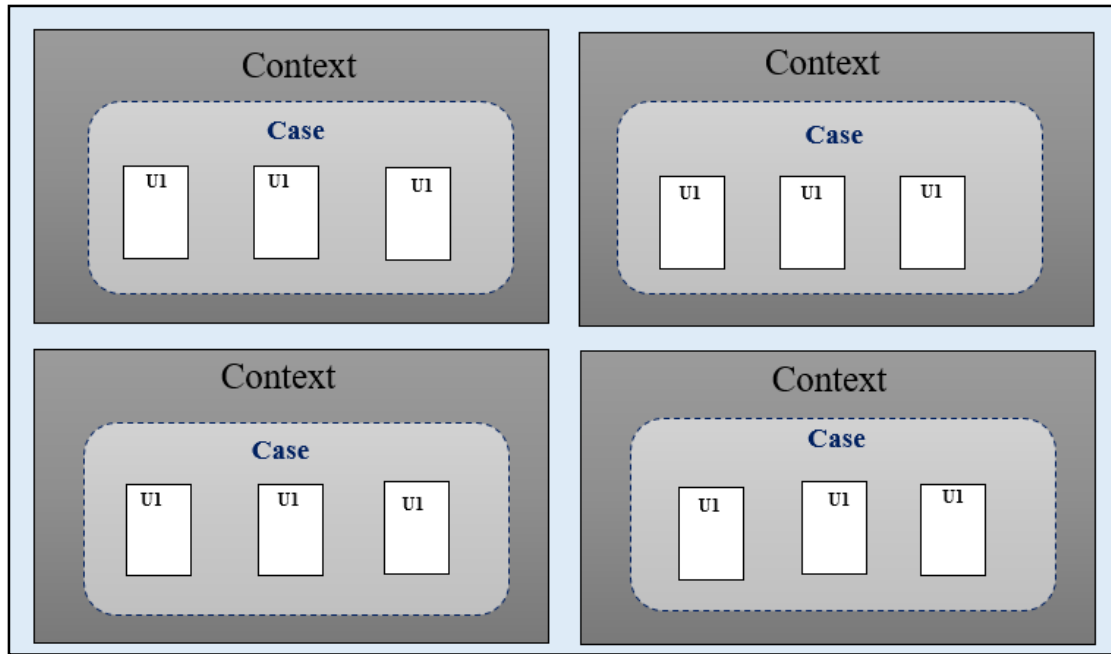


Figure 28: Case Study Design

(Adapted from: R. Yin 2009, p. 4)

4.3.2.2 Case selection

The primary criterion for case selection is alignment with the research objective (George & Bennett 2004) in addition to others related to meeting programme's criteria and principles set by international programme management standards as shown in Table (Appendix 1). Accordingly, the researcher selected three different programmes in FEWA in order to gain multiple perspectives in the area of programme management. This variety was meant to assist with exploring differences within and between cases/programmes, aiming to replicate the findings across the cases (Baxter & Jack, 2008). In other words, cases are selected to provide the diversity required by the research problem (George & Bennett 2005). Deciding on the number of cases was based on the theoretical framework, purposes, questions and propositions of the research which sets the boundaries for case selection (Yin 2009).

The cases were selected to assist in gaining a deep understanding of the topic under investigation in a real-life context (Yin 2009). They depict various contexts with a common focus on achieving FEWA's vision and strategic objectives but are different in the processes, practices and methods used in implementing the specific programmes. Moreover, the inquiry into these programmes enables identification of the success criteria and factors along with the existing gaps. Here interviews, observation, and document analysis were the main sources of data (Glesne 2011).

4.3.3 Data Collection Methods

A case study involves an in-depth examination of a situation of interest; case studies usually involve different methods to obtain evidence. There are six commonly used sources of evidence namely, documentation, archival records, interviews, direct observations, participant-observation, and physical artifacts (Yin 2017; Gill & Johnson 2010). Each of these sources is associated with an array of data or evidence. Other sources may include films, photographs, videotapes, street ethnography, diaries, life histories, logs, etc. It is worthwhile to mention that no single source has a complete advantage over the others as these are complementary. In fact, a good case study should rely on as many sources as possible (Yin 2017). These sources are explained hereafter.

4.3.3.1 Documentation

Documentation as a source of evidence is likely to be relevant to every case study and documents are mainly used to corroborate and augment evidence from other sources. They assist in verifying information mentioned in interviews in addition to providing additional details to confirm information obtained from other sources. Consequently, if

the documentary evidence is contradictory rather than corroboratory, then the researcher will need to pursue the problem through further inquiry into the topic being researched. Moreover, the researcher can make inferences from documents but should treat them only as clues to be further investigated rather than definitive findings as the inferences could turn out to be false at later stages in the study (Yin 2014). Documents can take various forms such as letters, memoranda, e-mails, agendas, minutes of meetings, written reports of events, administrative documents, such as proposals, progress reports, formal studies or evaluations that are related to the case being studied, newspaper clippings and published articles (Yin 2017).

For this study, the researcher reviewed internal letters and e-mails between the concerned business units, minutes of meetings for ‘Projects Steering Committee’ and ‘Variation Orders Committee’ in addition to some projects’ progress reports.

4.3.3.2 Archival records

Archival records often take the form of computer files and records such as, statistics, service records and organizational records such as charts, budget, surveys, etc. The archival records can be used with other sources of information to produce a case study. Though, unlike ‘documents’, the usefulness of these archival records varies depending on the nature of the case study. In cases where archival sources of evidence are considered relevant, the researcher must be cautious to determine the conditions under which the archives produced, in addition to their accuracy and should endeavour to appreciate various situations comprehensively when interpreting the usefulness and accuracy of the records (Yin 2017).

The researcher reviewed statistics related to customers served by FEWA, such as consumption, an element used to forecast the demand by the ‘Asset’ and ‘Projects’ departments. In addition, several types of organisational records were used including the projects’ and programmes’ budgets. Personnel training records were also examined to verify trainings provided to some of the sample of employees and interviewees.

4.3.3.3. Interviews

Interviews are considered one of the most important and essential sources of evidence and are commonly used in case study research. During case study interviews, researchers seek to pursue a consistent line of inquiry. However, the actual stream of questions is more likely to be “fluid rather than rigid” (Yin 2014, p. 110); this open-ended type of interview includes various methods known as the ‘intensive interview’ or ‘in-depth interview’ or ‘unstructured interview’. It should be noted by the researcher that, during the process of interviewing, the interviewer has to perform two tasks, the first is to follow his/her line of inquiry, as reflected by the case study protocol, and the second is to ask the actual (conversational) questions in an unbiased and ethical manner that also serves the needs of his/her line of inquiry (Yin 2017).

Based on the previous points, there are three types of case study interviews: prolonged, shorter and survey interviews. These types are explained below.

Prolonged case study interviews

This type of interviews can be conducted over two or more hours either in a single sitting or over an extended period of time covering several meetings. Interviewees are asked about facts related to a specific matter, their interpretations and opinions about people, events or their insights, explanations and meanings related to specific incidents. These propositions may be used as the basis for further inquiry. A participant can recommend other people to be interviewed, as well as other sources of evidence. “The more that an interviewee assists in this manner, the more that the role may be considered one of an "informant" rather than a respondent” (Yin 2014, p. 111). Key informants are often seen as critical to the success of a case study as they provide the researcher with insights into the matter and can initiate access to corroboratory or contrary sources of evidence. However, the researcher should be careful about becoming overly dependent on them and should search for contrary evidence.

The researcher did not use the prolonged interviews, although this type is common with descriptive case studies in which the researcher describes the natural phenomena which occur within the data in question.

Shorter case study interview

This type of case study interview is focused and participants are interviewed for a short period of time lasting about an hour or less. This type of interview may still remain open ended and assume a conversational manner, although the researcher is more likely to be following an established set of questions derived from the case study protocol. The main purpose of this type of interview could be simply corroborating specific facts that have been established (but not to ask about other topics of a broader, open-ended

nature). In this situation, the specific questions must be cautiously worded, so that the researcher looks genuinely naive about the topic and allow the interviewee to provide a new commentary about it; in contrast, if leading questions are asked, the corroboratory purpose of the interview will not be served.

For this research, interviews were the main source of information as the aim is to obtain knowledge about the investigated phenomena (Kvale & Brinkmann 2008). Guided by the research questions covered in Chapter 1 the interviews were predominantly open-ended and exploratory shorter case study interviews as explained above. Almost all interviews lasted for approximately 45-60 minutes and only a few extended to 90 minutes. According to this type of interviews, the researcher identified specific questions based on a preconceived framework and remained open to reform and add to these questions throughout the research process (Glesne 2011). The researcher was prepared to develop new questions in order to follow unexpected leads that emerged during the course of interviewing, and she performed in-depth probing to pursue various points of interest with expressions such as ‘tell me more?’ and “please explain” (Glesne 2011, p. 134). In other words, the interviews assisted the researcher in identifying insights on the matter being studied from interviewees and case participants’ perspectives. Indeed, it uncovers rich descriptive data based on the personal experience of the interviewees and case participants.

Survey interviews in a case study

The third type of interview is the typical survey interview which involves the use of a structured questionnaire. The survey could be designed as part of an embedded case

study that aims to produce quantitative data as part of the case study evidence. The survey would follow both the sampling procedures and the instruments used in regular surveys, and it should subsequently be analysed in a similar manner. The difference would be the role of the survey in relation to other sources of evidence. The formal survey would only be considered as one component of the overall assessment.

The aim of this research is to investigate the phenomenon of programme success in a real-life context and according to Yin (2014) the ability of surveys to investigate the context is extremely limited. Further, the phenomenon of programme success has not been sufficiently covered in the literature and it is new to the UAE and the region, as was stated earlier in this thesis. Therefore, this type was not used by the researcher. However, the use of surveys could be implemented in future research on programme management and programme success criteria and factors.

4.3.3.4 Direct observation

Due to the fact that a case study should take place in the natural setting of the "case," a researcher is creating an opportunity for making direct observations. Based on the assumption that the phenomenon of interest is not purely historical, some relevant behaviours or environmental conditions will be available for the researcher to observe. Such observations serve as an additional source of evidence in a case study. Observations can range from formal to informal, casual data collection activities. In order to increase the reliability of observational evidence, a common procedure is to have multiple observers engaged in observation, whether it constitutes the formal or the casual variety.

For this study, direct observation involved observations of various meetings attended by the researcher (Top management, Board of Directors, 'Projects Steering Committee' and 'Variation Orders Committee' meetings). Less formally, direct observation was made during the formal and informal meetings and discussions in addition to interviews conducted as an instrument of data collection. It is important to state that the researcher's role during the meetings turned out to be one of an observer who took notes related to the challenges and decision-making processes, among other elements. The researcher acknowledges that further value would have been obtained, and increased reliability could have been achieved if other observers had participated in the processes of data collection.

4.3.3.5 Participant-observation

Participant-observation is a special mode of observation in which the researcher is not just a passive observer. Instead, he/she undertakes a variety of roles within a case study situation and may actively participate in the events being studied. The roles for different illustrative studies in organizations may include serving as a staff member or being a key decision maker in an organizational setting. This technique has been most frequently used in anthropological studies of different cultural or social groups in addition to research work on everyday settings, such as a large organization or informal small groups.

While it provides specific unusual opportunities for collecting case study data, it also involves major challenges that are related to potential biases. The researcher would have less ability to work as an external observer and may act as an advocate in a way

contrary to the interest of good social science practice. He/she may act as a supporter of the organisation being studied and may not have enough time to act as a good observer, which requires taking notes and raising questions related to events from various perspectives. Further, the researcher may face difficulty incurred with having more than one location of the organisation or the group being studied to be present 'at the right time and the right place' to participate and/or observe important events.

The researcher as an employee was a 'participant observer'. This element enabled her to get very close to the area of interest by "ostensibly 'catching reality in flight' by experiencing the often hidden experience of members" (Gill & Johnson 2010, p. 161). Each of the challenges stated above have been considered by the researcher to avoid biases. The researcher is an active participant in these case studies so far as she has access authority to monitor all of the key performance indicators (KPIs) and receives the results and the progress of different programmes and project initiatives without interference. The performance is then monitored by the Prime Minister's Office. Furthermore, raising questions in relation to performance should be questioned and clarified by the concerned business units.

4.3.3.6 Physical artifacts

Physical artifacts such as a technological device, a tool or an instrument, a work of art or other physical evidence can be collected or observed as a part of case study research. This type of evidence has been widely used in anthropological research. Artifacts have less potential relevance in many case studies on business and management research

phenomena. Nevertheless, when they are identified as relevant to the overall research objectives, artifacts can be an important source of data in the overall case.

The researcher reviewed management tools and techniques in the form of recorded documents rather than physical artifacts, as such. These included management tools that were still available or had been used previously in the organisation. These were predominantly secondary documents and included: project charters, business case, business requirements documents, project meeting agendas, minutes of meetings and reports on the lessons learned. Additional documents were consulted such as organisational charts and matrix of strategic and operational KPIs. However, for future research on programme management and programme success, reviewing other programme's documents and tools would bring more value. Examples of those sources of data would be project and programme management tools and recorded documents such as programme charters, benefit delivery documentation, benefits realization plans', benefits registers, benefits sustainment plans, communication management plans, risk assessments and risk management plans. For the sake of simplicity, these data resources are considered in the analysis primarily as documentary and archival sources.

For this research, a data-gathering plan was prepared for time protection. The plan included: definition of the case, list of research questions, sources of data, time allocation, as well as intended reporting (Stake 1995). Overall, the main source of data was interview, supported by documents, archival records and observation as described in Table 17 and detailed in the following section.

#	Source of Data	Description
1	Interviews	A total number of (20) interviews “Shorter Case Study Interview’ were conducted in various regions. Participants were identified based on their experience (technical and managerial) as to the selected programmes.
2	Documentation	Documents used are: internal letters and e-mails between business units, minutes of meetings, progress reports, strategic, operational and business plans and few articles published in newspapers that are related to the programmes.
3	Archival records	Statistics related to customers’ consumptions, Budgets allocated to the programmes under study and personnel training records.
4	Direct observation	Formal: observation during different meetings (example: Projects’ Steering Committee meetings) Informal: observations during interviews conducted as a data collection instrument; in addition to the daily discussions about programmes.
5	Participant observation	Access various records and documents and exposed to in depth analysis of programmes and initiatives’ progress.

Table 17: Sources of Data

A case study approach was selected as the most appropriate to answer the research questions. Case study data can be generated from different sources as explained in the previous sections. For this study and as presented in Table 18, the researcher has chosen interviews, documentation (including archival records) and observation (direct and participant). The researcher has selected these sources because the research questions are concerned with exploring, describing and understanding the phenomenon of

'Programme Success'. Interviews are common in case study research and are considered as an essential source of information that was used in this thesis. They helped the researcher to identify insights on programmes and develop rich descriptive data based on participants' views and experiences. Documentation (including archival records) is the second source of data which in this research is used to support evidence from other sources. Documents support verifying information obtained through interviews besides adding further information to support or confirm data collected from other sources. Based on the fact that the case study should take place in the natural setting of the "case", observation (direct and participant) has been selected as the third source of data for this research study. This method of data collection allows observing and understanding behaviours and environmental situations that are relevant to the phenomenon under investigation. In other words, observation helps the researcher to learn and understand the activities and practices in their natural setting related to aspects of the programmes under study. This happens through the researcher being involved in the day-to-day activities of the participants in natural settings. The researcher pursued these sources of evidence as some of the most useful available ways of achieving the objectives of the thesis.

Interviews

In order to build a comprehensive picture on the way the selected programmes are functioning within FEWA, the researcher prepared an interview outline schedule along with a data collection protocol. The protocol includes key questions and areas of interest for both observation and investigation. It has been developed based on the existing literature on programme management and programme success and was used by the

researcher as a template for data collection and analysis. The following section explains the steps undertaken by the researcher to develop the interview protocol.

4.3.4 Development of Data Collection Instrument

In order for the researcher to collect empirical data, she developed an interview protocol. The questions in the interview protocol are derived from the literature and the existing theories on programme success, similar to the one developed by Shao and Muller (2011). Five sets of questions were developed to cover different themes namely: 1) the nature of programmes under study; 2) programme's success criteria; 3) program success factors; 4) program managers' competences particularly those related to leadership; and 5) program context (including its definition and impacts in program management practice). Other topics emerged from program managers' comments in relation to the related themes. The developed themes enabled the researcher to collect information on programmes' types, lifecycle, success criteria, success factors, programme context.

4.3.5 Testing the Instrument

To test the clarity of questions of the proposed interview protocol, it was distributed via e-mail, among seven engineers. Internally, five engineers working in the main directorates (Shared Services, Electricity, Water and Generation & Production) received it and only four responded. Externally, two engineers from both the private and the public sector received the questionnaire and provided their feedback.

The researcher considered respondents' comments and modified the questions accordingly (Appendix 2).

This study depended primarily on 'interview' as the main source of data collection. Stake (1995) confirms that interviews are the key to obtaining the required data in a case study approach. Participants provided a variety of valuable insights because they belong to different directorates and departments. This confirms the definition of an interview by Kvale and Brinkmann as "(An) attempt to understand the world from the subject's points of view, to unfold the meaning of their experiences, to uncover their lived world prior to scientific explanations" (Kvale & Brinkmann 2008, p. 1). For this case study interviews were conducted with executive directors of the relevant directorates; programme managers, namely directors of projects departments, business planning managers in addition to other chief engineers, engineers and managers across FEWA. Table 18 presents details related to interviewees.

Interviewee	Position & Business Unit	Programme	Years of Experience (Tenure of Work)
1	Top Management Level	All Programmes	> 20yrs
2	Top Management Level	Water	> 20yrs
3	Top Management Level	Water	> 20yrs
4	Director Level	Water	11-20yrs
5	Director Level	Water	> 20yrs
6	Managerial Level	Water	> 20yrs
7	Managerial Level	Water	> 20yrs
8	Engineer	Water	> 20yrs

9	Managerial Level	Water	> 20yrs
10	Top Management Level	Electricity	> 20yrs
11	Director Level	Electricity	11-20yrs
12	Managerial Level	Electricity	> 20
13	Director Level	Electricity	11-20yrs
14	Director Level	Electricity	> 20yrs
15	Sr. Engineer	Electricity	> 20yrs
16	Sr. Employee/Specialised Position	Electricity	> 20yrs
17	Director Level	IT Transformational	11-20 yrs
18	Managerial Level	IT Transformational	> 20yrs
19	Sr. Employee/Specialised Position	IT Transformational	11-20 yrs
20	Managerial Level	All Programmes	6-10 yrs

Table 18 Interview Demographic Information Summary

The variety of perspectives offered by various subjects enabled the establishment of thematic and case patterns and analytic generalization. The researcher's aim was to gain an in-depth analysis of programmes, challenges, and/or success through the variety of perspectives offered by professionals at different levels of the programme hierarchy. The interviews continued until saturation was identified, where no more new data illuminating the research objectives and research questions was found.

All interviews took place on FEWA's premises with individuals who are members of the selected programmes. Most interviews were tape-recorded as not all participants accepted for them to be recorded and in few cases, the researcher faced technical problems with the recording device. The majority of interviews lasted between 45-60

minutes and a few exceeded this duration lasting up to 90 minutes. Audio files were maintained for repeated listening to verbal clues such as voice tones and emphasis (repeated clues). The interviews were transcribed by the researcher, translated (if required) to English and reviewed by the interviewees themselves for the purpose of validation. The researcher e-mailed all transcribed interviews to the interviewees and gave them two weeks to provide their comments. Only six of them did not reply while all the others provided their feedback. Further, at the stage of analysis, the researcher provided interviewees with hard and soft copies of the preliminary analysis for key officials in the concerned business units, for further review. The researcher, then, received their feedback and further clarifications were provided. Only few of them preferred to arrange a meeting to explain their views and give additional explanations which assisted the researcher to validate and enrich the analysis.

Documentation

Review of documents, as previously stated, is an important source of information. For this research, the analysed documents included minutes of meetings (Committees' meetings), and correspondence (Stake 1995) in the forms of letters and e-mails between the business units. In addition, organisation's policies, procedures, and other historical documents were reviewed to allow the researcher to understand different aspects of the phenomenon (Glesne 2011). Strategic, operational and business plans, and programmes' plans and progress reports were of particular value. The review and analysis of the above documents assisted the researcher to shed light on specific implementation strategies, various phases of programmes and the decision-making process (Stake 1995) in addition to understanding other practices used by FEWA.

Other sources

Other sources such as archival records, direct and participant observations were also used. For the 'Archival records' the researcher accessed the programmes' budget as well as statistics related to the electricity and water demand. The 'Direct Observation' took place during formal meetings of committees, principally: 'Higher Steering Committee for Projects' and the 'Variation Orders Committee'. It is worthwhile to mention that the researcher is not a member of these committees. She has also attended informal discussion related to the programmes under study where observation was the main source of information. Notes were taken as soon as these meetings and discussion ended. Being a Director of The Strategic Department, the researcher participated actively as a formal member of the 'Top Management Committee'.

4.4 Data Analysis

Data analysis consists of examining, categorizing, tabulating, testing, or otherwise recombining evidence in a way that supports producing findings that are empirically based. Yin (2017) argues that analysing case studies is one of the least developed and most difficult aspects of doing case studies. It depends on the researcher's own style of rigorous empirical thinking, the sufficient presentation of evidence and the careful consideration of alternative interpretations. A case study is typically about complex events and behaviours that occurred within a more complex, real-life context. All evidence including interviews, field notes and the archival documents-should be converted into case analyses and interpretations, and represent an important strength of the case study. For a diverse set of evidence, a researcher needs to develop his/her own

analytic strategies. Yin (2017) suggested four general analytic strategies namely: relying on theoretical propositions, working data from the 'ground up', developing a case description and examining plausible rival explanations. These strategies are further explained in the following section.

4.4.1 Four General Strategies

4.4.1.1 Relying on theoretical propositions.

According to this strategy, the researcher follows the theoretical propositions which initially led to the case study. In other words, originally, the objectives and design of the case study were based on propositions, which in turn reflected a set of research questions, review of the literature, and new hypotheses or propositions. Propositions have their impact on shaping the plan for the data collection and therefore contribute to the priorities for selecting and implementing the relevant analytic strategies. Propositions help in concentrating on specific data and ignoring other impractical or less relevant data. They also assist in organizing the entire case study and defining alternative explanations to be examined (Yin 2017). Theoretical propositions stemming from "how" and "why" questions can be extremely useful in guiding case study analysis in this manner (Yin 2017).

4.4.1.2 Working data from the 'ground up'

This strategy does not consider any of the theoretical propositions. Instead, it depends on the result of the earlier phases which involved 'playing with the data', or noticing a pattern for the first time. Accordingly, the researcher may find that some parts of the

data suggest useful concepts. Such an insight could be the starting point of the analytical path, which may lead to exploring additional relationships. In qualitative research, the originators of Grounded Theory (Glaser & Strauss 1967) have provided guidance for following an inductive approach to data analysis. The procedures allocate different types of codes to the data, where each code represents a concept or abstraction of potential interest. The resulting guidance can be applied to all case studies, in addition to studies that are based on Grounded Theory.

Fernandez (2012) identified the four grounded theory methodologies that are widely used in academic research: CGT (Glaser 1978), Strauss and Corbin (1990) qualitative data analysis (QDA) that is referred to as the Straussian grounded theory, the constructivist grounded theory (Charmaz 2000), and the feminist grounded theory (Wuest 1995). The CGT was developed by Glaser and Strauss in 1967. It emphasised the need for building theory from concepts derived, developed and integrated based on actual data (Corbin & Strauss 2015). The CGT involves two types of coding, substantive coding and selective coding. With the former preceding the latter (Evans 2013). The approach and rigour in collecting, handling and analysing data created differences between Glaser and Strauss and resulted in a more linear approach to the research methodology that is the Straussian grounded theory which was developed by Strauss and Corbin in 1990 (Evans 2013). The main changes they incorporated were to the structure coding and they provided additional procedures on how to code and structure the data (Evans 2013). The new structure used three stages of coding methodology of open, axial and selective coding. This methodology has been proven to be too difficult for most researchers to follow and most of them revert back to the simpler perspective CGT approach (Evans 2013). The third type of grounded theory is

the constructivist grounded theory by (Charmaz 2000, 2006). In the constructivist theory, concepts are constructed, not discovered. Accordingly, for the constructivist, a researcher begins with specific questions related to a particular substantive area; in contrast, the CGT starts with a desire to explore and know more about a substantive area without having predetermined questions prior to conducting the study (Hernandez & Andrews 2012). The difference between the CGT and the constructivist theory is in the final product which means that the later creates a descriptive theory whereas the CGT is an explanatory theory (Evans 2013). Finally, the Feminist grounded theory was initially developed for nurses in recognition of the androcentric bias and to ensure that the women's voice was heard within the research community. This theory has been accepted as a research method that ideally suits the nursing profession. Additionally, grounded theory is enriched by considering a feminist perspective when the research is based on women (Evans 2013).

4.4.1.3 Developing a case description.

The third strategy is a general analytic approach that organizes the case study according to a descriptive framework. It is workable on its own but could also serve as an alternative when having difficulty with applying the previous two strategies. In other words, the researcher may have collected a lot of data without having settled on an initial set of research questions or propositions which makes it difficult to use the first strategy, or he/she may have not been able to reach any useful concepts from the collected data which makes it difficult to follow the second strategy. Moreover, sometimes, the main purpose of the case study might actually be descriptive rather than primarily theoretical.

4.4.1.4 Examining plausible rival explanations.

The fourth general analytic strategy attempts to define and test rival explanations. It works with all of the previous three strategies namely: Initial theoretical propositions (the first strategy above) for instance it might have included rival hypotheses; working from the ground up (the second strategy) which may produce rival inductive frameworks; and case description (the third strategy) that may involve alternative descriptions and interpretations of the case.

The best preparation for conducting cases study analysis is to have a general analytic strategy which aims to link the data of the case study with identified concepts of interest. This provides the researcher with a sense of direction in relation to analysing the data. The researcher may develop his/her own strategy but should still consider the ones described above. Within any general strategy, including the one that a researcher might develop, he/she should consider the use of any of the five analytic techniques explained in the following section.

4.4.2 Five Analytic Techniques

Yin (2014) outlined five analytic techniques to allow researchers to draw conclusions from evidence. These techniques are now explained.

4.4.2.1 Pattern matching

Pattern-matching is considered to be one of the most desirable techniques for case study analysis. It compares a pattern which has been established by the researcher based on

the findings from the case study with a predicted pattern made prior to data collection. If both the empirical and predicted patterns are the same, the results can support the case study in strengthening its internal validity. Further, in explanatory case study, the patterns may be related to the dependent or the independent variables of the study. If the case study is a descriptive one, pattern matching is still relevant, since the predicted pattern of important situations can be identified and defined prior to collecting the data. To explain what the researcher did in terms of “pattern matching”, it is important to first comprehend why pattern matching is important in case study research. Pattern matching is basically an internal validity tool, in other words, in the researchers’ world, if the patterns found in the case study match the patterns predicted by theory, this suggests that the analysis is more “valid”. However, as the researcher took a grounded theory route to analysing the data as will be explained below, it is essential to highlight that the key purpose was not solely to find “matches”, but also to remain open minded to emerging patterns. The variables can come from previous research, but the constructs or relationships between them do not have to be specified beforehand. The idea behind exploratory case study research is that the researcher believes in the data and follows what it tells. In other words, for this research study the researcher “matched” patterns she recognized, but allowed the emergence of new patterns as well. Validity, on the other hand, is not neglected, as its integrity is also preserved by the multitude of sources used for data collection.

4.4.2.2 Explanation building

This is the second analytic technique which is a special type of pattern matching, but the procedure is more difficult in a way that requires separate attention. With this

technique, the aim is to analyse the case study data through building an explanation that is related to the case. The procedure is largely related to explanatory case studies. A parallel procedure, for exploratory case studies has been commonly cited as part of a hypothesis-generating process. Though its goal is not to conclude a study but to develop ideas for further study.

The purpose of explanation building is finding a network of causal links about how or why something happened. Incidentally, the researcher sees significant commonalities between grounded theory analysis and explanation building. Both approaches are iterative; both are concerned with how something happened and why it might happen. However, unlike grounded theory analysis, explanation building involves making initial predictions and then making comparisons. The other common point is that they both allow an interplay between what we had “before” and what we see now, as causal links can be revised, even when following straightforward applications of explanation building. In this case, the purpose is sometimes to find a match. In this study, the sole purpose of the researcher was to uncover how something was happening and why, but to do so with an open mind, not necessarily by relating it to previous theory or research, or even relationships (Baskarada 2014). Even so, the researcher did not rule them out. To summarise, the researcher considers that she has used some forms of explanation building through the flexibility of analysis and interpretation encouraged by grounded theory. She has used a construct previously used by academics as a starting point, but did not commit to it consistent with the paradigm of causal scientific explanation.

4.4.2.3 Time-series analysis

Conducting a time-series analysis is another available case research technique which is directly related to time-series analysis conducted in experiments and quasi experiments. The more intricate and precise the pattern, the more that the time-series analysis will lay a firm foundation for the conclusion of the case study. An essential feature with this technique is to identify the specific indicator(s) to be traced over time as well as the specific time intervals to be covered and the presumed temporal relationships among events, prior to collecting the actual data.

It would have been interesting to isolate some elements and see how their impact changes or not over time, but in this study, time-series analysis was not used to analyse the data in hand. In any event, researchers do not have to use all of the strategies for case analysis, and can limit themselves to use what fits the specific research design in order to uncover findings that would contribute to research and practice.

4.4.2.4 Logic models

The logic model stipulates and operationalizes a complex chain of events over an extended period of time. The events are presented in repeated cause-effect-cause-effect patterns, by which a dependent variable (event) at an earlier phase becomes the independent variable (causal event) for the following phase (Peterson & Bickman 1992; Rog & Huebner 1992). As an analytical technique, the use of logic models involves matching empirically observed events to theoretically predicted ones. The researcher therefore may consider the logic model technique to be another form of pattern matching. There are three types of models namely: Individual-level logic model (a case

study is about an individual person), firm or organisational level logic model, and programme level logic model.

In this study, the researcher has used logic models when reflecting on causal relationships between variables. For an analysis to be valuable, 'Reading' the data is not sufficient and therefore the grounded theory requires the use of memoing. Memoing is the process of reflecting and thinking within about what the data reveals. In fact, according to Glaser, memoing is the "Core stage and bedrock of theory generation" (Glaser, 1978, p. 83). Memoing can start with a write-up and end with an influence diagram to better reflect causal relationships. This is what helped the researcher at times, writing then drawing for a better understanding.

4.4.2.5 Cross-case synthesis

This technique applies specifically when analyzing multiple cases which strengthen the findings. Cross-case synthesis can be conducted whether the individual case studies have previously been conducted as independent research studies (authored by different persons) or as a predesigned part of the same study. In both situations, this technique treats each individual case study as a separate study. As a result, the technique does not differ from other research syntheses which aggregate findings across a series of individual studies. When there is a large number of individual case studies, the synthesis may include quantitative techniques known to other research syntheses. One of the possibilities, is to start with creating word tables in which data are presented according to one or more uniform categories. The researcher can go beyond the single features of a case and produce an array of a whole set of features, effectively profiling on a case-

by-case basis. Such an array allows the analysis to probe whether the different groups of cases appear to share some similarity and deserve to be considered examples of the same “type” of general case. Alternatively, the profiles can be different in a way that the cases deserve to be considered as contrasting cases. If this is the case, the findings based on the observed profiles will either confirm or disconfirm the initial expectations and connect well to the prior research which was reviewed when developing the original design. An important caveat in conducting this kind of cross-case synthesis is that the examination of word tables for cross-case patterns will rely strongly on argument and interpretation, rather than numeric tallies. It is important to consider the challenges related to the necessity to know how to develop strong, plausible and fair arguments that are supported by the data. Finally, a case study could be designed to extend a higher level which is beyond the cross-case synthesis. In such situations, the main case study may be about a larger case or unit of analysis, with the multiple case studies (and the cross-case synthesis) serving as embedded units. The findings would then require data from the broader unit of analysis that serves as the main case, in addition to cross case data from the multiple case studies. Data from both levels would feed into the final case study.

The collected data was interpreted at the case level as well as across cases in order to highlight meaningful similarities, differences, and site-specific experiences. The same procedures and design across the selected cases were followed, as this consistency in the analysis helped to discover possible differences between various events, and participant groups in addition to facilitating cross-case analysis (Hansson 2003). At the case level, the analysis involved detailed write-ups for each of the selected programmes/cases which includes case description. Eisenhardt (1989) maintains that

"The overall idea is to become intimately familiar with each case as a stand-alone entity", which allows the emergence of unique patterns, intimate acquaintance, and acceleration of the comparison across cases (Eisenhardt 1989, p. 540).

As the overarching purpose of cross-case synthesis is to find commonalities but also variances amongst cases, the technique chosen by the researcher was the one adopted by Goldstone (1997). Goldstone holds that the best way to represent a cross-case analysis is to use narratives to preserve the essence of each case. As cross case analysis is used to reinforce validity and support theory elaboration. This analysis is important to understand the context of each case study.

4.5 Using Grounded Theory

The analysis was approached using a grounded theory method which takes the research to a richer level of depth. Corbin and Strauss (2015) assert that using GTM provides a tried and true set of procedures to construct theory from data. Through the procedures, researchers can examine topics and related behaviours from many different angles hence developing comprehensive explanations; obtaining new insights into old issues and studying new emerging areas that require investigation; uncovering the beliefs and meanings that underlie action in order to examine both rational and non-rational aspects of behaviours. In addition, researchers can demonstrate how logic and emotion combine to impact on and influence the way people respond to events or handle problems through action and interaction. These authors claim that "These procedures have proven to be culturally sensitive and applicable to individuals as well as to larger organisations and societies" (Corbin & Strauss 2015, p. 11).

Martin and Turner (1986) argue that grounded theory is a good fit for dealing with qualitative data collected through participant observation, interviews, or from case-study material as well as other sources. Moreover, Halawe, Fidler, and McRobb (2008) argue that grounded theory and case study research can be integrated into a methodology which is sound and rigorous, and explain how a grounded theory analysis can be included in case-study research. Additionally, according to the Straussian version of grounded theory, it is recommended and even seen as necessary to examine the existing literature to identify concepts and themes that in turn make sense of the data (Halawe, Fidler & McRobb 2008).

Flexibility is essential to grounded theory analysis. Corbin and Strauss (2015) stated that two of the most important characteristics that should be considered by researchers who are working with grounded theory are being flexible and open to serendipity in the approach to data collection and analysis. Researchers must be willing to follow the leads in the data, altering the type of data and the place of its collection in order to facilitate concept development (Corbin & Strauss 2015). Corbin and Strauss further emphasize that (pp. 9-10):

Constructing a theory is deliberate and careful process and that researchers have to take the time to do it correctly. In addition, they must be self-reflective about their role in theory construction. Most of all, we teach our students to be sceptical of established theories, however enticing they seem, unless these are eventually grounded through active interplay with data.

In grounded theory, coding is a critical element which is directly connected to the quality of the research (Strauss 1987). The term ‘coding’ is defined by Corbin and Strauss (2015, p. 220) as “Delineating concepts to stand for interpreted meaning of data”. The following points present the essential ‘coding’ steps as explained by the authors:

1. 'Open Coding/Identifying Concepts'. 'Open coding is defined by Corbin and Strauss (2015, p. 239) as "Breaking data apart and delineating concepts to stand for interpreted meaning of raw data". It is an early step in coding where the data are broken down into manageable pieces, then reflecting upon that data by writing memos, and conceptualizing the data based on researcher's interpretations of its meanings. To arrive at different interpretations, the process of analysis requires brainstorming, asking many questions that arise about the data, making comparisons in addition to engaging in a lot of reflective thought (Corbin & Strauss 2015). At this stage in the analysis, the researcher develops a list of concepts or codes. Corbin and Strauss (2015, p. 236) confirm that "What is important is not so much the list itself but the fact that I have memos in which I explore the concepts". The same concepts may be carried over and developed in the next stage or they could be discarded or combined based on interpretations of the new data. Moreover, new memos will be written and more concepts will be added to the list (Corbin & Strauss 2015). In this first step, the researcher should remain totally open minded as the term 'open coding' prescribes it. The purpose here is not to identify what fits but what is actually there.
2. 'Developing Concepts in Terms of their Properties and Dimensions.' In this step, the researcher place concepts in memos as this allows making the necessary linkages between them resulting in developing new concepts derived from additional data-concepts (Corbin & Strauss 2015). The most important points at this step are namely: the importance of memos to the analysis, and linking of concepts which occurs somewhat spontaneously once the analyst gets over the initial phase of exploring the data (Corbin & Strauss 2015). The analysis at this stage continues building upon what had begun in the first stage

through conducting new interviews and asking further questions. The researcher will then compare the data with those obtained from the first set of interviews. Comparisons will be made at the concept level. According to this approach, the original question is modified over and over based on what is being discovered during the analysis. The complete process of data collection and analysis will continue until the researcher reaches conceptual saturation or in other words is satisfied with the total amount of data obtained and considers them sufficient to describe each category or theme fully in relation to its properties and dimensions (Corbin & Strauss 2015).

3. **Analysing Data for Context.** At this stage of the analysis, the researcher considers the idea of context in order to gain a better understanding of the concept resulting from the previous stage. The researcher's role is to explore the larger historical, social, political, cultural and environmental conditions in which the concept exists. This analysis will take the form of memos which seek answers to questions of why, who, what and where, and are considered the first step in investigating the concept 'specific context' (Corbin & Strauss 2015).
4. **Bringing Process into Analysis.** 'Process' according to Corbin and Strauss (2015, p. 283) is defined as "Adaptive changes in the flow of action-interaction taken in response to changes in conditions, the changes deemed necessary to achieve desired outcomes or reach a goal. Action-interaction may be strategic, routine, random, novel, automatic, or thoughtful". The researcher should study the memos as well as raw data in order to identify the main issues or problems and explore the way these are handled, by participants, through action and interaction. It is also important to know how the actions and interactions change in response to changes in conditions. Through identifying process and relating

it to various structural conditions or various contexts assists the researcher to bring together many diverse pieces of data (Corbin & Strauss 2015).

5. **Integrating Categories.** Integration is the final step of analysis for researchers who are aiming to build theory. It is defined as “Linking categories around a core category and refining and trimming the theory” (Corbin & Strauss 2015, p. 295). ‘Integration’ is the most difficult aspect in developing theory as it requires sifting and sorting through all the memos and search for clues related to the way categories fit together. Qualitative analysis is an art and science that becomes especially apparent during the time of final integration. The clues to integration can be found in the data as interpreted by the researcher. The art comes when ‘creating novel explanations’ based on data that add new insights to the phenomena. Further, the researcher must recognize times when the scheme is not working and misses links in its logic, in such situations he/she should be willing to take the scheme apart and rework it until the analytic story all falls into place and sounds right (Corbin & Strauss 2015).

Based on the above, the researcher decided that Corbin and Strauss’s (2015) approach to grounded theory fits nicely with case study research as both can start with some variables found in the literature review. Identifying a previous construct related to programme success measures, factors, and constructs serve as a guide to the current study and not as a limitation. So, as explained, the variables could be there, but relationships do not have to be there from the outset and are not allowed to interfere the initial phases of grounded data collection, analysis and concept development. The researcher should remain open to new factors found during data collection, adding value to refine the theory (Eisenhardt 1989). This perspective holds well with the perspective

explained in the previous section which indicates that the researcher can draw from the literature review and can add to it when he or she finds new elements in the data.

Grounded theory is a general method of analysis that accepts qualitative data from case studies as well as other sources. In the thesis, it has been clarified that according to Yin (2014) developing a theory prior to the collection of any case study data is an essential step in doing case studies. Accordingly, a research design should include five components: defining the research questions, propositions, and the unit of analysis leads the research design to identify the data to be collected; the other two components: defining the logic linking the data to the propositions and the criteria for interpretation of the findings lead the design into anticipating the analysis of the case study, suggesting what should be done after the data being collected (Yin 2014).

In analysing the case studies, the researcher adopted grounded methods of analysis similar to what has become known as the Gioia methodology which is one way of developing grounded theory. The data analysis for this thesis proceeded in the following way. An initial data coding, 1st order analysis was performed, which is informant centric with little attempt from the researcher to refine categories. As the study progressed, the researcher started to seek similarities and differences and distilled the 2nd order themes into overarching theoretical dimensions in the existing literature on programme success criteria, success factors and aspects related to programme context. At this stage of the analysis, the emerging themes suggested concepts that helped the researcher in describing and explaining the observed phenomena of programme success. After the initial stage of analysis, the researcher began moving between the emergent data, themes, dimensions and the relevant literature (semi-ignorance or enforced ignorance

of the literature) aiming to see whether the finding has precedents and whether new concepts have been discovered.

The next stage of the analysis was Grounded Theory articulation which involves formulating dynamic relationships among the 2nd-order concepts in the data structure. In other words, concentrating on the ultimate goal of “Building a vibrant inductive model that is grounded in the data (as represented by the data structure), one that captures the informants’ experience in theoretical terms” (Gioia, Corley & Hamilton 2012, p. 22). The resulting grounded theory model, then, shows the dynamic relationships between the emergent concepts that explain the phenomenon of interest and as a result clearly connect all relevant data-to-theory “thus allaying the usual concern that qualitative research too often does not show just how data relate to theory” (Gioia, Corley & Hamilton 2012, p. 22).

4.6 Methods of Case Study Analysis

As has been explained in this chapter, a case study is concerned with complex events and behaviours which occur in a more complex real time context. The idea behind exploratory case study research is that the researcher is close to the data and follows events and ideas as they unfold in real-time. Hence all sources of evidence should be analysed and interpreted in a way that explains the relevance and importance of the case study. Therefore, the researcher selected ‘Relying on theoretical proposition’ as an analytic strategy (Yin 2017) and the analytic techniques are identified in the following Table 19:

#	Analytic Technique	Description
1	Pattern matching	Comparing a pattern established by the researcher based on the findings from the case study with a predicted pattern made prior to data collection. If both are the same, results support the case study and strengthen its internal validity.
2	Explanation building	The technique is used aiming to analyse the case study through building explanation related to the case/programme and find a network of causal links about 'how' and 'why' something happened.
3	Logic model	The technique specifies and operationalise a complex chain of events over an extended period of time. It involves matching empirically observed events to theoretically predicted ones.
	Cross-case synthesis	This technique is used when analysing the multiple cases to find commonalities and variances amongst cases/programmes under study. The findings are used either confirm or disconfirm the initial expectations and connect well the previous research.

Table 19 Case Study Analytic Techniques

(Based on Yin 2014, pp. 23-34)

As is presented in the table above, four main analytic techniques are used in this thesis. For the first technique 'pattern matching' and based on the main purpose of this study, the researcher used the technique to compare the patterns developed from the findings

of the case study with predicted patterns that were identified prior to data collection. In other words, the researcher 'matched' the patterns which were found and at the same time remained open to emerging patterns. This implies, as previously mentioned, that the variables can come from previous research, but the constructs or relationships between those variables do not have to be identified in advance. Explanation building is another analytic technique which has been used in this thesis aiming to find causal links about how and why things related to programmes happened. The researcher aimed to uncover the reasons behind what was happening and why with an open mind to accept new ideas without them necessarily being evident in existing theories or research (Baskarada 2014). The researcher has used some forms of explanation facilitated by the flexibility of analysis and interpretation encouraged in grounded theory. She further used a set of programme management constructs that have been used by scholars as a starting point, but did not commit to them consistent with the case method paradigm of causal explanation recommended by Yin (2014). Logic models is another analytic technique that has been used by the researcher when reflecting on causal relationships between variables. It is worth mentioning that in order for the analysis to be valuable, 'Reading' the data is not sufficient and therefore the grounded theory requires the use of memoing which is the process of reflecting and thinking about what the data reveals. Similarly, ethnographic and case study research methods often recommend copious note taking and reflective writing by the researcher on field experiences. This is what assisted the researcher at times, writing then drawing for a better understanding. The fourth technique is 'cross-case synthesis' that has been used with the multiple cases in this research. Accordingly, the collected data was interpreted at the case level and across cases aiming to highlight similarities, differences, and site-specific experiences. The same procedures and design across the selected cases were followed, as this

consistency in the analysis helped to discover possible differences between various events, and participant groups in addition to facilitating cross-case analysis (Hansson 2003). At the case level, the analysis involved detailed write-ups for each of the selected cases which includes case descriptions. As cross case analysis is used to explore and establish validity and support theory elaboration. Cross-case analysis is important to understand the context of each case study, and their commonalities and differences.

The researcher used the above techniques to analyse the data collected from different sources considering the previous constructs found in the literature by Shao and Muller and Turner (2012) that are related to programme success measures, factors, and context which served as a guide to this thesis but not a limitation. During the research, the interviews took place based on the availability of the participants. For example, the first participant talked in general about the overall situation of managing projects and programmes, the second participant was from the Water Directorate and the third was from the IT Department. The researcher through the answers and the probing questions was open to new information and consider them in the following interviews. For example, 'Change Management' was added to the set of interview questions after it was mentioned during the IT interview in this statement "...in my previous couple of major implementation of SAP; I can assure you that change management approach played a major role in the success of any change...". Though, subsequently it was not found to be important to the other two programmes.

The raw data was categorised according to the aspects identified in the interview protocol. The researcher analysed the meanings based on participants' words and codes were then assigned. A similar process was followed with all participants to identify

codes from the words of the participants, then comparing these codes and assigning them to a main category (success criteria, success factors, etc.). All codes and categories were then reviewed to check if they explained the concepts of programme success and programme context and other related aspects. The results are presented in Chapter 5.

4.6 Limitations of the Research Methodology

The present study followed a qualitative grounded theory paired with a case study approach to achieve the objectives and to answer the research questions. In this section, the researcher presents the imperfection of the methodology and methods used and acknowledges the limitations and difficulties experienced by her along with explanation of the techniques used to overcome them.

4.6.1 Validity, Reliability and Generalizability

Although the concepts of validity and reliability are related in social science, this relationship is asymmetric (Hansson 2003). Potter (1996, p. 262) clarifies that “A test cannot be valid unless it is reliable, but it can be reliable without being valid”. According to the traditional research, the only way to produce valid information is through applying a rigorous research methodology. Such methodology should follow a strict set of objective procedures that separate researchers from those being researched (Kincheloe & McLaren 1994). In the following section, the researcher explains the efforts expended to accomplish the study as accurately as possible in relation to both concepts of validity and reliability.

4.6.1.1 Validity

Validity in qualitative research involves description, explanation and whether or not a given explanation suits a given description (Hansson 2003). A research study may be considered valid if “it represents accurately those features of phenomena that it is intended to describe, explain, or theorize” (Hammersley 1987, p. 67 in Corbin & Strauss 2015, p. 342). In case study research, Yin (2014) presents three types of validity; concepts that are related to case study research namely: internal validity, construct validity, and external validity.

Internal validity is “The strength of a cause-effect link made by a case study, in part determined by showing the absence of spurious relationships and the rejection of rival hypotheses” (Yin 2014, p. 239). It is considered a concern only for causal or explanatory case studies.

Construct validity, deals with establishing the right operational measures for the concepts being studied, which is vital when conducting case study research, that the researcher describe the phenomena being studied as accurate as possible. This means that the researcher’s comprehension and interpretation should match the real phenomena. To increase the construct validity, Yin (2017) identifies three available tactics namely: using multiple sources, establishing a chain of evidence in addition to reviewing the drafted case study report by key informants. In this research and for all three case studies, the researcher used multiple sources of evidence through interviews, collecting documentation and to a certain extent direct observation during meetings (Yin 2017). All the within-case analysis and case descriptions are detailed, homogenous

and honest to allow the reader to follow the chain of evidence. Furthermore, in order to correct misinterpretations or careless mistakes, key participants/interviewees have reviewed the narrative based on information obtained from interviews and document review (Yin 2017).

4.6.1.2 External validity and generalizability

Yin (2017) confirms that external validity is a major barrier in doing case study research. It deals with the extent to which the findings obtained from the study can be applied in other situations. In other words, are the findings generalizable beyond the immediate case study (Yin 2017).

Critics typically state that single cases offer a poor basis for generalizing. However, such critics are implicitly contrasting the situation to survey research, in which a "sample" (if selected correctly) readily generalizes to a larger universe. This analogy to samples and universes is incorrect when dealing with case studies. This is because survey research relies on statistical generalization, whereas case studies (as with experiments) rely on analytical generalization. In analytical generalization, the investigator is striving to generalize a particular set of results to some broader theory (Yin 1994, p. 36).

Hansson (2003) raised a question related to whether qualitative researchers are limited to describing the people or the observed phenomenon, or can they generalize to a larger subgroup? In this regard, Potter (1996) clarifies that from a scientific perspective, generalizability is only possible when elements within the sample are representative of the population. On the contrary, Yin (1994) presented an opposing view as he argues that the sampling logic is insufficient for the multiple-case study design. Instead, the replication logic which is similar to that used in multiple experiments, should be used.

In this thesis, the researcher chose the multiple case study research design based on the possibility to perform a literal replication if the cases provided compelling answers to the research questions and consequently convince the readers about the general phenomenon under study. Moreover, the cases are compared with the theoretical findings for validation and further development, which is known as analytic generalisation (Yin 2017). Further, the use of multiple sources of data collection, or 'triangulation' is considered as a strength of case-study method as it makes the findings more convincing and accurate (Yin 2009; Glesne 2011). The researcher applied triangulation to this study through the use of observation, interview and document review (Stake 1995). The reasons for using triangulation as stated by (Gibbs 2007 in Glesne 2011, p. 47) is that "It is always possible to make mistakes in your interpretation and a different view on the situation can illuminate limitations or suggest which of competing versions is more likely" and, when what people say is inconsistent with what people do, "forms of data triangulation (e.g., observing actions as well as interviewing respondents) are useful... , not to show that informants are lying or wrong, but to reveal new criteria of social reality where people do not always act consistently". In fact, inconsistencies can assist in revealing the complexity of a situation (Glesne 2011). This research then uses triangulation through the multiple sources of data collection that are seen as a means of validation (Yin 2017) across the selected cases in order to ensure validity and to allow for generalizations to be made (Stake 1995).

4.6.1.3 Reliability

Yin (2014, p. 240) defines the term as "The consistency and repeatability of the research procedures used in a case study". The aim is to minimize errors and biases in a study.

In a case study context, this enables other investigators to conduct the same case, following exactly the same procedures and reach the same results and conclusions (Yin 2017). It is worthwhile remembering that the case study protocol is a particularly effective way to increase case study reliability (Yin 2014).

To ensure reliability of the multiple case studies, the researcher developed and followed case study protocols during all case studies. A protocol is the procedural guide for collecting case study data (Yin 2017). The guide describes the procedures and general rules that are followed by the researcher during the case studies. It also includes the set of field/interview questions addressed by the researcher that represent the researcher's 'mental agenda'. Interview schedules of questions, listed documentation along with the recorded interviews permit other researchers to follow along the same path during the phase of data collection. Further, describing how the data contents were analysed can also increase the reliability of the study. Finally, all empirical raw material such as the transcribed interviews were assembled into research reports (Hansson 2003).

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this research. Accordingly, the collected data was interpreted at the case level and across cases aiming to highlight similarities, differences, and site-specific experiences. The same procedures and design across the selected cases were followed, as this consistency in the analysis helped to discover possible differences between various events, and participant groups in addition to facilitating cross-case analysis (Hansson 2003). At the case level, the analysis involved detailed write-ups for each of the selected cases which includes case descriptions. As cross case analysis is used to explore and establish validity and support theory elaboration. Cross-case analysis is important to understand the context of each case study, and their commonalities and differences.

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The raw data was categorised according to the aspects identified in the interview protocol. The researcher analysed the meanings based on participants' words and codes were then assigned. A similar process was followed with all participants to identify codes from the words of the participants, then comparing these codes and assigning them to a main category (success criteria, success factors, etc.). All codes and categories were then reviewed to check if they explained the concepts of programme success and programme context and other related aspects. The results are presented in Chapter 5.

4.8 Research Ethics

Ethical concerns exist at every step of the research process. These concerns are greatest where research involves human participants (Saunders, Lewis & Thornhill 2012). The discussions about research ethics are mostly raised with the use of qualitative methods as qualitative researchers are sympathetic and sensitive to human feelings (Easterby-Smith, Thorpe & Lowe 2002). When researchers use qualitative methods such as interviews and observations, in some ways, they have more control over the type of information collected and the way it is recorded and interpreted (Easterby-Smith, Thorpe & Lowe 2002). The paradox is that using qualitative methods may put the researcher in a substantially powerful position in relation to participants which raises ethical issues and concerns (Easterby-Smith, Thorpe & Lowe 2002).

Ethical considerations should accompany the plans, thoughts as well as discussions related to different aspects of qualitative research (Glesne 2011). They are inseparable from a researcher's daily interactions with the research participants and data (Glesne 2011). The purpose of the research as well as the different processes have to be

negotiated with the participants on a continuous basis (Glesne 2011). This means that the topic chosen by the researcher and the way of designing the inquiry is related to the researcher's philosophical and ethical stance on the nature and objectives of the research (Glesne 2011). Different epistemologies give rise to different ethical concerns. So, for positivist inquiry the focus is on making a distinct separation between the research and the researched, while in most interpretative research the interaction between the researcher and the researched is considered common (Glesne 2011).

Based on the above, the researcher is fully committed to the highest level of ethical standards while conducting this research (Yin 2014). In support of this commitment, she has taken several steps which commenced by following the University (BUiD) code of ethics which required completing, signing and submitting the 'Research Ethics Form' to the 'Research Ethics Sub-Committee'. Furthermore, the researcher in order to tackle any issues related to being 'internal' to the case organisation, as the researcher is an employee at FEWA, she obtained formal approval to undertake this study (Saunders, Lewis & Thornhill 2012) through making an official request for permission to conduct the research. This required explaining the objectives of the study, the strategies as well as the data collection instruments were submitted and approved by the Director General of the organisation.

The interview protocol was developed, reviewed and implemented only after the approval of the supervisor. The researcher gained formal written consent from all participants who took part in the case study (Yin 2014). The informed consent included information relating to the overall purpose of the research study, risks and the benefits from participating if they would like to do so, as well as their rights to withdraw from

the study at any time (Kvale & Brinkmann 2008). It also includes the researcher's commitment to confidentiality (Kvale & Brinkmann 2008). The consent form was signed by both parties before starting the interview.

Prior to conducting the interviews, an invitation e-mail was sent out to the selected people seeking their agreement to participate. The interview protocol was attached with a covering letter explaining the objectives of the study and informing them that all of the information will be kept confidential and the available data would not be reported in a way that was attributable to the participant. The email included information about the duration of the interview as well as the digital audio recording (upon approval). Arrangements were made to conduct the interview after receiving their acceptance of the invitation to take part in the study. Finally, the transcribed interviews were sent by e-mail to all interviewees who reviewed, modified and approved the content. None of the interviewees were mentioned by their names to ensure confidentiality.

To sum up, Glesne (2011) stated that the distance between the researcher and the participants does not mean that the study is meeting and complying with the ethical standards. Indeed, the natural stance of the study is constructed as an ethical issue because the research process can lead to objectification of others.

4.9 Researcher Reflexivity

Reflexivity involves critical reflection on how the researcher, participants, settings and research procedures interact and influence one another (Glesne 2011). It is defined by Charmaz (2014, p. 344) as “The researcher’s scrutiny of the research experience,

decisions, and interpretations in ways that bring him or her into the process. Reflexivity includes examining how the researcher's interests, positions, and assumptions influenced his or her inquiry. A reflexive stance informs how the researcher conducts his or her research, relates to the research participants, and represents them in written reports". Corbin and Strauss (2015) mentioned that researchers have their own perspectives, biases and assumptions that they bring with them to the research process and these will have an impact on every aspect of the research. Though, the impact is not necessarily bad in all aspects, especially when it comes to selecting the research problem, question and choosing the audience for whom to write. The authors add that it is a normal thing that a researcher would want to study issues and problems that are related to his/her discipline because that is the area to which the researcher wants to contribute (Corbin & Strauss 2015).

Views related to the desired relationship between the researcher and the researched range from fully detached observer to fully engaged participant. Being an employee in the organisation under study (FEWA) and given the nature of this study and its goal to progress through improved understanding of programmes and their success/failure, researcher's complete detachment is impossible and control over events is also limited. Corbin and Strauss (2015) argues that a problem may arise when it comes to the analysis stage as those perspectives, biases and assumptions may have their greatest impact to the meaning given to data, the concepts used to stand for meaning, the questions that are asked and the comparisons that are made. Though, intrusion by these elements cannot be completely avoided when doing qualitative research, they can be controlled to a certain extent through systematic application of research strategies. These strategies provide researchers with an assortment of analytic options that can be matched against

data for possible meaning (Corbin & Strauss 2015). The researcher did her utmost to ensure that her personal or professional opinions did not come in the way of implementing an objective approach to the research. The iterations in the analysis, the coding, the reflections and memoing compiled and compared throughout the analysis, all helped her to maintain an objective process of inquiry. It was important for the researcher to keep a bias-free stance. In spite of having drawn a construct from the literature review, she focused on what the data “told” her and did not make the construct a limitation to her investigation. In this regard, Glesne (2011) confirms the fact that the researcher should carry guiding theories and assumptions, even if not conscious of them. She clarifies that researchers gain many benefits such as having a particular frame in mind through reading other studies, finding a focus for the specific topic of interest, specifying the research design and interview questions, in addition to seeking sources from various disciplines (Glesne 2011). In other words, the existing knowledge of the associated literature is important as it assists researchers in evaluating their research plans and determining how their work will go beyond the existing theories and contribute to the specific field of study.

4.10 Chapter Summary

In this chapter, the researcher explained how she integrated case study research with grounded theory preserving an overall interpretive philosophical stance to collect and analyse data that would lead to the emergence of success factors in managing programmes in FEWA. As has been previously explained, there are several similarities between grounded theory and case study and the differences reside mainly in the “latter” stages as highlighted by Halawe et al. (2008). The researcher believes the

combination of methods has contributed to better value and more thoroughness in the research process.

Chapter 5 Case Study Results and Interpretation

5.1 Introduction

The preceding chapter described the philosophical and methodological foundation for this thesis. This chapter presents the case study findings and the analysis and interpretation of the results. The analysis is performed through using an inductive approach to the data. The first section provides an overview about the Federal Electricity and Water Authority (FEWA) at the time of the study. Some background details of the organisational setting are presented with an explanation of how the cases were identified and their boundaries determined. The second section contains the case results obtained from case studies of three programmes in FEWA. The programmes are presented in three subsections which progressively refine the analysis of the success criteria, success factors, the context of the programme, concluding with a summary of each of these cases. The third section provides a cross case analysis that analyses and assesses the similarities and differences between all three cases.

5.2 Overview of the Federal Electricity & Water Authority

The Federal Electricity and Water Authority (FEWA) is an independent federal government entity. Its main objective is to cater for the needs for electricity and potable water for the population based in the northern parts of the United Arab Emirates namely: Ajman (West-A), Umm AL-Quwain (West-B), Dhaid (Central), Ras Al-Khaima (North), Fujairah & Dibba (East- A & East-B). The Authority provides its services for approximately 350,000 customers.

Since its inception, the authority has adopted policies and mechanisms that balance production costs and selling prices in addition to increasing efficiency. The development of infrastructure projects has improved the network efficiency, decreased losses, and thus ensured the provision of its services to meet the growing demands of consumers.

5.2.1 FEWA's Strategy

FEWA aspires to become a leader in providing electricity and water services to improve the standards of living and achieve sustainable growth by 2021. Its strategy is driven by its mission statement "To provide electricity and water services at distinct levels and develop electricity and water facilities infrastructure to meet the growing demands of electricity and water in emirates under FEWA jurisdiction so as to enhance sustainable development". In order to achieve its mission FEWA focuses on six main objectives namely: providing electricity and water services to customers at distinct levels; managing the demand for electric energy efficiently to meet the needs of customers; managing the demand for desalinated water efficiently to meet the needs for customers; rationalizing the use of electricity and water and reduce their wastage to ensure sustainable development; ensuring that all administrative services are provided in accordance with standards of quality, efficiency and transparency and instill an innovation culture within the work environment, Figure 29 illustrates FEWA's Strategy. Further, FEWA's vision is endorsed by a set of core values namely: Transparency, Teamwork, Responsibility, Professionalism, Customers Focus and Creativity and Innovation (FEWA Strategic Plan 2014-2016).

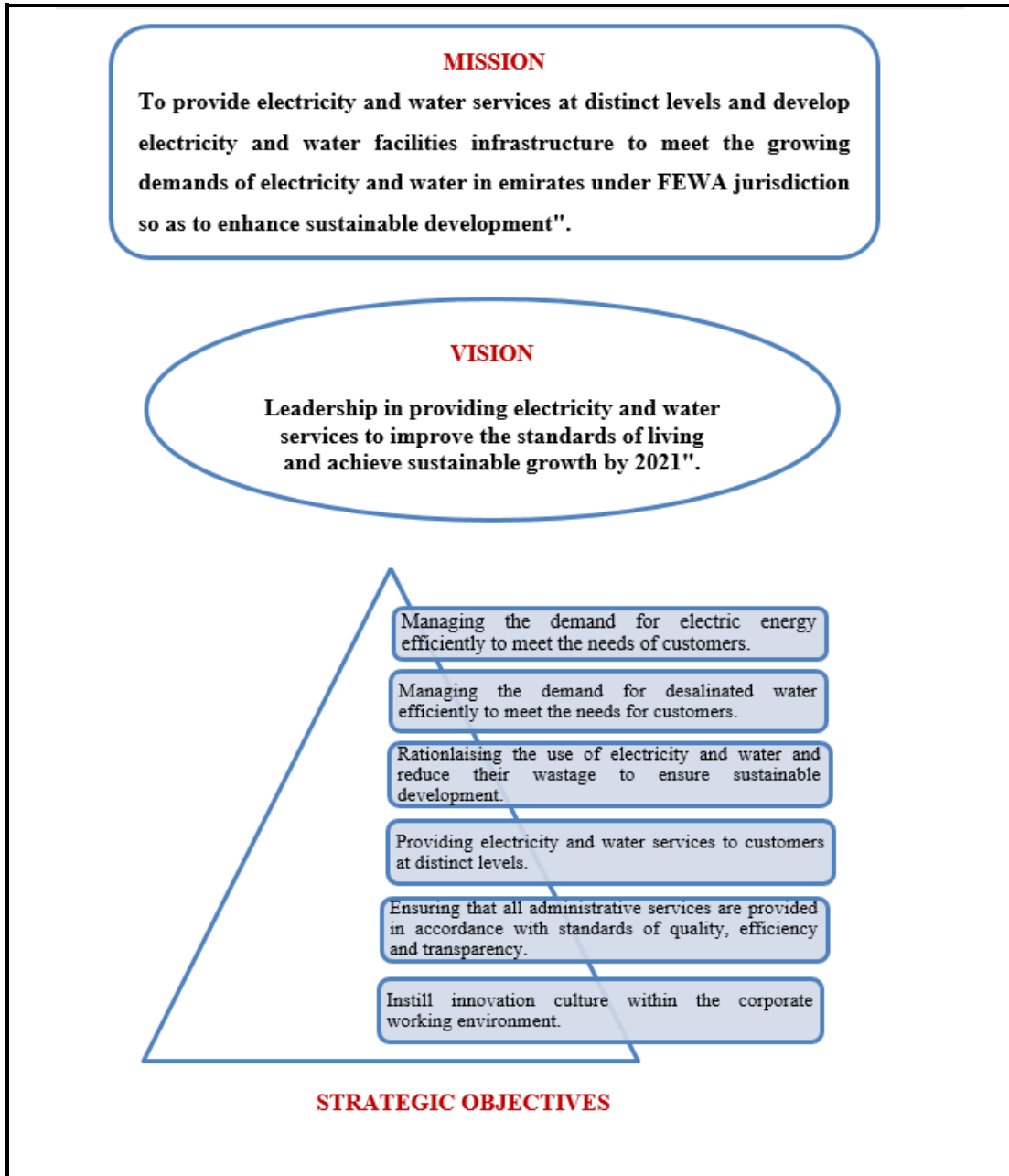


Figure 29: FEWA Vision & Strategic Objectives

5.2.2 FEWA Organisation Structure

FEWA manages its organisation structure in the most effective and efficient ways to ensure success in managing the growing demand for electricity and water in the north region of the UAE. Its organization structure Figure 30 consists of five main

directorates namely: Electricity, Water, Generation & Production, Customer Happiness and Shared Services. Additionally, there are eight corporate departments and advisors reporting directly to the Director General. These departments are: Finance, Internal Audit & Risks, Corporate Communication, Conservation, Legal Affairs, Strategy & The Future, Health, Safety & Environment and Business Continuity. The Authority is governed by a board of directors whose members hold office for a term of three years.

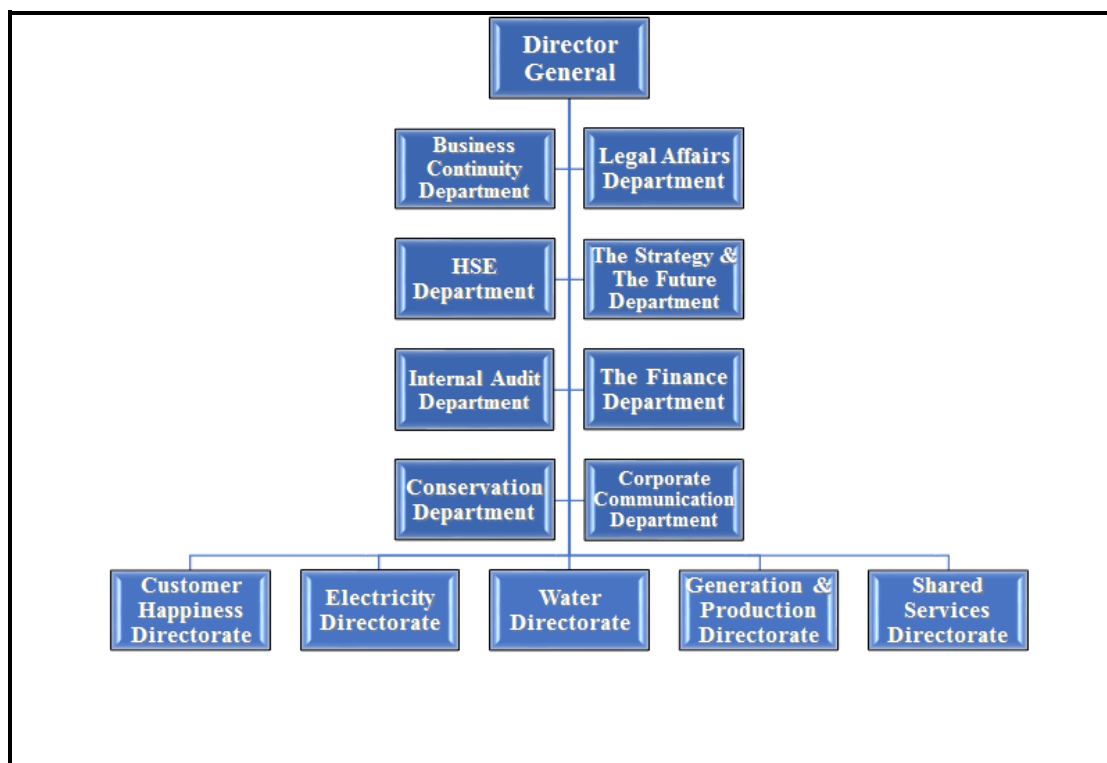


Figure 30: FEWA High-Level Organisation Structure

5.3 Case Selection

The primary criterion informing the case selection is their relevance to the research objectives (George & Bennett 2005), therefore, the researcher has identified three programmes in FEWA which assist in exploring the differences within and between

cases/programmes and replicate the findings across the cases (Baxter & Jack 2008). Cases are selected to provide variation required by the research problem (George & Bennett 2004). Deciding on the number of cases has been based on the theoretical framework, purposes, questions and propositions of this research which sets the boundaries for case selection (Yin 2017). The criteria for case selection included meeting the programme’s criteria and principles set by standards as shown in Appendix 1. A specific explanation related to each case/programme is provided in the following sections. The main characteristics of the three cases are summarized in Table 20.

	Case 1	Case 2	Case 3
Title	Water	Electricity	IT Transformational Programme
Scope	Technical (Core)	Technical (Core)	Technical (Support)
Time Line	3-5 Years	3-5 Years	3 Years
Budget (AED)	More than 1 Billion	Around 2 Billion	70 Million
No. of projects	11	22	24

Table 20: A Summary of the Selected Cases/Programmes

The selected cases provide a deep understanding of the topic under investigation in a real-life context (Yin 2017) as they depict various contexts with a common focus on achieving FEWA’s vision and strategic objectives but are different in processes, practices and methods used in implementing the programmes. Moreover, the investigation of these programmes has allowed the researcher to identify the success criteria and factors along with the existing gaps in the literature. The study of each

specific case or programme has mainly involved semi-structured interviews, document review and observation (Glesne 2011), in addition to other sources as has been explained in the methodology chapter. Interviews were conducted with key people who are responsible for managing and leading the selected programmes in addition to interviewees from the top management team. Further details related to the interviews will be covered within each case study.

5.4 Case Study 1: The Water Programme

5.4.1 Case Narrative

The business of water is one of FEWA's core functions that runs through two Directorates 'Water' and 'Generation & Production'. The objective of this programme is to provide an efficient, reliable and safe water network with minimal water losses, through identifying and recommending projects that meet the increasing demand for water among the regions covered by FEWA. The programme includes water production, storage and distribution. This endeavour involves several projects namely, 'Water Production', 'Transmission/Distribution Pipelines', 'Rehabilitation of Existing Networks', 'Storage Tanks' and 'Pumping Stations' along with other supporting projects such as studies related to the 'Demand' and 'Water Losses'. The outcome of this programme contributes to achieving FEWA's strategic objectives namely: 'Provide distinctive level of water and electricity services', 'Efficient management of water demand to ensure provision of customer needs, and 'Rationalize water and electricity consumption to ensure sustainable development' (Business Plan 2014-2016).

At the beginning of every strategic cycle, the directorate, through the ‘Business Planning Section’, identifies its strategic objectives along with their respective challenges as presented in Table 21. The strategic and operational plans are set by the ‘Business Planning Section’ in coordination with the Strategy and the Future Department. These plans, targets and KPIs must be revised and approved by the Prime Minister’s Office at the federal level to ensure consistency with the UAE National Agenda.

#	Objectives	Challenges
1	To increase water network coverage and storage capacity to meet the increased demand.	Meet the growing demand of the Northern Emirates by 4.5% and attend emergency complaints within 24 hours.
2	To increase the storage capacity up to 48 hours	- Reduce water leakage and avoid contamination in the water network. Eliminate source of unaccounted water supply.
3	To increase water network reliability by reducing leakage loss and number of interruptions and work towards 24-hour availability.	- Ensure 24-hour availability of water, increase water network and storage capacity. - Reduce service interruption from 6 hours to 4 hours.
4	To maintain the quality and quantity of water provided by the Supply Business in the transmission and distribution network.	- Ensure water quality while maintaining environmental impacts. - Reduce water leakage and avoid contamination in the water network.
5	To increase efficiency and revenue through the use of advanced technology and improved man-management programme in	- Implement and operate the latest technology that enable efficient transmission and distribution of water such as SCADA System, water losses monitoring system, etc.

	<p>coordination with other Directorates and Departments.</p>	<ul style="list-style-type: none"> - Reduce operation and maintenance costs by planning of assets and resources (minimum cost, improved efficiency and customer satisfaction). - Optimization of material inventory management - Ensure efficient and effective coordination and communication between water and other business units through Service Level Agreements - Recruit and maintain qualified and competent employees. - Train and develop staff - Optimizing the budgetary planning process and procedures
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Table 21: Water Directorates Objectives & Challenges

(Adapted from Water Business Plan 2014-2016, pp. 17-18)

In order to achieve its objectives and face the challenges presented above, an investment of more than AED one billion was allocated for the programme during the (2014-2016) planning cycle. The investment was distributed among the six regions of FEWA and based on the demand for water as shown in Table 22. This demand is forecasted by the Asset Department.

Year	2014	2015	2016
Total Water Demand (MIGD)	106.22	111.38	117.04

Table 22: Water Demand

(Adapted from Water Business Plan 2014-2016, p. 12)

During the three-year strategic cycle (2014-2016), the ‘Water Programme’ involved three main projects. Two of these projects were delayed which affected the targets and the KPIs as shown in Table 23.

Project	2014		2015		2016	
	T	R	T	R	T	R
Water transmission & distribution projects (networks & connections)	50%	64.8%	100%	47%	26.4%	16.5%
The annual maintenance program for water networks.	100%	100%	100%	100%	100%	100%
Water production plants: -Completion of Ghalilah Desalination Plant (RO) 15 million Imperial gallons Project. - Construction of SWRO Plant with production capacity 45 MIGD at Umm-Al-Quwain	100%	75%	25%	25%	---	---
	---	---	3%	3%	8%	---

Table 23: ‘Water Programme’ Projects

The review of the documents (Strategic, Operational and Business Plans for the three-year cycle 2014-2016) shows that while the maintenance programme was completed and achieved consistent with the targets, there was a delay in the ‘Networks & Connections’ projects as well as in the sea water reverse osmosis (SWRO) plant. The reasons behind the completion of the maintenance programme can be referred to the

improvement of the mechanism that followed in managing this type of project which covered the contracting process (Period Contracts). This improvement had its impact on both the effectiveness as well as the efficiency of the overall project.

The researcher has selected this programme for an in-depth analysis to explore the reasons behind such delays and to identify different criteria and factors that have their impact on achieving success in water programmes. In order to identify the main reasons behind such delays, the researcher conducted interviews with key people who are directly responsible for the programme. Other interviews were also conducted with employees who are partly or indirectly involved and/or affected by these projects such as regional chief engineers as well as others from the support departments. In addition to the interviews, the researcher reviewed the documents related to the programme and used observation as additional methods of data collection. The analysis revealed a number of findings that are related to key aspects of the success criteria, success factors and programme context. In relation to the programme's success criteria, the results reflected that the different ones found in published literature are considered by employees within this programme. However, 'stakeholders', other than the customers/consumers, and programme team are ignored. Success is limited, aligned and constrained to achievements that are related to providing the service to its customers. Results related to the success factors reflect a clear emphasis on the 'Iron Triangle' time, cost and quality/specifications. Leadership is an area that requires more attention in this programme. The reason is that there is a focus on supervision rather than leadership influence; managers are selected based on their technical experience. Finally, the results reflected a high impact of 'context' wherein the programme context has its impact on the success of the 'Water Programme'. It is clear that due to the federal system of the UAE, the local governments can have a hindering impact on programme

success which requires implementation of a structured approach to managing the programme's stakeholders'.

These case findings have assisted the researcher in answering the research questions for this thesis. In relation to the research questions related to the approach deployed by FEWA and the contribution of having specific standards/models to programme management and success, it is confirmed that FEWA has not developed a structured approach to manage the 'Water Programme'. Employees are following practices that are not documented and therefore not clear to everyone in the Directorate. The researcher observed the confusion and hesitation in answers provided by various participants/interviewees. This suggests that a suitable model or standard could usefully be adopted and followed by this programme. Finally, the researcher has found that most of the measures that were developed by Shao, Muller and Turner (2012) are appropriate and applicable in the utilities sector although this industry was not part of their study. It is also worthwhile mentioning that the programme context has an impact on managing the programme successfully. Details of these contextual influences and results are shown in the following sections.

5.4.2 Interview, Document Review and Observation Results

The results presented in this section are interpretations following interviews, document review and observations. The report of the findings is structured around success criteria, programme success factors, and program context. These aspects are based in the published literature as was explained and discussed in previous chapters of this thesis.

The sample covered here included ten participants. Two of them provided general views on the programme as presented in Table 18 in the Methodology Chapter. Almost all interviewees have work experience that ranges between 10 to 30 years in the utility sector. It should be noted that the programme director did not participate in the interviews. He declined the invitation sent by the researcher and instead, nominated another projects engineer.

5.4.2.1 Success criteria

The analysis of programme success criteria is based on the six dimensions recognized in previously published work by Shao, Muller and Turner (2012). Table 24 presents the ‘Programme Success Criteria’ and the codes used for each criterion that were identified by the researcher.

Programme Success Criteria	Code
Business success	Achieve vision, mission and strategic objectives, benefit (continuous supply of water to meet the demand), reputation, strategy and operation, revenues, reliability
Stakeholder satisfaction	- <u>Internal Stakeholders:</u> Employees, directorates and departments - <u>External Stakeholders:</u> Consultants, contractors (gaining trust), customers/consumers, customer satisfaction and customer happiness.
Programme efficiency	- <u>Efficiency Indicators:</u> Time, cost, quality/specifications, functionality/operation

Preparation for the future	Introduce innovation and new technologies, Change the way of doing business
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Social effects	Happiness
Programme team	Teamwork and coordination

Table 24: Codes of Programme Success Criteria for Each Interviewee

Business success

Business success is seen differently by different stakeholders. It is translated into a number of things namely achieving strategic objectives drawn from the vision and mission of the organisation as well as other significant elements such as revenues, reputation and reliability.

With the interviewees for the ‘Water Programme’, business success meant achieving strategic objectives, including providing ‘good’ water for the customers. There was a consensus amongst interviewees that for them achieving strategic objectives was crucial. In fact, to achieve a strategic objective meant success. A Manager, for instance, stated that ‘Benefits are that we build our assets to serve the customers and to help achieve the vision and mission and strategy of FEWA....Yes, these benefits achieve strategic objectives and the vision’ (Participant 7). His words were echoed by a project manager who held strongly that ‘Providing potable water service, more of it, is one of the strategic objectives of FEWA’ (Participant 8). A regional chief engineer conveyed a deeper insight related to the meaning of success:

We are developing the infrastructure for the whole country, so as a country we are gaining better infrastructure; as FEWA, we are gaining better reputation, customer satisfaction, and whatever income... financial income... of course it has to have a tangible benefit, it has to be feasible ...you understand...feasible from an economical point of view, we are not wasting time and money (Participant 4).

Other interviewees from the Generation & Production Directorate who are responsible for building water production desalination plants provided similar accounts confirming that business success is through producing water and generating power to meet the increasing demand by customers. This fact was expressed by a participant at the managerial level working in the Engineering Projects Section who stated, ‘Our projects strengthen the water production capacity and electricity generation to cater the demand and satisfy the consumers’ (Participant 6). Similarly, an interviewee at an executive level explained the benefits as: ‘Meeting customers’ needs, extension of water network to reach to all customers, increase of storage tanks to meet the storage requirement, reduce water losses...’ (Participant 2).

The researcher through reviewing the documents found that providing sustainable services is addressed in FEWA’s strategic objectives, operational and business plans. It is also relevant to mention that the researcher observed that there is a sense of value for the customers and their happiness/satisfaction through providing distinctive services.

To sum up, business success is certainly considered as a success criterion for FEWA’s ‘Water Programme’. However, business success, according to FEWA’s programme managers and leaders, means mainly achieving benefits, creating a return on value, and achieving the vision and mission. Successful programmes meant also the successful creation of value for citizens. Undoubtedly, there is a strong culture of business success

translated into benefits that citizens can use and leverage. The researcher could sense the culture of value for customers and for the UAE, whether it was present in the words of the participants, embedded in the objectives of business cases and other documents, or even during different meetings she had attended as an observer. To sum up, programmes are led by the desire to make the UAE a better country for its citizens and residents.

Stakeholder satisfaction

Stakeholders are considered here as all parties that can affect or be affected by the programme. Managing programme stakeholders and getting them engaged are considered crucial to programme success. FEWA's programmes have a high number of stakeholders that belong to multiple environments and have a variety of levels of influence. The interviewees working on this programme clearly classified stakeholders into internal and external ones. Internal stakeholders, they explained, are all of FEWA as an organisation which include directorates, departments, and staff, while external stakeholders are customers, contractors, consultants, suppliers and local government entities. In the following comments, the interviewees mentioned some of many stakeholders that can influence directly the programmes, and specifically the water programme at FEWA. According to a director from the 'Water Directorate', the list is very long, but the following are the most significant ones:

Internally, Departments (Projects, Operation & Maintenance, Purchase, Contracts & Stores) and externally: contractors, customers, governments bodies such as Sheikh Zayed Housing Programme & Ministry of Infrastructure Development/ previously known as Ministry of Public Works (Participant 3).

A similar answer was given by a manager:

Internally: Water Production Department, Electricity & Water Directorates & Finance & Purchase Departments. Electricity & Water Directorates prepares the demand and support in power & water supply. Asset department analyze the existing resources, import and recommend the planned projects; externally: consultants, contractors & suppliers. (Participant 3)

Other interviewees from the Projects Department provided limited and more focused answers:

FEWA, Water Directorate, Contractor, For me I consider the FEWA local area as a stakeholder because they will be the one to receive this project to operate later, the central area, north area, offices, ... 6 area, like the operation and maintenance and service, they will use this and customer service. (Participant 8)

Although stakeholders are classified and repeatedly mentioned, their satisfaction was not seen by interviewees as a success criterion. All interviewees have emphasized the importance of customers' satisfaction and only one of them at the director level highlighted the importance of the contractor's satisfaction during projects: '....in addition to the contractor's satisfaction during the project' (Participant 3).

Based on the interviewees' comments, it is clear that most of them were aware of their stakeholders and classified them into internal and external ones. However, satisfaction was only mentioned in relation to customers/consumers and only one participant mentioned contractors' satisfaction. During the review of different documents, the researcher found that there was no structured approach or methodology related to managing stakeholders. Furthermore, no existing mechanism was applied to measure satisfaction of contractors, suppliers or any other stakeholder (except for customers and employees that is completed under direct supervision by The UAE Prime Minister's Office). This could be a potential explanation and a root cause for the way communication is carried out between various internal stakeholders, such as

directorates and departments, or even with external stakeholders. For instance, obtaining exact dates for blocks removed from a specific site from the ‘Generation & Production Directorate’ can prove to be a difficulty. Similarly, waiting to obtain an approval from the ‘Water Directorate’ for a pipeline can be quite a challenge. Furthermore, the researcher observed, during the informal discussions among the top management team, that it is known that most of the problems mentioned earlier result from lack of adequate communication with the programme’s stakeholders.

In summary, one can conclude that engaging or working closely to gain stakeholders’ satisfaction is not considered as one of the success criteria for this specific programme.

Programme efficiency

Building on previous research by Shao (2010), efficiency is considered as a programme success measure using indicators such as time, cost, and functionality. All of the interviewees mentioned the importance of these indicators. The researcher found that the following remark on programme efficiency from a manager from the ‘Generation & Production Directorate’ was comprehensive and informative in terms of representing the overall perspective:

Time is extremely crucial.... achieving the project deliverables in accordance with standards, codes, specifications and common engineering practices within the planned cost and time and specifications. Producing water in accordance with the specified specifications by WHO, GCC/UAE and FEWA’s specifications and guidelines... producing the specified granted water capacity within the planned schedule & allocated Budget OPEX and CAPEX. (Participant 6)

In fact, the words ‘time’, ‘operation’, ‘quality’ are often repeated in these interviews. ‘Functionality’ is either mentioned directly or indirectly. An executive director

articulated and explained success as: ‘Achieve the main objective of the project according to time and quality, operation, maintenance, reliability...good specifications as per the best international standards and practices.’ Others provided more limited and focused answers. The following excerpt is drawn from an interview with a participant at a managerial level from the ‘Operation and Maintenance Section’:

Effectively and efficiently operating, achieve the goals of the programme with minimum problems, providing continuous supply of water to customer as per the standard/quality & quantity with minimum cost of production... customers receive the service water with minimum shutdown of plants with high quality and quantity of water (Participant 9).

Overall, the group of interviewees shared the same views in relation to the importance of the triple constructs (time, cost & specifications/quality) to the programme. They seemed particularly driven by time and budget. Though, reviewing the minutes of meetings of the ‘Variation Orders Committee’ by the researcher revealed that some projects under the programme underwent delays and exceeded the allocated budget; for example, the RO desalination plant in Ghalila, RAK. In general, the researcher observed that delays are seen as a normal practice and will be approved by the concerned committees. Officials at the top management level refer such delays to the lack of communication with stakeholders and some incompetent staff who are managing the projects.

Preparation for the future

Preparing for the future is another success criterion that involves indicators related to being proactive towards how the future might be. It includes changing the ways of doing business through adopting new business models, using new and innovative technologies, and doing extensive capacity development. Actually, only two

interviewees mentioned these indicators. Of the two interviewees who talked about preparing for the future as a success criterion of programme success, only one was especially explicit about the concept. He highlighted the importance of introducing innovation and advanced technology, ‘Introduce innovation and latest technologies to ensure long lasting qualities and life cycle equipment and reduce power consumption’ (Participant 2). Other interviewees were mostly concerned with doing what it takes to meet water future demand (millions of gallons) as reflected in the following account:

...required quantities to achieve required storage levels...quantities pumped, ... reach the future extension, I mean we have 18 transmission projects of 18 million gallon/daily, however, the designing phase is based on 40 million gallons to meet the future demand (20-25 Years) (Participant 3).

It is worth mentioning that FEWA’s projects depend on forecasting; the future is embedded in the nature of the work. Interviewees talked about the ‘continuity’ of electricity and water services which requires employees to think about the future. Ideas related to innovation in doing business were provided by interviewees holding top management positions. Others from operational levels talked more about providing the service to customers without interruption to achieve their satisfaction, and occasionally “happiness” was mentioned. Additionally, through reviewing the documents the researcher found that the ‘Asset Department’ conduct demand forecasting studies and set expansions plans accordingly. It has also been observed that the top management team are keen to improve the services and ensure its sustainability for future generations.

Social effects

The social impact on both citizens and residents of the UAE is of special importance to the government since it is keen on promoting happiness. The interviewees did not explicitly express their commitment to the quality of life, rather they mentioned the provision of services according to specified standards and achieving high levels of customer satisfaction and happiness. Happiness was related to water consumption. None of the participants clearly articulated ideas on the quality of life and social benefits, although, these concepts are embedded in some of their interview discourse. Moreover, 'improving the standard of living' is clearly stated in FEWA's vision and mission. A set of KPIs are developed to measure the quality of the provided services. The researcher has also observed that instructions are given to all staff to solve customers' complaints and issues related to service disruptions. Employees are striving to achieve customers' satisfaction and happiness.

Programme team

Though the programme team is an important criterion and is vital in programme success only few participants clearly stated its importance in relation to programme success as stated in these phrases: '...teamwork, experience, coordination' (Participant 2). The team was emphasized directly by another interviewee, 'Project management success criteria related to the project team professional job of running the project' (Participant 6). From a more specific point of view, an interviewee described it as both a success criterion and factor: 'The current situation, the process lacks coordination between the concerned units and it is required to form a team and involve 'Operation & Maintenance' from the beginning of any project...' (Participant 9). At the time of interviews, there was no structured approach for managing teamwork. It has been

observed that only a few of the teams are successful. The same members are always selected and teams are rarely rewarded which makes employees unwilling to participate in teams. In other words, such participation is considered as an additional workload without rewards.

Programme Success Criteria: Conclusion

Interviewees expressed the idea of business success in the ‘Water’ programme which aims to achieve its strategic objectives through providing water to FEWA’s consumers. They also emphasized the importance of all efficiency indicators especially ‘time’, ‘specifications/quality’ and ‘functionality/operations’. Though cost was mentioned as a success criterion, projects under this programme exceeded the allocated budget/cost which was verified by the researcher through information obtained from the minutes of the meeting of the ‘Variation Orders Committee’. The quality of life and the impact on society is another programme success criterion which was indirectly mentioned by participants through providing the service which will result in achieving customer satisfaction but it was not clearly stated by interviewees. In other words, ‘being happy’ involves high levels of quality. In relation to stakeholders’ satisfaction, only customers’ satisfaction is considered and was mentioned by all interviewees. Other stakeholders are not considered in this programme. Finally, the programme team is another criterion that does not receive enough attention in the ‘Water Programme’. Only two interviewees emphasized its importance. The results of the ‘Success Criteria’ are summarised in Table 25 as based on the source of information:

Success Criteria
Business success

Interviews	- Participants have expressed the importance of business success through achieving benefits, vision & mission, and creating return on value.
Review of documents	- Providing sustainable services is explicitly addressed in FEWA's strategic objectives, operational and business plans related to Water and G & P Directorates.
Observations during meetings and discussions (formal & informal)	- There is a sense of value for the customers and their satisfaction/happiness. Leaders and employees all emphasize the importance of their roles in FEWA that would result in providing distinctive services to their customers.
Stakeholders satisfaction	
Interviews	- Stakeholders were clearly identified and classified (Internal & External) by all participants. Their satisfaction was rarely stated by participants.
Review of documents	- There is no documented & structured approach related to manage the relationship with FEWA's Stakeholders.
Observations during meetings and discussions (formal & informal)	- Almost all participants talked in a superior way about their stakeholders based on the fact that FEWA is a government entity. - It has been mentioned during informal discussions that all problems related to the lack of communication with stakeholders "we don't sit with them".
Programme efficiency	
Interviews	- All participants mentioned the importance of the 'Iron Triangle' (time, cost & quality/specifications).
Review of documents	- Minutes of meetings of the 'Variation Orders Committee' showed exceeding time and budget/cost.
Observations during meetings and discussions	- It has been observed that exceeding time (and budget sometimes) are a normal result and members expect to get committees' approval for them since they have the justification.

(formal & informal)	- All matters related to delays are discussed and referred to the lack of communication with stakeholders or to the incompetent employees handling the project.
Preparation for the future	
Interviews	- Expressed by most participants in order to meet the increase in water demand.
Review of documents	- Demand forecasting studies. - Strategic & operational plans are developed for 3-5 years.
Observations during meetings and discussions (formal & informal)	- Participants and especially the top management are keen to improve the services provided to FEWA's customers. - Almost all informal discussions related to services focus on how to ensure sustainable services to meet the growth in the Northern Emirates.
Social effects	
Interviews	Not clearly expressed by participants.
Review of documents	- Clearly stated in FEWA's vision and mission. - There are a set of KPIs to measure service interruptions.
Observations during meetings and discussions (formal & informal)	- The top management team and the concerned employees are serious in solving problems and complaints related to services' disruptions. - Instructions are given to all employees to solve disruption and provide services to avoid complaints by customers and to achieve their satisfaction/happiness.
Programme team	
Interviews	- Only few participants mentioned the importance of programme team as a success criterion.
Review of documents	- During the time of interviews there were no criteria for selecting team members. Recently, a structured documented methodology that organizes teamwork has been developed recently. However, it is not yet considered by the directorate.

Observations during meetings and discussions (formal & informal)	<ul style="list-style-type: none"> - Almost all business units work in silos. - Teams are formed with almost the same employees/members. - The top management gives opportunities to potential employees and encourage their involvement. - Only few teams are successful and referred to the team leader. - Employees are looking for rewarding system for participating in teams.
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Table 25: Case Study (1): Summary of the Results (Success Criteria) According to the Source of Information

5.4.2.2 Programme success factors

Programme success factors refer to the different elements that can be influenced to increase the chance of achieving successful outcomes (Shao, Muller & Turner 2012). The researcher asked interviewees for the critical success factors in the ‘Water Programme’. The coding method conducted was similar to the one with the success criteria, based on the factors identified by Shao and Muller (2012). Codes for each interview are shown in the following Table 26.

Interviewee	Programme Success Factors
1	Knowledge, technical expertise, contractors, communication and coordination with local government departments, tendering process, competent project manager to manage time & risk

2	Good communication and networking, availability of capable employees, teamwork, good project manager capable of managing and making decisions, technical experience
3	Having the right people, budget, competent contractors
4	Availability of technical staff, budget, risk management
5	Technical knowledge and capabilities to manage project, communication skills, support from all concerned parties
6	Available resources (tools & equipment/ tankers/networks), experienced and knowledgeable employees, time, budget
7	Good planning, contractors, employees' capabilities, local authorities, support, (communication & coordination), close supervision and monitoring, availability of tools and materials to execute projects
8	Experienced team, good management & supervision, share experience, good communication, work as a team (trust & confidence), cooperation by the local governments (have all the required preliminary NOCs)
9	Effective planning, monitoring, communication, coordination, risk management & mitigation, time & budgeting management, lesson learned, decision making.
16	Communication with contractor, technical knowledge, decision making

Table 26: Codes of Programme Success Factors of Each Interviewee

The categories for programme success factors were identified by constantly comparing codes. In order for the researcher to gain an idea about the frequency and importance of the factors, she documented the number of times each factor was mentioned during all of the interviews. The results are shown in Table 27 below.

Success Factors	Frequency
The availability of knowledgeable employees or technical expertise	8

Communication/networking (internal stakeholders and external stakeholders, government authorities, contractors, etc.)	7
Skilled programme manager (manage project, good supervision, manage time, budget and risk, effective planning)	6
Good planning & close supervision and monitoring (Process)	4
Team (trust & confidence)	4
Risk management and mitigation	3
Availability of budget	3
Availability of equipment/tools/materials	3

Table 27: Critical Success Factors - Frequency of Mention by Interviewees

Knowledge and technical expertise

Through a thorough analysis of the interviews, and review of documents such as staffing assignments and resource calendars, the researcher noticed an important element that was mentioned repeatedly by the participants, which is having talents with the required knowledge and expertise. Every interviewee stressed the importance of having people with the right competences. It was found to be crucial, specifically with the new technologies in water projects. These technologies require specific knowledge and skills to operate and manage that are not available among the existing FEWA staff, as was stated by a member of the top management staff:

Definitely. I will give you examples/situations...of factors which contribute to project success...the availability of local expertise. Some projects require technical expertise that is not available in the local market, in such cases we need to get them from abroad which results in delaying the project (Participant 1).

Interviewees offered other instances where lack of expertise has a direct effect on programme success: ‘The application (MS Project) used to manage projects is too

simple for such complex projects'. Some interviewees have mentioned that due to their long job tenure in FEWA, some team members do not feel compelled to acquire new competences and do not want to change the way they are doing business. The researcher observed that the top management team depends on staff who have been working for years in FEWA and are well experienced in the types of water projects. There is no knowledge management approach that ensures the transfer of knowledge among employees especially their tacit knowledge. Furthermore, the researcher observed a dominant blaming culture among different levels; employees blame 'Training Section' for not providing technical training, top line managers blame 'Talent Acquisition Section' for not providing them with capable and skilled employees.

In conclusion, knowledge and expertise was not only an important factor, it was the one most frequently mentioned in the data for impacting on programme success.

Communication

Communication across projects and in programmes is another important success factor which was mentioned repeatedly by interviewees. There is a general sense that communication does not flow as smoothly as it should. The reason behind the ineffective communication, both at internal and external levels, might be related to the fact that stakeholder satisfaction is not necessarily seen as a success criterion by the programme managers. There is also the problem of the absence of a stakeholder management system. Internally, departments and staff work in silos. Externally, there is no coordination between FEWA and its numerous stakeholders especially those from other local government entities operating in the Emirates where FEWA operates. This

lack of communication has a negative effect on FEWA's operations which in turn result in additional costs and delays in projects. Even some very crucial requirements or elements might be communicated quite late in the project as it is recounted in this situation that was explained by an interviewee from the top management team:

Changes/ modifications in standards before and during the project (Civil Defense). I will give you an example: An approval was given by the Civil Defense in the design phase, but the Water Tanks standard/ Fire Protection was changed during the Tendering process (2 hours tolerance instead of 1). The difficulty we face in such cases is related to the availability of areas to expand the Tanks. This case happened 5 or 6 times (Participant 1).

Moreover, another member of the top management team during a meeting which was attended by the researcher stated that one of the reasons for programme delay can be directly attributed to the problems in communication existing between the FEWA team and the programme contractors. A general observation by the researcher, being a member of the organisation, is the delay in responding to correspondences. Employees do not respond until the matter is escalated to the top management or up to a higher level. The problem is known by everyone in FEWA and referred to as part of the organisational culture but no serious actions are taken to prevent it.

In conclusion, and according to the participants and findings drawn from meetings and documents, this lack of communication has proven to be detrimental to the success of projects, and in turn to the success of the water programme.

Leadership skills of programme manager

In the interviews and through observation of informal meetings and discussions, the researcher found that leadership skills of programme and project managers were

mentioned by the top management as the main reason for delays in managing the water programme.

Having a skilled programme manager is the third highest in frequency of mentions as a success factor. It was mentioned six times either directly or indirectly. The importance of the manager and his/her influence on the programme's success was emphasized by the top management team. The following excerpt from an interview with a member of programme management is quite revealing:

...To a high extent... all projects require to have a holistic view over them instead of getting involved into details and the text book. If we talk... the knowledge about the project, time management...something very important is the coordination, by means the control over his team and the team working with the contractor and or the consultant. His ability to measure the risks on the projects with timely intervene. I mean if he senses a delay in the project, he should take a proactive step. To a high extent. All projects require to have a holistic view over them instead of getting involved into details and the text book (Participant 1).

According to the participant, a good programme manager is someone who knows where their project(s) is/are at, who can facilitate coordination and some level of control over the team. It is also someone who can monitor the people working with contractors and consultants, who is a good risk manager and who has a proactive attitude. All of these are crucial leadership skills that are not directly connected to technical skills or competences.

Some other leadership skills were clarified by another participant, noticeably focusing on stakeholder management and the ability to influence others. He stated when answering a question related to the role of the programme manager and his contribution to programme success:

...to a large extent. If he has remarkable negotiation capabilities and skills, many problems and issues with the government bodies will be solved. The same applies to people and end users and the ability to influence the top management (Participant 3).

Here, there is direct mention of negotiation skills as well as the ability to reach positive outcomes through good stakeholder management and engagement.

As far as the programme and project managers are concerned, it is apparent that interviewees have stated the importance of communication skills, resource management, and project management skills, as well as technical experience to execute similar projects ('...good knowledge of resources used 'pipes, etc. in projects, these are major competences'). Some also talked about decision making, teamwork, contributing to the development of oneself and others and leading changes. Change Management skills were also mentioned by several interviewees.

Through reviewing the documents, the researcher found that 98% of FEWA's jobs have clear descriptions of roles and responsibilities including those of programme and projects managers and engineers. Statements of behavioural competences also exist in the 'Competences Dictionary'. Competences are added to the job descriptions according to the required level. The researcher felt that based on her observations the programme manager of the 'Water Programme' lacked problem solving, decision making and communication skills. It is also significant that almost all discussions related to the existing problems within this programme are referred to the programme manager who is described as 'Incompetent'.

Planning and monitoring

This factor appeared to be crucial for the success of projects in this programme. Several interviewees mentioned that a structured methodology for planning and monitoring projects is not documented or taught to programme and project managers. In addition, the researcher attended meetings where committees often required clarifications on some very conflicting dates and subsequent extensions when the actual project or programme progress data was compared to what was planned. When participants were asked what methodologies/tools/techniques were used in FEWA to manage and follow programmes/projects during the various phases, their answers to this question indicated that there is no structured methodology that is known and practiced in FEWA to manage water programme. Most interviewees' accounts confirmed that there are only work processes and general guidelines. A very explicit response offered by a participant from the top management highlighted how the lack of known and documented methodology impacted significantly on the projects carried out under the water programme:

...there is a clear methodology but it is not documented. The decision-making process is known across various levels...if such methodology is documented, responsibilities and decision making will be identified...and authorities clear, meaning what falls within the scope of project manager and what is within projects' steering committee (Participant 3).

As shown above, the participant makes a direct link between the missing methodology and lack of clarity in roles and the decision-making process and levels. Other examples were offered. Some participants in charge of building water plants in the Generation and Production Directorate clearly stated that previously in the period during 2014-2016, there was no methodology. For instance, 'No project charter is used to monitor projects' time frame. We have lots of time variances' (Participant 6).

In addition, while reviewing project and programme documents, the researcher found that a large number of variation orders were issued for additional time extensions for projects. In real life, projects are often delayed; however, the number of variation orders seemed to be too high and the cost (sometimes) and/or (mostly) delays were often associated with importing (which can be extremely time consuming) and/or installing additional parts and devices required for water plants that should have been planned for and identified from the outset.

Although the budget was mentioned by interviewees as a success factor, it is worth mentioning that it is connected to the variation orders. It has been observed that some minutes of meetings of the VO Committee that were reviewed by the researcher show increases in projects' costs. This can be due to various reasons such as the inaccuracy at the planning phase of the projects, time extension due to delay in obtaining approvals by the local government, deviation in lines, etc. On the issues of planning and resources, an interviewee at a director level stated:

Plans are done based on unrealistic assumptions without considering other factors. These factors are related to obtaining 'No Objection' and approval from the local authorities. Another factor is the limited number of contractors who are capable of performing FEWA's projects in addition to the applicable regulations 'select the lowest price (Participant 5).

This last reference could be categorized under availability of resources; however, as it is seen as a constraint, planning should be done accordingly, and consequently, it can be seen as a planning issue.

Projects' teams

Teams is a success factor that was mentioned four times by interviewees most of them are from the top management. The interviewee from the O & M Section drew attention to the importance of team/committee and its contribution to the success of water projects especially when they enter into the operation phase. He stated that:

We need to have technical committee for evaluation, which involves all the concerned departments namely: (Asset, Projects and Operation and Maintenance) to set specifications. The aim is to discuss the requirements on scientific base. This would contribute successfully to the planning phase and would reflect on project's success (Participant 9).

Teamwork seems to be an issue across programmes at FEWA and participants were aiming to achieve improvements in better coordination, collaboration, and synchronization. At the time of the interviews there was no structured approach implemented to manage FEWA's teams. This indicates that there is no specific criteria for selecting team members. As a result, most of the members do not add value and participation is limited only to a few members.

Risk management

While somewhat tentatively mentioned, risk management is documented and was present in the analysis. Risk was associated with time, cost, materials and working in various locations across the Emirates. An interviewee stated that in spite of documenting the potential risks related to projects, there were no scenarios and mitigation plans that were developed to be used in cases when those risks occurred.

Availability of material and equipment

The availability of materials and equipment is certainly an essential success factor as it is commonly known that availability of resources is directly connected to the flow of activities counted for in the schedule, especially in water programmes. In the following comment, the participant presents a comprehensive scenario to show how critical the availability of resources is (which is often connected to contractors having the required resources) and how easily resource problems can delay a programme component:

Because we know that there are material in the project, so we advise them to manage them immediately from the beginning that leaves a small chance for missed delivery of material although there are cases when during the manufacturing process some problem occurs in the plant itself. For example, during test of one pump, the propeller, the one that is rotating, it is scratching the walls, so they have to be returned back to manufacturing. that would set back the delivery period...we send some people for Inspection, to check and accordingly ask for the shipment to come after successful tests but sometimes this happen even when you send somebody there. They will send it back to the production line, that means whatever is consumed in the production time, will again be added to the delivery schedule. That we cannot do anything because this is out of our hands (Participant 8).

Leadership style and competences

Leadership competences have increasingly been put under scrutiny across the world as change, projects, and programmes are complex and require a set of competences that engage and lead teams in performing challenging work facing all types of constraints. In this thesis, the interview protocol included four questions to identify the importance of leadership skills and competences and their effects on the programmes' success. In addition to the leadership skills and competences mentioned in an earlier section around success factors, such as negotiation and decision-making skills, the researcher was able to draw some conclusions about the preferred leadership styles in connection with programme management.

In the interviews, through four different questions, the researcher asked candidates about leadership styles and whether they were connected with the type of programme/project. A manager from the G & P Directorate provided an explicit answer which reflects how managers adapt their leadership style to the type of programme. He stated: 'We adopt the leadership style to suit the programme in view of risk level. For example, in case of military programme, democratic does not fit. The same in case of tagging out/in of high voltage programme' (Participant 6). This answer suggests that the leadership style is influenced by the programme type, while considering the level of risks involved, as communicated by the participant.

Another interesting finding noticed by the researcher is: the leadership style was not only connected to the type of programme, but also to the type of human resources or people working on the projects and programme. The connection between the leadership style and whether the team members were white or blue-collar workers was mentioned in the following comment in one of the interviews:

It does, resources or people involved in a project will influence what leadership style you should apply. For example: if you are mostly laying pipes, then this is done by laborers so you have to be more autocratic on dealing with the. But if the project is instrumentation, where most of the people are technical, professional and experts, you should be more democratic with them and sometimes also when the contractor is very good, let them do what they want and not interfere too much in their execution. (Anonymous identifier required here; I hope it isn't (Participant 7).

On this topic, a manager mentioned that:

Normally we use two types. If for experienced people, it is the consensus type and discussion and take the opinion from all people and reach a consensus on the best way to execute the project. If with new people, you take the coaching style to guide them to execute the project. We have never used an autocratic style. It is only used when

the project is in a deep trouble (not achieving any thing) drastic decisions are required...but this is very rare. Other than this in FEWA consensus and discussion are used because our people are experienced. We use coaching with new recruited employees/Emiratis to train them (Participant 7).

In the comment above, the researcher was able to isolate two important elements: the leadership style of the programme manager that was influenced by how experienced (or not) the people or team members were and the status of the project or programme component. This seems to align with contingency theory that identifies mainly task-oriented leadership style as well as people-oriented leadership style with the first often being recommended as appropriate for a state of crisis.

Besides the findings related to the leadership skills and competences of programme managers, the researcher requested the interviewees to rate the importance of leadership competences based on the fifteen competence dimensions by Dulewicz and Higgs (2003). Accordingly, interviewees rated the importance of each of the fifteen competences from low to high. The competences are categorised into three groups, intellectual competences (IQ), management competences (MQ) and emotional competences (EQ) as listed in Table 28 below.

Leadership Competence	
Intellectual Competences (IQ)	
1.	Critical Analysis & Judgement
2.	Vision & Imagination
3.	Strategic perspective
Managerial Competences (MQ)	
4.	Engaging communication

5. Managing resources
6. Empowering
7. Developing
8. Achieving
Emotional Competences (EQ)
9. Self-Awareness
10. Emotional resilience
11. Motivation
12. Interpersonal sensitivity
13. Influence
14. Intuitiveness
15. Conscientiousness

Table 28: Leadership Competences Groups

In the analysis of programme managers' leadership competences, the interviewees rated them as shown in Table 29:

Competence	Frequency		
	Low	Medium	High
Critical analysis & judgment	---	1	8
Managing resources	---	1	8
Achieving	---	1	8
Engaging communication	---	2	7
Vision & imagination	---	4	5
Motivation	---	4	5
Conscientiousness	1	3	5
Strategic perspective	---	4	5
Intuitiveness	2	2	5
Developing	---	4	5
Influence	1	4	4

Self-awareness	---	4	4
Empowering	---	6	3

Emotional resilience	4	5	---
Interpersonal sensitivity	5	4	---

Table 29: Competences - Frequency of Mention by Interviewees

The results show that most important leadership competences for programme management are namely: ‘Critical analysis’ & judgment’, ‘Managing resources’, ‘Achieving’ and ‘Engaging communication’ while the least important competence is ‘Interpersonal sensitivity’. These competences fall under the IQ and MQ groups of competences. The reason for these priorities may be due to the complexity of the water programme and its projects which require higher level of leadership competences in IQ and MQ. Another important finding is that under the EQ group of competences, ‘Motivation’ was the most important competence needed for programme managers. In addition to the above, and as an observer, the researcher has sensed a problem with taking decisions by both programmes’ sponsor as well as programme’s manager. All issues will be escalated to the top management and the ‘Steering Committee’ for final decisions.

Programme success factors: conclusion

The researcher’s opinion is that this research has uncovered some of the critical success factors for FEWA’s water programmes. The availability of knowledgeable, technical

expertise, communication and experienced programme managers are found to be the most important success factors for the ‘Water Programme’. Further, the leadership style and required competences were also identified for this type of programme. The following Table 30 summarises the results of this section as per the source of information:

Success Factors	
Knowledge & technical expertise	
Interviews	<ul style="list-style-type: none"> - All participants stressed the importance of having people with the right knowledge and technical experience in the field and related technology. - Few employees talked about the importance of having enough number of employees which would affect the success of the programme. (Quality & Quantity).
Review of documents	<ul style="list-style-type: none"> - At the time of the interviews, there was no technical training programmes as there was no structured & documented approach to identify training needs. - There was no policies to attract and retain technical expertise. - Departments’ HR needs were not met by the ‘Planning & Development Section’. - There is no structured and documented approach for knowledge management.
Observations during meetings and discussions (formal & informal)	<ul style="list-style-type: none"> - Executive directors, directors and managers depend on few experts in their business units and do not have any role to ensure and encourage knowledge transfer. - A blaming culture is dominant across different levels. - Blaming the HR department for not providing specialised training. - Blaming the HR Department for not recruiting and attracting talented expertise.
Communication	

Interviews	- Almost all employees have mentioned the inefficient communication, internally (across employees & business units) and externally (with FEWA's stakeholders).
Review of documents	- Internally, there is no documented policy, mechanism or plan that organizes communication. - Externally: There was no structured and documented approach to manage relationships with FEWA's stakeholders.
Observations during meetings and discussions (formal & informal)	- Responses to various internal and external correspondences, inquiries and e-mails are always delayed. - Employees will not respond till the issue is escalated to the top management or to a higher level. - The problem is known and admitted by everyone in the organisation, but no serious actions are taken. 'It is a culture' always stated by employees from different levels especially the management.
Leadership skills of programme manager	
Interviews	- Almost all participants from the top management emphasized the importance of having a skilled project and programme manager as a success factor.
Review of documents	- FEWA has job description for almost 98% of its jobs including all positions of 'Projects Department'. - Although, 'Competences Dictionary' exists, all the existing projects and programme managers were selected without considering the required level of competences
Observations during meetings and discussions (formal & informal)	- Programme/project managers lack problem solving and decision making skills. - Avoiding communicating with others especially if the topic is about Water projects; which indicates lack of confidence. - All informal discussions related to 'Water Programme' reflect that the existing problems within the Projects Department' is related to the Director who is described as 'incompetent'.
Leadership style & competences	

Interviews	<ul style="list-style-type: none"> - Participants stated that the style depends on the type of programme as well as the type of people working on the programme (white vs blue collar). - Due to the complexity of the programme, ‘Critical Analysis & Judgment’, ‘Engaging & Communication’, ‘Managing Resources’ and ‘Achieving’ are the most important leadership competences for managing programmes successfully. These fall under the IQ & MQ. - The least important competence is the ‘Interpersonal Sensitivity’.
Review of documents	<ul style="list-style-type: none"> - The job descriptions specify the required leadership competences.
Observations during meetings and discussions (formal & informal)	<ul style="list-style-type: none"> - There is a problem with taking decisions by both programme sponsor and programme manager. All issues are escalated to the top management and the ‘Steering Committee’. - Programme’s manager is over confident with arrogant behaviour. - Incompetent programme manager is the main reason for the issues (delays, over cost) in water projects.
Planning & monitoring	
Interviews	<ul style="list-style-type: none"> - Missing methodology & lack of clarity in roles & decision making process and levels.
Review of documents	<ul style="list-style-type: none"> - Absence of documented methodology for planning & monitoring projects. Instead, working processes & general guidelines. - Minutes of meetings of the VO Committee resulted in issuing variation orders for additional costs of delayed projects.
Observations during meetings and discussions (formal & informal)	<ul style="list-style-type: none"> - Clarifications were often required by the VO Committee on conflicting dates & subsequent extensions.
Project’s team	
Interviews	<ul style="list-style-type: none"> - Emphasised by interviewees at different managerial levels as an important success factor.

	- More coordination and participation by the concerned people are required to avoid problems & issues during the operation phase.
Review of documents	- Membership of the 'Technical Evaluation Committee' does involve the concerned employees from the O & P Section. - No structured approach for managing teams.
Observations during meetings and discussions (formal & informal)	- No specific criteria for selecting members. - Usually few members add value to the team.
Risk management	
Interviews	- Tentatively mentioned.
Review of documents	- Potential risks are documented without proposing mitigation plans.
Observations during meetings and discussions (formal & informal)	---
Availability of material & equipment	
Interviews	Interviewees emphasised the importance of this factor.
Review of documents	Mentioned in the minutes of meeting.
Observations during meetings and discussions (formal & informal)	----

Table 30: Case Study (1): Summary of the Results (Success Factors) According to the Source of Information

5.3.2.3 Programme context

Programme context is addressed in Section (V) of the interview protocol and consists of three questions that aim to investigate the external and internal factors which influence the success of programmes and how its influence varies according to the type of programme and whether the programme manager can influence those factors.

In this thesis, programme context covers a number of things, such as connections with other government entities and their influence, type or typology of the programme, the governance structure of the programme, and the decision-making levels.

External influences (political environment)

In FEWA's programmes, a number of government entities must always be taken into consideration. All interviewees mentioned local government entities in the Emirates in which FEWA operates as the main factor that influences water projects and overall programme success. These entities include, for instance, municipalities and public work bodies. In this area, a chief engineer made a direct connection between FEWA's programmes and the strategic directions of local governments, rules and regulations:

Usually it is the 3rd party concerned with the NOCs. Municipalities are too slow and delay our projects. We go back to the lack of communication and coordination related to Master plans. FEWA should be part and involved in setting the Emirate's Master plan (Participant 4).

The State direction is another factor that has an influence on the programme's capacity.

Almost all interviewees stated the following as real cases that they had to face which had a direct influence on the cost of projects:

...the State's direction and instructions might have such influence; for example, the instruction related to Connections to AlMadam Area added 15% to the project and the resources changed accordingly. The same apply to providing the service to The Emirate of Um Al Quwain...previously we served only 5 areas, now it's grown to 6 areas (Participant 3)

The changes in the State's direction results in changing and modifying the internal policies and regulations such as (Revenue Policy)...ceasing connections to commercial and investment sector and resuming connection to all categories... these regulations resulted in change in projects' capacity (Participant 5).

When reviewing the related documents, the researcher found that meetings with the local entities are not regularly held and followed up. FEWA does not have a structured approach that manages its relationship with its stakeholders in general and with its strategic partners in particular.

Other interviewees from the Generation & Production Directorate, mainly responsible for building desalination plants added the 'environment' factor that affects the success of water projects and its importance: 'We need to have studies on environmental impact analyses' (Participant 6). Another environmental aspect was mentioned by the O&M manager: 'The location of the plant shallow water, sewage... this all can be considered during the planning phase' (Participant 9).

All of the above are types of influences that the political or environmental context might have on the success of the programme.

Internal influence

FEWA structure

FEWA's organisation structure could also be one of the factors affecting programmes and projects. There is a separate project department/section in each directorate (Water, Generation & Production). Through the review of documents, the researcher found that the existing structure is a result of the restructuring which took place in 2010. Prior to this, all projects were under one business division which was named 'Planning Section'. Interviewees from the G & P stated that this structure has a direct impact on communication among the relevant business units. Consequently, every department works in isolation of the others. Further, problems arise when projects are operationalised as the concerned people were not involved during the planning phase, as was mentioned earlier.

Governance

FEWA has structured and documented governance system. Only one interviewee made a distinct criticism and offered a proposed solution: 'It needs to be reviewed. Members of the Steering Committee should have technical, financial & legal experience. Everyone should provide his/her views related ONLY to the area of experience' (Participant 6).

It is important to mention that governance is critical in the context of programmes. Programme managers have some authority, regular meetings to monitor and control projects during their lifecycles, but they do not take some decisions although they are said to be given 'full authority'. It has been observed that almost all critical decisions will always be taken by the Director General of FEWA at the Projects' Steering Committee. This authority relates to the high cost of projects (hundred million dirhams), and most important is also motivated by the fear that many employees have of taking responsibility due to regular audits made by the government. This decision making approach might also be due to the fact that very often, the manager lacks confidence and technical knowledge. Moreover, in reviewing interviewees' personal information, the researcher found that none of them have professional qualifications in project or programme management. It does not seem like programme managers are selected or assigned according to their professional credentials in programme and project management, a factor that might have significant impact on the success of programmes, as a lack of confidence and even apprehension in decision making often results from this lack of credentialed, "documented" competence.

Programme type and typology

The interviewees' answers varied when posed the question 'In relation to the external factors and their influence on programme success, how does the influence differ by different programme's type'? Few said that there is no difference while others stated that it depends on the nature of the project. For example, a senior project engineer shared the following:

For example, there is no much problem with the local authorities when you construct tanks because normally tanks are situated in FEWA

owned property. ... For pumping stations also it is confined area, you don't get objected by the residents. Other factors affect other projects like the typography... are allocation sensitivity" (Participant 8).

Similarly, the interviewees from the 'Generation & Production Directorate' stated that 'It depends on type and purpose of the project' (Participant 9). Another interviewee from the same business unit stated:

Based on the programme nature, the impact weight of each external factor will be different. For example, for water project, the impact of environmental change in seawater quality is very high where in case of electricity is much less comparatively (Participant 6).

The minutes of meetings show that issues are only related to projects that require NOCs by the local government. There is no mention to other types of projects which indicates that external factors have no influence on the success of the projects that are constructed within FEWA's owned properties, although such external influences were mentioned by the quoted interviewees.

Influence of the Programme Manager

When investigating the extent to which programme managers can impact programme success, consistent with the organisational context, some of the interviewees expressed the opinion that they had no or very limited influence on these factors. While others explained how they would be able to influence these external factors based on their negotiation skills:

To a large extent, if he has remarkable negotiation capabilities and skills, many problems and issues with the government bodies will be solved. The same applies to people and end users and the ability to influence the top *management* (Participant 3).

Another participant stated that: ‘If he/she, with coordination of programme team, have good technical experience in design to set the proper specifications. He/she can influence at the planning stage’ (Participant 9). Similarly, another participant stated that ‘he can influence by performing required initial studies and managing risk mitigation efficiently’ (Participant 6).

Programme Context: Conclusion

In conclusion, there was an agreed and shared perspective on how much influence programme managers can have on FEWA’s programmes. The following Table 31 summarise the results related to ‘Programme Context’ and its impact on programme success:

Programme Context	
External influences	
Interviews	<ul style="list-style-type: none"> - The lack of cooperation by the local government bodies have a negative impact on water projects and the overall success of the programme. - The absence of environmental impact analysis.
Review of documents	<ul style="list-style-type: none"> - Only few minutes of meetings with the local entities were shown. - There is no documented approach for managing the relationships with FEWA’s strategic partners.
Observations during meetings and discussions	<ul style="list-style-type: none"> - Departments do not regularly follow-up matters. This indicates unclear assigned roles and responsibilities. - The lack of cooperation shown by the officials from the local government entities was stated.

(formal & informal)	Many phone calls with officials to solve problems related to locations, approvals, etc.
FEWA structure	
Interviews	- Only participants from the G & P Directorate reflected on the impact of the existing structure especially during the operation phase.
Review of documents	- FEWA underwent a restructuring during 2010. Accordingly, separate projects departments were created. - Absence of communication strategy and plans. - Process manuals.
Observations during meetings and discussions (formal & informal)	- Lack of communication across FEWA and departments/employees work in silos. - Communication is a problem and many related matters are escalated to the top management.
Governance	
Interviews	- The governance system needs to be reviewed; the committee should involve not only technical expertise but also financial and legal.
Review of documents	- There is a structured governance approach that is documented and practiced. - Processes are documented, roles and responsibilities are clear.
Observations during meetings and discussions (formal & informal)	- Leaders of programmes do not take decisions and various matters are escalated to the Steering Committee and decisions are made by the DG. - The matter is raised and referred to the fear from taking critical decision that could lead to observations by the Audit State Bureau.
Programme type & typology	

Interviews	- External factors have influence on programme's success based on the type of the programme.
Review of documents	- Minutes of meetings
Observations during meetings and discussions (formal & informal)	---
Influence of programme manager	
Interviews	- Limited influence and negotiation skills may help only during the planning phase.
Review of documents	- Minutes of meetings VO Committee reflected the limited influence especially when it comes to issuing the NOCs. The problem remains and discussed in almost every meeting.
Observations during meetings and discussions (formal & informal)	- Meetings with local government entities do not solve the problems. - When escalated to the top management, usually, it is discussed with officials over the phone trying to reach a solution.

**Table 31: Case Study (1): Summary of the Results (Programme Context)
According to the Source of Information**

5.4.3 Case Summary

The 'Water Programme' is one of the core functions in FEWA. It runs through two main directorates namely: 'Water Directorate' and 'Generation & Production'. The main objective of this programme is to provide efficient, reliable and safe water

network with minimal water losses. This objective can be achieved through projects that enable FEWA to meet the increasing demand for water among the Northern region of the UAE. The programme includes several main and support projects such as water production, transmission/distribution pipelines, pumping stations, water loss studies. The outcomes of this programme contribute to achieving FEWA's strategic objectives. Through the review of programme's result related to the three-year strategic cycle (2014-2016), it was found that some projects within the programme were delayed which negatively affected the overall performance. The 'Water Programme' has been analysed based on interviews with key people, reviewing different documents in addition to observation. The analysis of the 'Water Programme' led to a number of findings related to the success criteria, factors, programme context, and the required competences of the programme manager. The researcher identified a focus on efficiency versus stakeholder satisfaction and a meaning of success which is strictly limited to alignment with achievements. In addition, the success factors and the competences are largely seen from an engineering or technical perspective. Participants most often talk about supervision rather than leadership or influence, and managers are selected according to their technical expertise and/or track record. In other words, the researcher identified a main phenomenon in managing the water programme, which is the focus on engineering/technical aspects of programme management. The managers are engineers, the competences which are most valued are technical, or related to critical problem solving, and even success factors outlined in this case are largely connected to the way engineers perceive and understand their work. However, the researcher does not claim that the same focus prevails in all types of programmes at FEWA as in the next case study, she investigates the electricity programme and delineates the similarities and identifies the differences with the water programme.

5.5 Case Study (2): The Electricity Programme

5.5.1 Case Narrative

The business of electricity is another core function in FEWA which operates through the Directorates of Electricity and Generation & Production. However, a strategic decision was taken to cease generation and rely on importing electricity from Abu Dhabi. The main scope of the business unit is to provide transmission and distribution networks of power to consumers through forecasting demand on the network, planning network expansion, executing projects, monitoring the demand, network control standards, proposing short-term operational strategy and generation, in addition to operation and maintenance of the network based on the standards (Business Plan 2014-2016). The outcomes of this programme contribute to achieving FEWA's strategic objectives namely: 'Provide distinctive level of water and electricity services', 'Efficient management of electricity demand to ensure provision of customer needs', and 'Rationalize water and electricity consumption to ensure sustainable development' (Business Plan 2014-2016).

During the (2014-2016) cycle, ten objectives were identified along with the main challenges as presented in Table 32 below.

#	Objectives	Challenges
1	Decrease technical and unmetered energy losses.	<ul style="list-style-type: none"> - Meet the growth in demand Minimize energy losses
2	Improve transmission and distribution network to reduce overloading and to meet future load demand.	<ul style="list-style-type: none"> - Meet the growth in demand - Ensure consistent availability of electricity & network coverage - Minimize energy losses - Reduce power overload & ensure power stability. - Improvement in overall network reliability & sustainability. - Meeting required resources & requirement of electricity CAPEX & OPEX
3	Implement efficient and cost-effective O&M plan to improve reliability of equipment.	<ul style="list-style-type: none"> - Meeting UAE standards & specifications.
4	Improve network reliability and performance.	<ul style="list-style-type: none"> - Ensure consistent electricity availability & network coverage. - Meeting operational & maintenance targets. - Improvement in overall network reliability & sustainability.
5	Implement quality asset management processes and policies that assist in making important decisions.	<ul style="list-style-type: none"> - Reduce power overload & ensure power stability. - Development of infrastructure assessment policies & processes for replacement of life-expired equipment. - Improvement in overall network reliability & sustainability. - Ensuring effective asset management for the efficient utilization of assets. - Meeting UAE standards & specifications.

6	Implement improved automation and control for transmission and distribution network.	<ul style="list-style-type: none"> - Ensure consistent electricity availability & network coverage - Reduce power overload & ensure power stability. - Implementation of transmission & distribution automation systems & communication network. - Meeting required resources & requirement of electricity CAPEX & OPEX
7	Upgrade operational and control communication network	<ul style="list-style-type: none"> - Meet the growth in demand - Implementation of transmission & distribution automation systems & communication network. - Meeting required resources & requirement of electricity CAPEX & OPEX
8	Develop staff through training	<ul style="list-style-type: none"> - Meeting operational & maintenance targets. - Development of infrastructure assessment policies & processes for replacement of life expired equipment. - Implementation of transmission & distribution automation systems & communication network. - Meeting UAE standards & specifications. - Applying FEWA environmental management systems & green applications.
9	Provision of sustainable electricity development and services	<ul style="list-style-type: none"> - Meet the growth in demand - Improvement in overall network reliability & sustainability. - Ensuring effective asset management for the efficient utilization of assets. - Implementation of transmission & distribution automation systems & communication network.

		<ul style="list-style-type: none"> - Meeting UAE standards & specifications. - Applying FEWA environmental management systems & green applications.
10	Implement efficient processes and rapid services provision	<ul style="list-style-type: none"> - Ensuring effective asset management for the efficient utilization of assets. - Applying FEWA environmental management systems & green applications.

Table 32: Electricity Directorates Objectives & Challenges

(Adapted from Electricity Business Plan 2014-2016, pp. 16-17)

To achieve the objectives and overcome the challenges, FEWA has invested around two billion Dirhams that were allocated for this programme during the 2014-2016 planning cycle. Similar to the investment made for water, the total amount was distributed among the six regions of FEWA and based on the demand forecasted by the Asset Department as illustrated in Table 33 below.

Year	2014	2015	2016
MW	2346	2500	2663

Table 33: Demand for Power

(Adapted from Electricity Business Plan 2014-2016, p. 5)

The ‘Electricity’ programme involved five main projects. These projects and the results achieved during the strategic cycle 2014-2016 are presented in Table 34.

Project	2014		2015		2016	
	T	R	T	R	T	R
Upgrading of 132 KV network	42.5%	53.1%	32.5%	30.1%	2.40%	2.40%
Upgrading of 33 KV network	37.0%	30.8%	23.0%	19.0%	27.8%	18.6%
Improve of 11 KV network (added capacity MW)	300	300	345	339	345	366
Execution of Smart Meters System	---	---	10.0%	8.0%	10%	12%
Upgrading and support of main SCADA System in the Control Centre	100%	0%	100%	100%	100%	100%
Maintenance of electrical distribution network (No of faults >30 Min)	100%	100%	100%	100%	100%	100%

Measurement of technical losses in the electrical network	5%	5%	5%	5%	90%	90%
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Table 34: ‘Electricity Programme Projects

The review of the documents (Strategic, Operational and Business Plans for the three-year cycle 2014-2016) shows that there has been a delay in the upgrading of 33 & 132 KV network projects.

The programme was selected and analysed to identify the reasons behind the delay of various projects included under it. Through the interviews, document review and observation, the researcher tried to investigate different success criteria and factors that could have an impact on the programme. Interviews were conducted with ten key people who are directly responsible for this programme as well as other employees who were considered because of their involvement in these projects such as regional chief engineers and others from the support departments. Alongside the interviews, the researcher reviewed the documents related to the programme and used observation as additional methods of data collection; other sources were also utilized by the researcher as stated in the methodology chapter. The analysis revealed a number of findings related to key aspects of success criteria, success factors and programme context.

On the programme’s success criteria, the results reflected that the different criteria published in the literature are considered within this programme. However, the ‘stakeholders’, other than customers/consumers, and programme team are ignored.

Success is only seen as providing electricity to FEWA's customers. Further, findings related to the success factors reflected a clear emphasis on the availability of resources which include financial, technical and human resources. Communication was also found to be an important factor that would contribute to the success of this programme. Other factors such as technical expertise, negotiation skills, and leadership skills have been identified as important success factors for this type of programmes. Finally, the programme context influences the success of the 'Electricity Programme'. The local governments' bodies were described as the main factor hindering the progress of electricity projects, hence the success of the overall programme.

These case study findings have assisted in answering the research questions for this thesis. It was noticed that FEWA does not have a structured approach to managing its high complexity programmes. This problem was mentioned by almost all employees which would lead to recommending an appropriate framework or standard to be adopted and deployed for managing this programme. Finally, the researcher has found that most of the measures that were developed by Shao, Muller and Turner (2012) are appropriate in the UAE utilities sector. It is also noticeable that the context of the 'Electricity Programme' impacts on managing it in a successful manner. Further details of these contextual influences and case study results are explained in the following sections.

5.5.2 Interview, Document Review, Observation Results

The findings below were drawn from the interviews, review of a number of programme documents, as well as from the observation of specific meetings related to the programme which was attended by the researcher during the study. For interviews, the

researcher was able to conduct eight interviews with officials from the ‘Electricity’ and G&P Directorates. As well as two other interviewees who conveyed some valuable insights on this case. Their input was important due to their involvement with the electricity directorate as well as other business units in the Authority. Unfortunately, the researcher was unable to interview the Director of Electricity Generation Department from the Generation & Production (G&P) Directorate. Therefore, the interviews with the ‘Executive Director G & P Directorate, were essential for collecting data from a top management perspective.

Similar to the water case, the findings are reported based on the themes that are listed in previous published literature written by Shao, Muller & Turner (2012) namely: programme success criteria, programme success factors, and programme context.

5.5.2.1 Success criteria

The coding process conducted by the researcher was similar to the ‘Water Programme’. Table 35 below presents the ‘Programme Success Criteria’ and the codes used for each criterion.

Programme Success Criteria	Code
Business success	Providing services, achieve strategic objectives, achieve vision, infrastructure sustainable network, comply with FEWA’s strategy, meeting customers’ needs, meeting demand, revenues & profit
Stakeholder satisfaction	<u>Internal Stakeholders:</u>

	<p>Departments: ‘Operation & Maintenance’, ‘Assets’, ‘Projects’, ‘Purchase, Contracts & Stores’, ‘Finance’, ‘Supply & Generation’, ‘SCADA’, ‘Customer Service’, Employees.</p> <p><u>External Stakeholders:</u></p> <p>Consultants, contractors, customers/consumers, suppliers, local government/municipalities, factories/manufacturers, Etisalat, Du, ‘Ministry of Infrastructure & Development’, public works local authorities, ‘Civil Aviation Department’, ‘Civil Defense’</p>
Programme efficiency	Cost, time, quality/specification, budget
Preparation for the future	Expand power plants, be a pioneer to supply power & electricity by 2021, introduce innovation (technical) & latest/new technology, sustainable services.
Social effects	Sustainability of services at distinct levels.
Programme team	Good team, competent project manager

Table 35: Codes of Programme Success Criteria for Each Interviewee

Business success

Measurement of the business success of the programme can be translated into several things such as achieving the strategic objectives, increasing revenue, building infrastructure, obtaining customer satisfaction. In this case study, there was a consensus communicated by all interviewees. Business success for the ‘Electricity’ programme meant the achievement of FEWA’s strategic objective to provide electricity to its consumers. For example, a senior projects engineer stated: ‘It will supply electricity to the Emirates which complies with strategy and enhance our network... yes, by 2021 to be a pioneer to supply power and electricity to the Emirates and fulfill the Strategic

Objectives' (Participant 15). Another engineer expressed a similar point of view through his answer: 'Achieve FEWA's strategic objectives related to providing services at a distinct level; this would contribute to achieving the vision of FEWA' (Participant 14). Furthermore, through the review of strategic, operational and business plans, the researcher found that the information mentioned by interviewees as business success indicators are stated in these documents. Moreover, different departments and sections within the 'Electricity Directorate' are striving to achieve the specified targets in order to provide customers with the best service, in pursuit of the aim to raise their levels of customer satisfaction.

Overall, all the participants hold similar views on what made this programme a business success. The direction taken by top management has to be cascaded down and made clear to the programme management team. In summary, FEWA needs to provide the consumer with electricity, build the UAE's infrastructure, ensure sustainable services, and achieve revenues and profits.

Stakeholder satisfaction

As mentioned earlier, stakeholders are considered here as all groups or individuals who have an interest in the programme and can have a significant impact or be influenced on attaining the ultimate success or the failure of the various projects of this programme. Managing programme stakeholders is crucial to programme success. Interviewees seem to know very well who their stakeholders are. They clearly identified them using two essential categories: Internal and External. Internal stakeholders are all of FEWA directorates, departments, and the concerned staff while external stakeholders are

customers, contractors, consultants, suppliers, manufacturers, local and federal government entities. An executive participant stated all of the concerned stakeholders and provided a comprehensive list of the programme's stakeholders:

Internally mainly, Generation & Production Directorate; Customer Service Directorate; Asset Department & Projects Department. Externally, Contractors, consultants, manufacturers, Communication companies (Etisalat & Du); Local Municipalities & Public Works Departments; & Ministry of Infrastructure Development (Participant 10).

None of the interviewees stated stakeholder satisfaction as a criterion that contributes to programme success. However, they mentioned meeting the needs and strategic objectives which implies customer satisfaction. This group of interviewees did not talk about engaging or working to gain stakeholders' satisfaction or comment on whether it was important to them. Similar to the 'Water Programme', satisfaction and happiness for both customers and employees are measured by a third party under the supervision of the Prime Minister's Office. Review of the available documents and meetings did not reveal that there was an active strategy or framework for establishing and maintaining the interest of project and programme stakeholders. Additionally, at the time of the interviews, there was no evidence of a structured approach to stakeholders' management and engagement.

Programme efficiency

Programme efficiency is clearly considered as a programme success criterion for the participants of this programme. According to them, the efficiency of a programme is measured through its alignment with time, cost, scope of work, specification. All of the interviewees confirmed the importance of these indicators and expressed them clearly. For example, a senior projects engineer said: 'If programme within time, budget and

quality and of use by consumers then we say it is a success (Participant 15). Similarly, an interviewee at an executive level stated: ‘Success is completion within time and budget and according to the specified scope of work’ (Participant 10).

In spite of a consensus among interviewees over the importance of being on time and within budget, as well as meeting specifications and quality required by customer, the researcher found, while reviewing the minutes of the meetings (MOM) of the steering committee during the years 2014-2016, that projects under this programme were delayed and exceeded the allocated budget. The reasons and justifications given to the committee to approve the variations mainly referred to the delays in obtaining approvals (NOCs), a change of route by the local municipalities or other concerned departments, and the unavailability of materials or contractors’ resources (This point will be further elaborated in the section on success factors). It was also observed on different occasions (formal and informal), that delays are considered a normal practice and nothing can be done about it. Engineers do not make much visible effort to try to avoid such delays.

In summary, it was comparatively straightforward for the researcher to identify programme efficiency as a success criterion for FEWA’s electricity programme. For the participants, efficiency was almost a by-word of programme success. A programme manager can only have successful programmes, if he/she ensures to stay on schedule and within budget.

Preparation for the future

Preparing for the future is one of the important success criterion in the power sector. It involves doing business through adopting new business models and using new technologies aiming for better efficiency. Additionally, the 'Asset Department' conduct demand forecasting studies to identify future needs and set future plans to ensure sustainability in providing services to its customers. A senior engineer from the 'Projects Department' highlighted the need to be a pioneer organisation while he was talking about the benefits of the programme: 'Yes, by 2021 to be pioneer to supply power & electricity to the Emirates...fulfill strategic objectives' (Participant 15). Another interviewee from the Protection Section', mentioned the need for innovation and new technologies while talking about the necessity for change management: 'Due to the new technologies that will be presented and employed at FEWA, we have to encourage technical innovations of the technology' (Participant 12). Additionally, preparation for the future is embedded in FEWA's programmes through confirming the 'provision of sustainable services' to its consumers.

An important part of what FEWA is doing to prepare for the future, revealed at the time of this case study, is its progressive adoption of new business models in running its projects through public private partnerships, and more specifically through a new independent power producer (IPP) approach. The new model is based on international best practice. The top management of FEWA encourages employees to identify and learn from best practices in various areas. Further, the newly adopted approach is potentially significantly more innovative as it relieves some burden on the government by introducing the private sector. This diversification can assist specifically in increasing energy production, introducing rare and highly coveted skills as well as some

informative, continuous benchmarking in terms of performance, efficiency, and pricing.

Social effects

As has been mentioned earlier, the leaders of the UAE take the social impact on citizens and residents very seriously. Social effects and quality of life are important aspects and results of infrastructure projects. The only phrase mentioned by interviewees from this programme is sustainability and meeting customers' needs but none of them clearly articulated ideas on the quality of life and social benefits. However, these concepts are embedded implicitly in some of their interview discourse. For example, an interviewee when asked about the benefits of the projects stated that "The aim is to achieve FEWA's strategic objectives related to providing services at a distinct level; this would contribute to achieving the vision of FEWA" (Participant 14). The vision statement of FEWA clearly states: 'the standard of living', which indicates the impact of the 'Electricity Programme' on the social life of people living in the Northern Emirates.

Programme team

The importance of the programme team as one of success criterion has been mentioned by almost all interviewees either directly or indirectly. They mentioned that it is important to form teams with other external stakeholders/authorities. For example an interviewee holding a specialized position stated that 'It is important to choose the team members as well as the team leader who will take decision and solve problems...he should be competent in doing so' (Participant 13). Other Participants from the

Generation & Production Directorate also stated the importance of teamwork. They have also referred to their participation in teams during the planning and the technical evaluations stages, as previously mentioned in Case Study (1). At the time of these interviews, there was no structured mechanism for managing FEWA's teams. It was observed that the same employees are members of several teams and only a few members are active and definitely add value. Moreover, there was no training provided to provide employees with knowledge and skills related to successful teamwork.

Programme success criteria: conclusion

To conclude this section, the interviewees expressed the idea of business success in the 'Electricity' Programme, as aiming to achieve its strategic objectives through providing power to FEWA's consumers. They also emphasized the importance of all efficiency indicators especially 'time', 'specifications/quality' and 'functionality/operations'. In reviewing the documents and observations, the researcher found that time has been the main challenge faced by this programme which can be related in several ways to the management of stakeholders, specifically, contractors, sub-contractors and suppliers. The quality of life and the impact on society is another programme success criterion, which was mentioned indirectly by only some of the interviewees, through providing sustainable services and meeting customers' needs. In general, 'Stakeholders' Satisfaction' was not mentioned by any of the interviewees, though they are known and clearly classified. The Programme Team was stated by interviewees as an important criterion that contributes to the success of the 'Electricity Programme'. Moreover, participants focused on decision-making and problem-solving skills as vital characteristics to programme managers that would contribute to the success of this

electricity programme. The findings related to the ‘Success Criteria’ are summarised in the following Table 36:

Success Criteria	
Business success	
Interviews	- There was a consensus among all participants regarding what makes the electricity programme a success namely: provide electricity to the customers, build UAE’s infrastructure, ensure sustainable service and increase revenues & profits.
Review of documents	- Vision, mission and strategic objectives. - KPIs to measure performance across all initiatives.
Observations during meetings and discussions (formal & informal)	- The directorate and departments are implementing the initiatives to achieve the specified targets which contribute to the strategic objectives and the vision of the authority. - Emphasis on providing the best services to the customers to increase their satisfaction and happiness. - Increase revenues and profits.
Stakeholders satisfaction	
Interviews	- Clearly classified as internal and external. - Satisfaction is seen from customers perspective through providing power.
Review of documents	- No documented methodology to manage the relationship with FEWA’s stakeholders. -Stakeholders satisfaction is not measured except for customers & Employees. Their satisfaction/happiness is measured under the supervision of the Prime Minister’s Office.
Observations during meetings and discussions (formal & informal)	-It was not observed that there is any mention to their satisfaction (Except for employees & customers)

Programme efficiency	
Interviews	- All participants mentioned the importance of cost, time, scope of work and specifications.
Review of documents	- Minutes of meetings of both the VO & Steering committees showed override time and cost. The reasons for the delays are related to delays in obtaining the NOCs from the local government entities.
Observations during meetings and discussions (formal & informal)	- Delays are considered a normal practice with no much effort is done by the concerned engineers to solve the issue. - The delay is discussed among various employees and out of FEWA's control.
Preparation for the future	
Interviews	Interviewees stated the need for FEWA to be innovative in order to provide sustainable services to its customers. Introducing new business model (IPP).
Review of documents	- Power demand forecasting studies. - Reports on visits to benchmark with best practices.
Observations during meetings and discussions (formal & informal)	Top management encourages adopting best practices, as applicable.
Social effects	
Interviews	- Providing sustainable services and meeting customers' needs are stated.
Review of documents	- FEWA's vision 'Leadership in providing electricity & water services to improve the standards of living and achieve sustainable growth by 2021'.
Observations during	---

meetings and discussions (formal & informal)	
Programme team	
Interviews	- Selecting the team leader and members has been mentioned by participants.
Review of documents	- There was no documented mechanism for forming teams at the time of the interviews.
Observations during meetings and discussions (formal & informal)	<ul style="list-style-type: none"> - Teams formed with similar members. - Only limited active participants. - No training provided by the training section related to effective teams.

Table 36: Case Study (2): Summary of the Results (Success Criteria) According to the Source of Information

5.5.2.2 Programme success factors

As with the previous case, the success factors identified by Shao (2010) were used as a benchmark and guideline to identification of potential success factors. The coding method conducted was similar to the one employed in the success criteria. Codes for each interview are shown in the following Table 37:

Interviewee	Programme Success Factors
1	Knowledge, technical expertise, contractors' resources, communication & coordination with local government departments, tendering process, competent PM to manage time & risk

2	Good communication and networking, availability of capable employees, teamwork, good project manager capable of managing and making decisions, technical experience.
6	Available resources (tools & equipment/ tankers/networks), experienced and knowledgeable employees, time, budget
10	Effective coordination and communication, specification/quality, resources, proper planning process, monitor, skilled project manager
11	Management support, time, budget, manpower, teamwork with other authorities
12	Manpower, motivation, encourage team to take decision (accept mistakes)
13	Team, competent project manager with problem solving and decision making skills.
14	Good planning, time management, technical expertise, leadership skills, contractors' technical & financial resources, effective communication, risk management, clear criteria to select suppliers, employees' attitudes & behaviours (commitment, accuracy in performing tasks & responsibilities)
15	Availability of human resources, transportation (vehicles).

Table 37: Programme Success Factors of Each Interviewee

For this programme, the researcher kept a record of frequency of mention for success factors in order to trace the importance of the factors and to identify consensus as well as difference in opinions among participants towards some success factors. The results are shown in Table 38 below:

Success Factors	Frequency
Availability of resources (HR, Technical & Financial),	6
Effective communication & coordination	4

Technical knowledge & expertise	4
Competent programme manager (decision maker, problem solving)	4
Time Management	4
Teamwork	3
Project management process	2
Risk management	2
Criteria for selecting suppliers	2
Tendering process	1
Motivation, encourage decision making, accept mistakes (no blaming)	1
Employees behaviours (Commitment)	1

Table 38: Critical Success Factors - Frequency of Mention by Interviewees

Availability of resources

The data show that the most important success factor for managing the ‘Electricity Programme’ is the availability of resources which includes human, technical and financial resources. It was repeated six times by the interviewees and asserted strongly in their interview accounts, for example, a ‘Senior Project Engineer’ stated:

Within FEWA, we have problems with resources. We don’t have staff. Suppose more staff, we can achieve more success for projects we are managing. Human resources and also transportation (vehicles) for our engineers. Also, as mentioned before, having contractors who have readily available resources is crucial: ‘If he contractor is mobilizing and put all resources and work at site, we can say it is a success; start manufacturing within the time first three months of the project’ (Participant 15).

The same point was also explained by an interviewee from the ‘Protection Section’ through a real-life example:

...I will give an example of one of the projects which failed to operate in time due to these reasons, the contractor was one company, which was working in the UAE for the first time without past experience in the market, regulations, and did not have initial enough workers to perform the tasks. Further, the project

was huge number of substations distributed among different emirates/distances (Participant 12).

The above comments reflect two main issues. The first is related to the shortage of staff and vehicles and the second is related to contractors. Through reviewing the performance reports of the HR Department, the researcher discovered that the department could not provide the 'Electricity Directorate' as well as others with their HR needs. For example, in 2016, only 29.9% of FEWA's HR needs were met. This is because the department did not have a structured approach to identifying the Authority's needs that is connected with the strategy and the related initiatives. Although, the shortage in vehicles was mentioned as one of the obstacles, this point was rejected by a member of the top management in the 'Shared Services Directorate' during a formal meeting when the issue was raised. The later clarified that FEWA has a fleet of 600 vehicles; the problem is related to the misuse of these vehicles primarily by engineers. The second point is related to the 'contractor' who was new to the UAE, though was accepted due to the lower financial offer according to the regulation that it is obligatory for all the federal entities in the UAE.

Communication, knowledge, programme manager and time management

Four elements came in the second place as important success factors. Each of these factors was mentioned by four of the interviewees. These factors are namely: effective communication & coordination, technical knowledge and expertise, competent programme manager and time management. The researcher through reviewing the related documents found that the behavioural competences along with the required level for the position of 'Programme Manager/Director of Projects Department' exist in the

JD. On the other hand, there was no structured methodology for knowledge management nor for communication. It is also observed that departments work in silos which had a negative impact on the overall performance not only in the 'Electricity Directorate' but across the entire authority. Moreover, 'Time Management' is a major concern in FEWA which needs an intensive training program to change the culture and employees' behaviours.

Other success factors

Teamwork came in the third place as an important success factor, which was mentioned by three of the interviewees. For teamwork, as mentioned in the previous section (Success Criteria), there is no structured approach to manage teams in FEWA. The remaining success factors were mentioned by just one of the interviewee. These are namely: the lengthy tendering process, employee behaviours, motivation, commitment, productivity, and decision-making and accepting mistakes. The reasons behind the lengthy tendering process are considered to relate to the shortage in expertise and the absence of proper development and training plans for employees. Part of the background of this situation was that during 2014 and 2015 there was no structured approach for identifying training needs in FEWA. The Human Capital Department went through restructuring and training need analysis at the end of 2016 and the 'Training Plan 2017' was developed. Moreover, FEWA does not have a structured knowledge management approach in place that ensures knowledge transfer among employees. Similarly, employees' commitment and productivity is influenced by lack of technical training that can impact on employees' performance and productivity. Finally, regarding the problems related to decision making processes, FEWA does not have a

clear matrix for delegation of authority. However, at the end of the year 2016, FEWA was awarded the ISO certification, which requires organisations to clarify processes, owners of each of these processes, roles, responsibilities and authorities for every employee. Moreover, in this programme, some interviewees talked about change management as being a success factor. Although their statements about change management do not always call it ‘change management’, one can see in the following statements in Table 39 below that participants consider it to be a contributor to programme success.

Interviewee	Answers
10	Change management is needed to some extent, for example when ceasing generation). FEWA had to face consequences related to the decision (manage resources).
12	I need change management for the project that I am currently managing due to the new technologies that will be presented and employed at FEWA; we have to encourage technical innovations of the technology.
14	It depends, during the execution of major projects, in some cases, certain amount of flexibility is to be exercised for overcoming unexpected obstacles. Sometimes informal talks may yield better results. Anyhow, it is for the MANAGER to review and check all options available and to act accordingly. Often it is termed as pro-active approach.

Table 39: Comments of Change Management

Based on the answers given, in the above table, change management is required but not crucial.

Leadership style and competences

Whereas the programme manager is regarded as a high-level supervisor for programme efficiency, or in other words for controlling budget, schedule, and scope, participants are aware that leadership competences are critical to the success of their programme. Four questions were included in the initial protocol on leadership skills and competences. For this programme, when participants were asked whether a leadership style was influenced by the type of programme, there was somewhat of a consensus that the type of programme undoubtedly influences the leadership style required. A typical brief answer to the question was: 'Yes, it definitely depends on the programme'. Upon request for further elaboration, this is what one of the interviewees shared:

Yes, each program is unique and depending on the situation, the leadership style to be adjusted. For example, in some cases, only directions and guidance are required, in some other cases, as the work progresses, some changes of techniques and applications may be required. Such cases necessitate more involvement in the activity' (Participant 14).

Only one interviewee held a different point of view, he argued: 'No, the same projects require the same capabilities and skills' (Participant 11).

When the researcher probed about the type of competences required for the programme manager to achieve success, the replies to this question emphasized the importance of previous experience and technical knowledge of similar projects. In addition, decision making, project management skills, problem solving, communication and teamwork were considered important competences. Other competences mentioned by interviewees are leadership, negotiation skills, flexibility, change management, and a keen desire for self-development. The participants talked about the integrity of the programme manager as well and his/her capacity to establish and maintain trust with

stakeholder and bidders. They even talked about programme managers loving and respecting their work and being more successful than others. Incidentally, the sponsor of the programme, differentiated between competences required for programme managers and those required for projects engineers: 'For programme manager, leadership skills; for project engineers, knowledge and problem-solving skills, communication skills' (Participant 10). The programme's manager echoed the importance of leadership skills and brought up how crucial negotiation skills are as well as project management skills. However, when interviewees were asked what styles they used in their own programmes some returned to talking about how important close supervision and continuous monitoring and communications are to managing programmes:

Close supervision and effective communication and teamwork...for successful completion of the work, always close supervision is required. The extent of 'closeness' depends upon the nature and importance of the work. This is for the manager to decide as per the priority of the situation. In addition, effective communication is required for the message to reach the team for necessary comprehension and execution (Participant 14).

One of the participants gave a quite passionate insight: 'Transformational style! We go to all levels, motivate to achieve our goals. Bureaucratic does not work, 'Transformational' model is the best' (Participant 15). Another interviewee was very specific and mentioned that 'Programme manager should not be theoretical, he should solve problems with contractors instead of impose fines/penalties' (Participant 13). The researcher saw here a clear indication to the importance of good problem-solving skills, but also finely-tuned stakeholder management competences.

Reviewing the related documents revealed that the job descriptions include the behavioural competences as well as the required level for each position. During the year

2015, the Authority conducted a capability assessment exercise for a group of officials from different managerial levels and business units, including the ‘Electricity Directorate’, as part of the succession planning project. Accordingly, individual development plans were developed which covered mainly training programmes in areas like problem solving, decision making and managing people. Additionally, the researcher has observed during official meetings, the hesitation of taking decision especially in critical situations. At some informal discussions, taking decisions and the incompetent staff is always mentioned and discussed.

Beside the findings related to the leadership style and competences of programme managers, interviewees were requested to rate from low to high the importance of leadership competences based on the fifteen competence dimensions by Dulewicz and Higgs (2003). These competences are categorised into three groups namely, IQ, MQ and EQ as listed in Table (28).

In the analysis of programme managers’ leadership competences, the interviewees rated them as shown in Table 40 below:

Competence	Frequency		
	Low	Medium	High
Critical analysis & judgment	---	---	9
Managing resources	---	---	9
Achieving	---	---	9
Engaging communication	---	2	7
Developing	---	2	7
Motivation	---	4	6
Conscientiousness	---	2	6

Intuitiveness	1	3	5
Strategic perspective	---	4	5
Empowering	---	4	5
Self-awareness	---	5	4
Vision & imagination	---	5	4
Emotional resilience	3	2	3
Influence	---	7	2
Interpersonal sensitivity	3	3	1

Table 40: Competences - Frequency of Mention by Interviewees

The results show that according to the participants, the most important leadership competences for a programme management are namely: ‘Critical analysis’ & judgment’, ‘Managing resources’ and ‘Achieving’. All three were rated most highly by nine participants. ‘Engaging communication’ and ‘Developing’ came in the second place and were rated second most high by seven of the participants. The third important competences are ‘Motivation’, and ‘Conscientiousness’ these were mentioned six times. The least important rated competence is ‘Interpersonal sensitivity’. The answers reflect the importance of competences that are required to solve the problems existing and current situation with the ‘Electricity’ programme. The competences fall under the IQ and MQ groups of competences. The reason behind these priorities may be due to the complexity of programmes and the task need to have a higher level of leadership competence in the IQ and MQ. It is evident that under the EQ group of competences, ‘Motivation’ was the most important competence.

Programme success factors: conclusion

The researcher has identified the most critical success factors for the sample of participants from the ‘Electricity Programme’. The availability of human, financial and technical resources was found to be the most important success factor. The researcher has also identified the leadership style and competences required to manage this programme in a successful manner, according to the ideas and opinions expressed in this sample group of experienced FEWA employees. A summary of the findings of this section is presented in the following Table 41:

Success Factors	
Availability of resources	
Interviews	- The importance of resources was emphasised by participants. Mainly technical staff, and other resources provided by contractors.
Review of documents	- HR records show that the department did not provide the Directorate of Electricity with their needs. (In 2016 only 29.9 % of FEWA’s needs were met).
Observations during meetings and discussions (formal & informal)	- The HR restructuring project was conducted as a result of the low performance of the department. The project started early 2015 and ended in ended in October 2016.
Communication; Knowledge; Programme manager; Time management	
Interviews	All these factors were mentioned by participants as important success factors.
Review of documents	- Programme Manager’s behavioural competences are identified in the JD. - There is no communication plan. - There is no ‘Knowledge Management’ approach.

Observations during meetings and discussions (formal & informal)	<ul style="list-style-type: none"> - Departments work in silos which negatively affects others' & the overall performance. - Time management is an issue within the authority. Employees do not consider the importance of responding within time.
Leadership skills of programme manager	
Interviews	<ul style="list-style-type: none"> - Consensus in relation to the criticality of leadership competences. - The type of programme influences the leadership style required for managing the programme. - The most important competences required are: previous experience & technical knowledge in similar projects. - Other competences were also mentioned such as, decision making, PM & negotiation skills, problem solving, integrity, etc.
Review of documents	<ul style="list-style-type: none"> - Behavioural competences included and specified as per the required level in the JDs. - In 2015 a capability assessment as part of the succession planning was conducted and individual development plans were developed for a number of employees including the concerned officials of this programme.
Observations during meetings and discussions (formal & informal)	<ul style="list-style-type: none"> - Hesitation to take decisions during meetings. - Taking final decisions will be passed to the top management. - Lack self-confidence impacts the decision-making process. - Incompetent staff is always mentioned.
Leadership style & competences	
Interviews	<ul style="list-style-type: none"> - 'Transformational' leadership style is preferred. - Emphasis is on problem solving, decision-making & stakeholders' management skills. - 'Critical analysis & judgement', 'Managing resources' and 'Achieving' are considered the most important leadership

	<p>competences which fall under the IQ & MQ group of competences.</p> <p>- ‘Interpersonal sensitivity’ is the least important competence for this programme which falls under the EQ group of competences.</p>
Review of documents	- Leadership competences are specified in JDs,
Observations during meetings and discussions (formal & informal)	- Leaders of this programme are incapable of solving problems and unconfident to take decisions. All matters and complex issues are discussed with the top management, seeking the right solutions and decisions.

Table 41: Case Study (2): Summary of the Results (Success Factors) According to the Source of Information

5.5.2.3 Programme context

Section (V) in the interview protocol included three questions that address the context of the programme. The aim of the data gathered by the researcher about programme context was to investigate the correlation between elements of programme context and its success. If context influenced performance (or success), the main driver of these questions was to uncover what those elements could be and to what extent they could influence the programme. Again, in this section, the researcher will report data relating to external influences mainly related to the political environment and the government directions, and the internal influences such as structure and governance, as well as the influence of the programme manager.

External influences (political and environmental)

Due to the fact that FEWA provides its services in the Northern part of the UAE, there is a number of entities that should be considered. All interviewees agreed that electricity projects are influenced mainly by local government entities in the Emirates in which FEWA operates. Participants listed municipalities, the Public Works departments, Ministry of Infrastructure Development, Civil Defense, Civil Aviation Authority, and even the State's and local government's directions as external factors affecting programme success. Further, it was observed that departments and employees work in silos. Complicated matters are escalated to the top management instead of being discussed and finalised among the concerned business units.

In this programme, participants also shared their frustration over how the economic recession, even years later, has impacted on the programme. In this regard, a senior project engineer provided a more detailed answer to this question as he stated:

Local authorities like municipalities, Transco, civil defense, the more cooperation you get, the more success will be there. An example, relate to cables...conflicts regarding routing plot given by municipality in RAK. With the recession 2008/high growth 2005, contractors are based in Dubai, they do not want to come to other Northern areas, less contractors, material prices increased, political stability cultural/multi environment, adjust the culture 'consultants and contractors (Participant 15).

Through reviewing the minutes of meeting, the researcher finds further confirming evidence of the potential for negative impact that these external factors can have on a programme's implementation. Most extensions were requested as a result of the delay in providing NOCs by the local authorities. For instance, the delay in issuing the NOC by the Municipality of Um AL Quwain resulted in delaying the major network expansion project, and a request to extend the project's schedule had to be submitted to the 'Projects Steering Committee'. Other reasons were also identified such as changing routes, changing standards which also resulted in extending the time and cost of the

projects. All of these issues are discussed during the meetings but the researcher sensed the substantial difficulty in resolving them. The following is a good example of what a chief engineer shared:

For the timely progress and completion of the work, the influence of the external factors are having major role. For example, approval of location and routes are to be obtained in time from the local bodies. The location of road and airports are important factors in the timely completion of major projects (Participant 14).

There is an unequivocal influence of external factors on programme performance, pace, and success. When participants were asked whether the influence changed according to the type of project or programme, only a few of them answered this question, but the ones that did described the influence as having the same type of effect with minor differences from one project or programme to the next.

When investigating the extent to which a programme manager can affect these factors and the programme success, again, very few participants were willing to elaborate. However, the researcher was able to identify two contradictory opinions expressed about the programme manager's influence and associated responsibilities. While one of the participants was not very hopeful around the influence of the programme manager: 'To some extent limited to operational decisions, but for example, when the decision was taken to stop the generation, no influence could the programme manager have on the programme' (Participant 10), another held that the programme manager had an influence: 'To a high extent through proper planning at the beginning of the project and working in parallel to get approvals to avoid the delays' (Participant 14).

Based on the above, the first example was a direction from the 'State' which is a mandate that FEWA has to execute, while in the second example (Delay in Obtaining

NOCs) it is an issue influenced by stakeholders from the local governments in the Emirates.

Internal influences

FEWA structure

As was mentioned in the first case study, FEWA's existing organisation structure could be one of the factors that affects projects and the overall success of the 'Electricity Programme'. There is a separate 'projects' department in each directorate. This means that there are three different departments managing projects in isolation of each other (Water, Electricity and Generation & Production). The structure has negatively affected the communication and coordination among all three directorates. This was stated by the interviewee from the O & M Department who insisted on having them involved at early phases of projects. As in the previous case study, the researcher observed that these departments work in isolation of each other. Additionally, all complicated matters are discussed at the top level and decision are then taken.

Governance

Programme governance is the systems and methods used to monitor and manage the programme. As mentioned in the 'Water Programme', there is a structured and documented governance system in FEWA. In this programme, the researcher wanted to investigate whether the interviewees thought that the governance structure applied by FEWA was a contributor to programme success. In response to this question, only

three interviewees answered by showing their overall support for the current system as being effective, though: 'It should always be improved based and revised according to lessons learned' (Participant 12). Another interviewee gave a recommendation after giving governance a positive evaluation:

Yes (it contributes to programme success), as many problems are solved at the higher steering committee for projects. Though the concerned officials should utilize their authorities to take decisions without getting back to the higher committee unless it is an exceptional case (Participant 14).

In the researcher's opinion, the interviewees from this programme were too conservative in answering the questions related to 'governance'. All of them agree that it is important for programme success, and stated that it should nevertheless always be reviewed and improved. The answer given by a member of the top management team, explained that roles and responsibilities are clear in FEWA's existing hierarchy:

Director of Projects Department, he is the 'Programme Manager' and supposed to manage, monitor and take decisions related to the overall program that are out of the scope of the project manager. Project manager, is responsible for managing individual projects and take operational decisions related to project(s) under their control. Executive Directors, solve and take decision related only to 10-15 % of the issues. The Steering Committee's role should be minimal and has to just monitor projects' time and budget (Traffic Light) in addition to variations without being involved into details. But currently, The Committee is involved in many details and take most of the decisions related to projects (Participant 1).

The above comment reflects a general issue for leaders of FEWA's programmes. The data collected for this research study, through interviews, documents and observation, suggests that leaders do not have the competences required to manage these types of programmes, mainly, problem solving and decision making. Consequently, almost all of the programme decisions and problems are resolved by the Higher Steering Committee.

Programme type and typology

The interviewees provided different answers when posed the question ‘In relation to the external factors and their influence on programme success, how does the influence differ by different programme’s type’? Two interviewees said that there is no difference and only one stated that there is a slight difference. The rest of the participants did not provide an answer to this question.

Influence of the programme manager

When investigating the extent to which programme managers can impact programme success, only one of the interviewees stated that a programme manager has no influence on the factors. Another interviewee from the top management team mentioned that the programme manager has limited influence ‘To some extent, limited to operational decisions but for example, when the decision was taken to stop the generation, no influence could the programme manager has on the programme’ (Participant 10). Another interviewee provided a different opinion reflecting the operational perspective: ‘To a high extent, through proper planning at the beginning of the project and working in parallel to get approvals to avoid the delays’ (Participant 14). This finding was replicated in the minutes of meetings especially in cases of delaying the issuance of NOCs, where the researcher did not find any influence of the programme manager nor the programme sponsor on solving the issue.

Programme context: conclusion

In conclusion, there was general agreement and shared understanding among participants over how much influence programme managers can have in FEWA in relation to this programme. The findings of this section are presented in Table 42 below:

Programme Context	
External influence	
Interviews	<ul style="list-style-type: none"> -Cooperation with Local government entities would contribute to the success of the programme. -Economic recession has a negative impact on programme's success. -Programme manager influence is limited to operational decisions and to a high extent at the planning phase.
Review of documents	-Minutes of meetings of the Steering Committee show evidences on the negative impact of external factors (extensions were results of the delays in providing NOCs by the local government authorities, changing routes, standards, etc.).
Observations during meetings and discussions (formal & informal)	<ul style="list-style-type: none"> - Discussions during meetings seems unsolvable. - FEWA's officials communicate these problems with the local bodies, but finding solutions is not an easy process.
FEWA structure	
Interviews	- Only participants from the G & P Directorate reflected on the impact of the existing structure in relation to the success of the programme
Review of documents	- FEWA underwent a restructuring during 2010. Accordingly, separate projects departments were created.
Observations during meetings and	- Lack of communication across FEWA and departments and employees work in silos.

discussions (formal & informal)	- Complicated matters are escalated to the top management instead of being discussed among the concerned business units.
Governance	
Interviews	- Few participants agree on the importance of governance system for programme success. They also showed their support to the existing system and recommended to be reviewed and improved based on the lessons learned.
Review of documents	- A structured and documented system is in place. Known and practiced across FEWA.
Observations during meetings and discussions (formal & informal)	- Programme sponsor and manager are not practicing their roles and responsibilities. Complex matters and issues are escalated to the Steering Committee for final decisions.

**Table 42: Case Study (2): Summary of the Results (Programme Context)
According to the Source of Information**

5.5.3 Case Summary

Electricity Programme is a core business of FEWA. The programme operates through two main directorates: Electricity and Generation & Production. The programme's scope is to provide transmission and distribution networks of power to FEWA's customers. The programme includes projects such as upgrading of networks of 132 KV, 33 KV, and extension of smart meters system. The outcomes of this programme contribute to FEWA's strategic objectives. The review of the results of the strategic cycle 2014-2016 showed delay in projects of upgrading the 33 and 132 KV network projects. The programme has been analysed in order to identify the reasons behind such

performance through interviewing key officials, reviewing projects related documents and observation.

The findings of this case that the researcher interprets to confirm some of the strengths as well as weaknesses of programme management at FEWA. People are clearly driven and motivated by the strategy of the country and, in turn, of the Authority; they know how their programme aligns with the strategic objectives; they understand that they need to deliver on time and within budget; they identify easily some of the gaps and in some rare cases even make recommendations to the leadership of the Authority. However, they are still not making many direct connections with some of the success factors that would enable programmes to be more successful, such as stakeholder engagement and motivation. Participants talked about problems with availability of resources, delays in approvals, and some blocks, but they rarely offer an alternative to the status quo. Risk management was mentioned by few interviewees from the programme. The researcher identifies a clear indication of the predominant focus on the 'engineering' aspects of programme management at FEWA. Programmes are seen as large construction or engineering projects and are talked about and tackled mainly from these perspectives. There is evidence of a lack of a project management and programme management culture translated into a specific but biased emphasis on technical engineering concepts and use of language, the promotion of engineers to management positions without necessarily requiring them earn some management experience or credentials as well as a lack of adequate project and programme management processes and systems.

5.6 Case Study (3): ‘IT Transformational Programme’

5.6.1 Case Narrative

The Information Technology Department (ITD) is one of the main support departments that within the organisation hierarchy is located under the Shared Services Directorate. It provides all Information Technology (IT) services required for FEWA to fulfil its mission in an efficient and effective manner. In 2014, the management of FEWA has embarked on revamping the ITD to provide it with the necessary capabilities to contribute to the organisation’s strategic objectives. KPMG was contracted to perform a gap analysis. Subsequently, a roadmap for 3 years (2014 - 2016) was created and approved by the FEWA’s BOD for IT transformation in order to address all of the identified gaps. The allocated budget for this programme was around AED 70 million as mentioned previously in Table (19) in this chapter. The assessment has been conducted based on three streams People, Process and Technology as illustrated in Figure 31 below:



Figure 31: IT Transformational Programme - Gap Analysis Report

(IT Gap Analysis Report 2014)

The Table 43 below lists the many initiatives and projects that were performed as an outcome of the programme in order to address the highlighted gaps.

Task Name	Start	Finish	% Complete
FEWA IT Transformation Program	Sun 2/9/14	Thu 6/29/17	97%
Process Related Projects	Sun 2/9/14	Thu 6/29/17	98%
IT Service Management (ISO 20000, Tool implementation)	Wed 4/2/14	Tue 8/11/15	100%
PMO Deliverables (Framework)	Sun 2/9/14	Sun 2/1/15	100%
Enterprise Architecture (EA, SDLC)	Tue 6/30/15	Tue 12/6/16	100%
ISMS Development at FEWA (ISO 27001)	Wed 2/12/14	Mon 7/20/15	100%
NESA Cyber Risk Assessment & ISMS for SCADA	Mon 11/2/15	Thu 6/29/17	97%
IT Service Continuity	Mon 6/1/15	Mon 3/6/17	91%
Technology Related Projects	Sun 4/20/14	Thu 6/29/17	96%
Disaster Recovery Site Project (Co-location, implementation)	Sun 10/2/16	Thu 6/29/17	41%
Enterprise Content Management (for non-SAP areas)	Sun 8/16/15	Fri 10/2/15	100%
Contact Center Upgrade	Sun 12/18/16	Tue 5/30/17	81%
SMS Solution Upgrade	Thu 9/3/15	Fri 10/7/16	100%
APTP & BDS	Mon 6/1/15	Wed 3/15/17	100%
GIS Improvement	Sun 4/20/14	Thu 6/9/16	100%
Tech Refresh (SAP Infrastructure upgrade, Network, NG firewall, NOC/SOC, C-Folder, Microsoft upgrade)	Sun 7/6/14	Thu 3/16/17	100%
People Related Projects	Wed 2/19/14	Mon 4/17/17	100%
Organization Structure, Job Description and Personnel KPIs Metrics Report	Mon 5/4/15	Mon 10/5/15	100%
Personnel Training Plan	Mon 5/4/15	Mon 10/5/15	100%
ISMS Training (4 trainings- once every 6 months)	Sun 8/24/14	Mon 1/4/16	100%
BCP Training (4 trainings- once every 6 months)	Sun 4/16/17	Mon 4/17/17	100%
EA Training (4 trainings- once every 6 months)	Wed 3/15/17	Thu 3/16/17	100%
New media training (4 trainings- once every 6 months)	Tue 2/23/16	Mon 3/28/16	100%
Project Progress review report submitted (24 reports - one every month)	Wed 2/19/14	Mon 5/30/16	100%
Project Knowledge Transfer (quarterly workshops - 8 quarters)	Sun 3/2/14	Wed 9/21/16	100%

Table 43: List of Projects & Status

(Adapted from IT Departments Records, 2017)

The review of the documents related to this programme indicate that the programme was finished on time, within the specified cost and quality standards, and achieved the proposed benefits. Based on the analysis conducted by the researcher through the interviews, document review and observations, it was found that the IT Transformational Programme was a success because it achieved the proposed outcomes and benefits. It was also performed within time, cost and in line with the specified standards. Although, there were other projects that were added to the programme as mandates by the Telecommunications Regulatory Authority (TRA) and other business requirements, the programme progressed smoothly without major variations.

The researcher conducted interviews with the three key people within this programme and two others who provided their general ideas and views based on their positions and relationships with all programmes. The analysis covered three aspects namely, success criteria, success factors, and the context of the programme. The results related to the success criteria showed that the business success for this programme contributes to achieving the vision and strategic objectives of FEWA. Stakeholders are considered crucial to the success of the programme and all interviewees emphasized the importance of both internal and external stakeholders' satisfaction. However, there was no structured approach towards managing them. The programme was efficient as it was achieved on time, within budget and according to the standards. Preparation for the future was seen only through making continuous improvements and adopting new technologies that would allow FEWA to achieve its vision. Social effects was unclear but embedded in providing easier services to customers. Programme team is one of the areas that require attention in this programme. Although, interviewees mentioned the importance of people and their capabilities, the researcher could develop a clear understanding about see how the teams are formed to manage various projects. In relation to the success factors, the results showed that the most important resource factor is knowledge, expertise and skilled employees. Having skilled and knowledgeable employees is the main success factor in IT transformational programmes. Even so, interviewees mentioned a number of difficulties related to attracting and retaining this group of talented people. The main reason behind such difficulties was explained as being due to the competition in the labour market despite the fact that changes to the IT structure positions' and grades were implemented twice during the strategic cycle 2014-2016. Communication and the procurement regulations were identified by participants as another important factor that has an impact on

programmes' success. The leadership style and competences of programme managers are vital to the success of this programme. Participants mentioned that the democratic style is preferred for these types of programmes. Further, it was discovered that the most important competences required for this type of programmes come under the categories of intellectual and managerial competences which explains the complex nature of IT projects. Moreover, the programme manager plays a key role in the success of the programme. Finally, it was found that programme context influences the success of the programme and the main influence comes from the rapidly changing IT technologies and the mandates from the federal government, more specifically, the TRA.

These case study findings have assisted the researcher in answering the research questions for this thesis. While FEWA does not follow a structured model to manage its programmes, this particular programme was a success. The reason behind it being considered a success is, in the opinion of the researcher, attributable to the fact that it was managed with support from one of the big four consultancy companies. The success measures and dimensions developed by Shao, Muller and Turner (2012) are applicable and contribute to the success of the design and implementation of this type of programme. Additionally, the context affects this type of programme and can have a substantial negative influence on their success. Further details of these contextual influences and programme outcomes are provided in the following sections.

5.6.2 Interview, Document Review and Observations Results

The results presented in this section are an interpretation made by the researcher based on case data collected through interviews, document review and field observations. The

report of the findings is structured around the three main aspects, namely, success criteria, success factors, and programme context. These aspects are based on published literature in project management as was explained and discussed earlier in this thesis.

The aim of the interviews conducted by the researcher was to understand this programme and explore the different factors affecting its success. The sample of interviewees included three key people from the IT Department, one interviewee from the 'Purchase, Contracts & Stores Department', and, in addition, a member of FEWA's top management team. The sample was small compared to the other two cases. The reason is due to the fact that the programme was conducted, managed and closely monitored by a specialized consultancy company. It is also important to state that all three key interviewees are knowledgeable in the IT field with experience that ranges between 10-24 years. It is also worthwhile to mention that the researcher attempted to interview the programme sponsor (executive director) but was unsuccessful to arrange a meeting due to his busy schedule. However, the researcher was able to obtain his views through attending other meetings where similar issues were discussed.

5.6.2.1 Success criteria

The analysis of the IT programme's success criteria is based on the six dimensions stated by Shao, Muller and Turner (2012). Table 44 below provides these dimensions along with the codes for each criterion which were identified by the researcher.

Programme Success Criteria	Code
Business success	Achieve strategic objectives, mission and vision, change the way of doing business, using online and mobile applications, introducing smart services (increasing the usage of the service or making a service easier or simpler), Raise stakeholders' expectations, improve skills, policies and procedures, technology infrastructure and application, support business, transformation to digitizing, cost effective and improve efficiency.
Stakeholder satisfaction	<u>Internal stakeholders</u> All business units & departments, employees, IT staff <u>External Stakeholders</u> Consumers/customers, contractors, vendors, suppliers, payment channels (Banks)
Programme efficiency	Time, cost/budget, quality
Preparation for the future	How fast requirements are considered to achieve government vision, continuous improvement that matches market's trends.
Social effects	Easy services/increase the use of services
Programme team	Not stated clearly by the interviewees

Table 44: Codes of Programme Success Criteria of Each Interviewee

Business success

For this programme, business success is seen by interviewees as meaning: to achieve strategic objectives and improving employees' skills, processes and procedures. As mentioned in Section (5.6.1), the IT Department was restructured after a thorough review which resulted in identifying the gaps and recommending suitable changes. These changes and improvements addressed the people, processes and technologies aiming to enable the department to meet the requirements of the TRA and to achieve FEWA's strategic objectives. Further, the researcher also observed the enthusiasm of

the top management to adopt the latest and innovative technologies to improve and ease processes. An interviewee stated that the programme benefits are ‘Supporting the business and core business, transformation to digitizing’ (Participant 18). Another interviewee explained the benefits as changing the way of doing business. His account given during the interview offers an informative description of the benefits of this programme:

Okay... the IT transformation, it was meant to take FEWA from certain way of doing business into the new way now many legacy systems that we had inherited for quite some time in terms of infrastructure in terms of applications all these things that needed to change so it gave us the introduction into the using the online applications using mobile applications and some smart services that we have started introducing and then we needed to raise our stakeholder expectation because IT started to play a major role now in enhancing the processes within FEWA (Participant 17).

The success of business for this programme is conceptualised by these interviewees as being driven from the IT strategic objectives that are aligned with organisation’s vision and strategic objectives. However, success is limited to ‘digitizing’ to improve FEWA’s processes and procedures.

Stakeholders satisfaction

Stakeholders are considered as including all of the internal and external parties that have an interest in this programme or, in other words, those who are affected by the activities of this programme. For this programme, as with the other two, the participants talked about two main categories, internal stakeholders and external stakeholders. Internal stakeholders are all units and departments and external stakeholders are customers, vendors and suppliers. The following comment was found to be the most comprehensive one provided by the small group of interviewees that identifies the two stakeholders’ categories of the ‘IT Programme’:

We have two types internally... so our employees and then we have consumers. There is another one which we consider them as our vendors, I mean they are external to use but they are like uuh our suppliers yeah basically suppliers .. consultants they can be also... yeah you can combine them as together companies so consultants, contractors vendors... yeah consumers then our own employees (Participant 17).

All of the interviewees identified two types of stakeholders, internal and external ones and stated the importance of stakeholders' satisfaction. An interviewee considered it as being a success criterion among others, as he remarked: 'Our success criteria is based on satisfaction of internal and external customers... so measuring the stakeholder satisfaction can be done through surveys, interviews and observations' (Participant 19). However, at the time of the study, only an internal survey was conducted for measuring and evaluating internal employees' satisfaction against the services provided by the department. There is also a survey that is conducted by the TRA that measures customer satisfaction against the E- and Smart services provided by different Federal entities in the UAE. No other surveys are used by FEWA to measure satisfaction of other external stakeholders such as consultants, vendors or any others. As an observer, the researcher did not find there to be much evidence of an emphasis on the satisfaction of other categories that were mentioned by the interviewees.

Programme efficiency

Programme efficiency is measured through indicators for time, cost, specifications, and functionality, etc. In general, through the review of the related documents, the researcher found that the transformational IT programme was efficient when considering the three indicators of time, cost and quality.

During the interviews, all interviewees confirmed the importance of the three measures of time, cost and specifications or quality. An interviewee asserted that: 'IT services are intangible, quality is a major success criterion'(Participant 18). Another participant confirmed the importance of time stating that '... because the programme is linked to strategic objective/s and each strategy have specific timeline to be implemented' (Participant 19).

The interviewees explained how bureaucracy, practiced by some of the concerned departments, affects the time duration and results in delaying projects. To further explain this point, a participant said:

Time, see... we have estimated times for each project, so it was given enough time only thing there was some bureaucracies and some of these things that we did not plan for it things like the process of procurement or process of approval these additional things that we didn't really anticipate. Of course it is a main thing for me as we said budget and time, now I can always achieve the budget but once the time overshoots the time that I am allocated to, then some change request has to come from the vendor who has to claim his time.. now I don't know whether you want to use the term bureaucracy... it's the procedures yes (Participant 17).

Based on the above, all interviewees consider efficiency through the three main indicators. However, they emphasised the lengthy procurement procedures or 'bureaucracy' which they characterised as a major constraint that has its influence on projects' time duration.

Preparation for the future

Future is another important criterion of programme success which was not plainly and unmistakably stated in the words used by participants. However, future and innovation are embedded within the field of IT. Continuous improvement, and achieving the vision

of the government were stated by participants, which implies preparing and moving towards the future. This was mentioned by one of the participants:

The IT sector is fast growing, so the success depends on how fast we can consider the requirements and demand and achieve the government's vision...organisation and customer expectations demand continuous improvement that match the market trend (Participant 18).

In this regard, it is worth mentioning that the IT team, as well as others from different business units and the top management, would participate annually in major IT conferences and exhibitions to identify the latest technologies in the utilities industry and assess the possibilities of adopting them. For instance, during the study, FEWA implemented a Customer Relationship Management (CRM/SAP) system which contributed to automating customers' transaction and improving the services provided to its customers.

Social effects

Social effects as a success criterion was not mentioned by participants. Customer satisfaction through the use of 'easy services' was repeated and emphasized by all interviewees. An interviewee stated 'Service is appreciated by the end user and his satisfaction after implementation' (Participant 18). So, social effects are experienced by customers and societies and influence the extent of their general satisfaction derived through utilizing the services provided by FEWA. As previously stated, the 'standard of living' is clearly stated in the Authority's vision statement.

Programme team

The team of the programme is an important aspect of programme success, however, it was rarely mentioned by the majority of participants. Instead, participants more often used the word ‘people’. Training people and updating their skills to match the fast-growing IT sector was emphasized. It was not clear though how different teams were assigned to different projects under this programme, which might be a consequence of FEWA’s dependency on consultants to manage the programme. The researcher, through review of the related documents of this programme, found that only a few people were involved as coordinators between the consultant and FEWA. Almost all phases were performed by the consultant.

Programme success criteria: conclusion

To conclude the findings related to the success criteria for this programme, the researcher found that the IT transformational programme aims to achieve FEWA’s strategic objectives and contribute to the UAE National Agenda. Stakeholders and their satisfaction have a great importance and focus in this programme. However, apart from the internal satisfaction survey, it was not clear how this relationship is managed and satisfaction is achieved. As with other programmes, time, cost and quality are measures used for programme efficiency. These measures were well managed and met as specified in the plan. Preparing for the future, through continuous improvement and innovation, is another criterion of programme success and is rooted in IT projects but was not clearly articulated by participants. Finally, both social effects and programme team were not emphasized for this programme. Table 45 below summarises the findings of the ‘Success Criteria’ of the IT Transformational Programme:

Success Criteria	
Business success	
Interviews	<ul style="list-style-type: none"> - Business success is seen as achieving FEWA's strategic objectives, improve employees' skills, processes and procedures. - Success is limited to digitizing to change the way of doing business.
Review of documents	Gap analysis report, recommendations covered gaps related to people, processes and technology. Changes required to improve department's performance, meet TRA's requirements and achieve FEWA's strategic objectives.
Observations during meetings (formal & informal)	The concerned employees and FEWA's management strive to improve and provide effective and efficient services to its stakeholders through automation.
Informal discussions	The top management through their informal discussions encourage the concerned employees to adopt new technologies that ease processes.
Stakeholders Satisfaction	
Interviews	Participants classified two categories, internal and external stakeholders. They have stated the importance of their satisfaction and measuring it is important (surveys, interviews and observation).
Review of documents	<ul style="list-style-type: none"> - Measuring internal employees' satisfaction against services provided by the IT Department. - Measuring customers' satisfaction against e-services by the TRA.
Observations during meetings (formal & informal)	There is only an emphasis on customers' satisfaction.
Programme efficiency	

Interviews	All participants have emphasised the importance of time, cost and specifications as measures of programme efficiency. Few participants have clarified that bureaucracy (lengthy procurement process) affects the time duration which results in delaying projects.
Review of documents	The transformational programme was performed within the time frame, budget & specifications.
Observations during meetings and discussions (formal & informal)	Lengthy procurement processes and ineffective communication by the department, as a result, delays in responding to the concerned business units on time.
Preparation for the future	
Interviews	Preparing for the future depends on how fast changes can be adopted to coop with the fast-growing and rapid changes in the IT sector.
Review of documents	New projects are initiated to be aligned with TRA requirements and government's directions.
Observations during meetings and discussions (formal & informal)	Participating in international conferences and exhibitions to identify best practices and latest technologies that can be implemented in FEWA.
Social effects	
Interviews	Social effects were not mentioned as a success criterion. Only 'customer satisfaction' through providing easy services (e-and smart services).
Review of documents	- FEWA's Vision.
Observations during meetings and discussions	---

(formal & informal)	
Programme team	
Interviews	- Rarely mentioned by participants as the programme was managed by an external consultant.
Review of documents	- Few people from FEWA was working with the consultant as coordinators. - There is no structured approach to manage teams in FEWA.
Observations during meetings and discussions (formal & informal)	---

Table 45: Case Study (3): Summary of the Results (Success Criteria) According to the Source of Information

5.6.2.2 Programme success factors

Programmes' success factors as identified by Shao (2010) were applied by the researcher, in the same way as the other two cases, as a benchmark and guideline to potential success factors for this programme. The coding method conducted for this aspect was similar to the one with the success criteria that are based on the success factors identified and published in the literature by Shao, Muller & Turner (2012). The codes for each interviewee are shown in the following Table 46.

Interviewee	Programme Success Factors
1	Knowledge, technical expertise, contractors' resources, communication & coordination with local government departments, tendering process, competent project manager to manage time & risk
17	Availability of capable and skilled human resources (skilled & sufficient number of them), finding the right implementation partner, tendering process (regulations), communication
19	Qualified, capable and skilled human resources, management commitment, power, budget, communication, decision making skills, leadership and negotiation skills, networking and building relationships, critical thinking
18	Clear scope of work, resources, time frame, continuous training to improve and update employees' skills
20	Knowledge and experience, proper planning, proper internal communications, proper distribution of the tasks, time and workload management

Table 46: Codes of Programme Success Factors by Each Interviewee

The categories of success factors were recognized. The researcher, then identified the importance of each of these factors through calculating their frequency and repetition by the interviewees. Table 47 presents these factors along with the number of times each of the factors was mentioned:

Success Factors	Frequency
Knowledge, technical expertise, experience, skilled people	5
Communication, coordination, networking and building relations	4
Regulations and tendering process	3
Time management	2
Finding partner/implementer	2

Table 47: Critical Success Factors - Frequency of Mention by Interviewees

As it is shown in the above table, three main factors were repeated by almost all participants. This reflects their importance and contribution to the success of this programme. These factors are: knowledge, technical expertise and skilled employees; then comes the factor related to effective communication; the third is regulations that are related to the tendering process in addition to time management and finding partner or an implementer. Other factors were also mentioned such as proper planning, management commitment and risk management. Further explanation related to these factors is provided below.

Knowledge, expertise and skilled employees

This factor was repeated the most often. All interviewees mentioned that having the right people is crucial for the success of the IT transformational programme. The right people meant having the technical knowledge, skills and experience in similar projects in addition to possess a sufficient number of people. An interviewee was very concerned when talking about this fact as he stated:

See finding the right resources was challenge in IT and we have different reasons for that. I don't know whether it's going to be there or not but...yeah so finding the right resources and mainly because of the package the financial

package that FEWA offers it's a bit difficult to find the right people for that amount human resource is one (Participant 17). The interviewee meant that FEWA is having difficulties to attract and retain IT talents. The reason behind such difficulties can be related to the fierce competition in the UAE workforce market especially within the IT field. The financial package provided by FEWA is considered low when compared with other organisations especially in the Utilities sector. It is noticeable that during the study, the IT Department's organisation structure was modified and the positions were re-evaluated twice, in 2014 and in 2016. Another participant has made similar comments which indicates the importance of this success factor:

.. Frankly speaking resource, capability and management commitment. Recourse and capability no programme will success without capability and resource and when I talk about resource I'm talking about qualified skills set... (Participant 19).

Besides the availability of experienced human resources, continuous training was also emphasized, 'Training is crucial in IT sector in order to meet the fast development in the sector. Therefore, new skills are required and update the current ones, training and on time continuous improved skills' (Participant 18).

The difficulty related to attracting the talented people is always discussed especially the regulations related to attestation of educational degrees and financial packages. It is important to remember that because FEWA is a federal entity, it is obliged to follow all of these regulations.

Communication, network and building relations

Communication as a success factor was repeated four times by participants. Not much was mentioned about it in detail, although the following comment reflects the lack of internal communication between departments:

yeah .. a simple example we've sent one time a project charter to finance and then after 2 – 3 weeks we checked with them and they said okay we lost it so we sent it again and after 2 – 3 weeks they said we lost it so we sent it the third time so you know we try to make sure things doesn't get out of control from our side but .. yeah yeah I'm sure nobody intends to do these things but yeah it happens (Participant17).

Based on the researcher's experience and observation through daily interactions with the Finance Department, most employees within the department lack proficiency in English Language which could be one of the reasons for not responding in the case or example stated by the interviewee because all documents related to projects (in this case IT) are written in the English language. The Training Section in FEWA has not organized any type of training that covers English during the past five years which is referred to by participants as the absence of a structured approach of 'Training Need Analysis'.

Regulations and tendering process

This success factor was repeated three times by interviewees. An interviewee provided a detailed example which reflects the hindering effect of this factor on the programme:

We have another one finding the right partner, now whenever there is a partner who will be doing the job for us a partner means implementation partner so he will... most of our projects is done by having another company now the qualifications of these companies there is some kind of limitations that we get when we choose the right vendor, now according to the regulations here we have to recommend at least 2 companies 2 acceptable companies and based on that which is not wrong but at the same time sometimes we know that this company or this vendor can do the job 100% the other one yeah he can do it but not as good as the others but then... it's... both are acceptable so once we say both are acceptable we get into trouble of the other one being cheaper and being

cheaper means we pay for it ... it doesn't give us that option yeah we have to recommend it yeah... you can say but if the price is high ... they will not listen (Participant 17).

As shown in the above comment, FEWA follows the Federal Procurement Regulation. According to the regulation, all federal government bodies are required to consider the price factor when evaluating tenders and award contracts to bidders who offer the lowest price, if all offers are technically acceptable.

The remaining success factors that were mentioned by participants, are time management and finding the right partner (implementer). Both were repeated by two participants in addition to other factors such as top management commitment, negotiation skills, risk management. It is worth noting that the leaders of FEWA express a strong commitment towards IT and adopting new technologies to improve productivity. This is in addition to the mandates and directions of the UAE government towards e- and smart solutions.

Leadership style and competences

Leadership is an important success factor which was mentioned by the participants of this programme. All interviewees mentioned the importance of this factor. They also revealed that the style of leadership depends on the type of programmes. Therefore, whereas the democratic style is always recommended: 'Democratic of course, but in some situation, it requires a dictator' (Participant 19). The participant did not elaborate or provide examples. Another participant stated:

Okay I am the easy-going type I try avoid conflict I try to resolve the conflicts between the employees as much as possible I will manage it one way or another I will bring people together. Yeah...again yes things that affects people it has to be managed differently because you have to introduce it slowly to the

business, we have projects that has nothing to do with people it is only infrastructure that one is completely managed in a different way because it's more of a company moving boxes and implementing it and then they leave once it's done (Participant 17).

There has been a focus on close monitoring and supervision by one of the participants who holds a director position who explained this is done in order to achieve success:

Huh... again we are talking about management skills there is one maybe timely escalation daily follow up on the project the milestones making sure the milestones are being delivered not waiting for any issues to happen... I mean again dedicated person more than ... then working towards the target should be the same I mean with the IT and business they have to be aligned together so if my plan is to finish a project for a department that should be also their goal (Participant 17).

As with the previous two core cases 'Electricity' and 'Water', interviewees were asked to rate the set of leadership competences that are based on the fifteen dimensions developed by Dulewicz and Higgs (2003). These competences are shown in Table (48) below.

The following Table 48 presents the results of the ratings given by the participants which reflect their perceptions of the importance of the leadership competences required for managing successful IT programmes:

Competence	Frequency		
	Low	Medium	High
Critical Analysis & Judgement	---	1	4
Vision & Imagination	---	1	4
Strategic perspective	---	---	5
Engaging communication	---	3	2
Managing resources	---	2	3
Empowering	---	2	3

Developing	---	4	1
Achieving	---	---	5
Self-Awareness	---	2	3
Emotional resilience	3	2	---
Motivation	---	2	3
Interpersonal sensitivity	3	1	1
Influence	---	5	---
Intuitiveness	1	3	1
Conscientiousness	---	3	2

Table 48: Competences - Frequency of Mention by Interviewees

The results show that in this type of programme ‘Strategic Perspective’ and ‘Achieving’ are rated as the most important competences for this type of programmes. These competences fall under the IQ and MQ sections. The second important competences are ‘Critical Analysis & Judgment’ and ‘Vision & Imagination’. Both fall under the IQ heading. On the other hand, it was found that the least importance competences in this type of programmes are ‘Emotional Resilience’ and ‘Interpersonal Sensitivity’. An explanation of the reasons for these ratings may be because of the complexity of transformational IT programmes. The most important competence under the EQ group of competences was ‘Self-Awareness’ and ‘Motivation’.

Programme success factor: conclusion

The following Table 49 summarises the findings of this section from different sources of information

Programme Success Factors	
Knowledge, expertise & skilled employees	
Interviews	<ul style="list-style-type: none"> - The quality and quantity of people is crucial for the success of this programme. - The right people are those who have technical knowledge, skills and experience in similar projects. - Difficulty to attract talents in this area due to the competition in the IT sector.
Review of documents	<ul style="list-style-type: none"> - HR Records: rejected offers (Financial packages are low compared with others especially in the utilities). - ITD Organisation Structure: many vacancies & modified twice 2014 & 2016. - Training Records: lack of technical training to be aligned with the fast changes technologies in the sector. - Employment regulations (experience, attestation, salaries, etc.)
Observations during meetings and discussions (formal & informal)	<ul style="list-style-type: none"> - Difficulties to attract people in IT and especially those who have experience in the ERP/SAP system. - Difficulties related to Attestation of degrees from other countries (especially those who would accept lower salaries).
Communication, network and building relations	
Interviews	<ul style="list-style-type: none"> - The importance of communication, as a success factor, was stated, especially the internal communication with different business units, but not much details were provided.
Review of documents	<ul style="list-style-type: none"> - IT documents are all issued in English language. - Responses to correspondences & e-mails are delayed (several reminders). - Training needs analysis does not exist (2014 & 2015). - Training needs analysis in 2016 does not specify any English language courses.

Observations during meetings and discussions (formal & informal)	<ul style="list-style-type: none"> - Almost all staff in the Finance Department lack English language proficiency. - Employees' behaviours and attitudes are negative towards communication (Working in silos) and the importance of time management.
Regulations and tendering process	
Interviews	<ul style="list-style-type: none"> - According to the federal procurement regulation contracts are awarded to bidders offering the lowest price if all offers are technically accepted.
Review of Documents	<ul style="list-style-type: none"> - The Federal Procurement Regulation. - Minutes of meetings: Tenders Committee and recommendations.
Observations during meetings and discussions (formal & informal)	<ul style="list-style-type: none"> - The federal procurement regulation has its impact on contracts.
Leadership style & competences	
Interviews	<ul style="list-style-type: none"> - All participants have stated the importance of leadership as a success factors for IT programmes. - The practiced leadership style depends on the type of the programme. The democratic style is preferred with close monitoring. - The most important competence as rated by participants 'Strategic Perspective' and 'Achieving'. These fall under the IQ and MQ sections while the least importance one is 'Emotional Resilience' and 'Interpersonal Sensitivity'.
Review of documents	<ul style="list-style-type: none"> - Leadership competences are specified in the JDs.

Observations during meetings and discussions (formal & informal)	---
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**Table 49: Case Study (3): Summary of the Results (Success Factors)
According to the Source of Information**

5.6.2.3 Programme context

Programme context investigates the external and the internal contextual factors that have an impact on the success of the programme. It is addressed through three questions in Section (V) of the interview protocol. These questions explore the external factors that could have an impact on the success of the programme, how such impact varies according to the programme’s type and whether the programme manager can influence those factors. The context of the programme covers a number of things such as external factors, the type of the programme, and the governance system. All the required competences are identified in the job descriptions according to the required level.

External influence (political and economic)

The interviewees identified several factors namely: the market, environment, quality of the implementer, customers, and most important, the regulations and government requirements or mandates. Regarding the IT programmes, the mandates come from the Telecommunication Regulating Authority (TRA) that works towards regulating the telecommunications sector, and enabling government entities in the field of smart

transformation. As with other federal entities, FEWA has a set of initiatives, activities and KPIs that are directed towards achieving its strategic objectives and contribute to achieving the overall vision of the organisation. These initiatives are approved and the KPIs are monitored by both the TRA and the PMO. The impact of government is clarified by an interviewee in the following comment:

See when the roadmap was made as much as possible we tried to see what the other requirements that come...what happened during the execution of these projects, we started getting some additional requirements so these ad hoc requirements really affected us and so in general it delayed some of our own deliverables that we were supposed to finish on time ... these are mandates so suddenly you will get a mandate from the government that you have to do certain thing so some of them were in line with our roadmap but at a later stage. So we had to bring some of them ahead... yeah budget has never been a problem we have always got approval for the budget ... the change of the technology okay it's not really a challenge but again when we get a certain mandate again its related to my own experience now because of I take the activity of doing the e-services and mobile services we did many of these services and we knew that because of the pressure from the government that we have to achieve that 100% of all the services to be online I was doing something temporary so I knew that I am not really following the right way of doing it waiting for SAP to be completed. We implemented SAP solution on mobile so I had to do a shortcut but the mandate was there to within May we have to complete everything .. yeah basically yeah .. yes .. nothing wrong with their requirements I mean theirs... they have a different vision from their side, so but these things it affects internal programmes for us (Participant17).

Internal influence

FEWA structure

The organisational structure of the IT Department had its impact on managing this programme successfully because there is a section that is responsible for projects. Although one of the participants stated that there is no structured approach to managing programmes in FEWA, another two participants explained the way they manage and monitor the programmes and various projects under it:

Yeah see the way we do it we have a PMO in our department we assign him to, as you can call it as a coordinator for all the projects under that programme in addition to other things also but this programme is completely under ... yes I have it's a person who's doing this job yeah his designation is a bit different but he is doing 100% this job. It's called projects and vendors so yeah so yeah from the beginning we agreed on weekly meeting and status meeting so we take project... there is a dashboard for the project itself so we can look at the milestones of the project where is now whether it is achieving the milestones or not and we have red green and yellow signs... "No specific methodology or tool .., Microsoft projects is for projects to look at details, this is an overall it's more of a dashboard per project but this is manually done take it and yeah.. but there are some tools in the market we will try to evaluate some ... (Participant 17).

I am following the status of the deliverables and day to day activity but in a periodical level for example there is a weekly progress report and weekly progress meeting which give me good indicator if we are progressing in the right direction. I will be able to see the last achievement last period and the upcoming activities, if there are risks need to be mitigate if there are issues need to be solved, decisions that need to be taken, all that through weekly and monthly status report and meeting .. Mainly Microsoft project and power point for presentation (Participant 19).

Having a specific business unit that is responsible for monitoring the programme had its impact on managing the IT transformational programme in a successful manner.

Change management

Change management is an important aspect in the context of IT. For this programme, almost all interviewees spoke about the importance of change management to achieve programme benefits 'Change management is very important with IT programmes as it always involves new systems & technologies' (Participant 18). Further, the following remarks explains participants' views:

In my previous couple of major implementation of SAP; I can assure you that change management approach played a major role in the success of any "change". The change can be for a small process or introducing a new rule or regulation, and as well as implementing an ERP solution that can affect a large

audience of an organization. From implementation of SAP in FEWA, I saw that “Change management” process started in a very late stage where damage has already done and the project took its own casualties in terms of delays and setbacks and failures (Participant 17).

In fact, IT is a very dynamic environment due to the business demand and market trend; also, the ROI will be after project go-live; therefore, managing change in organizational culture is a long-term care and that’s why change management is part of our continuous improvement cycle, not only during projects (Participant 19).

Change management as explained in the above remarks incorporates the organizational tools that can be utilized in order to help people make successful transitions that would result in adopting and realizing the change.

Governance

Governance is another aspect that the researcher endeavoured to investigate further since it was mentioned by most of the interviewees. One interviewee asserted its importance when he said, ‘Yes, but needs improvement & require a bit of decentralization’ (Participant 18). Another interviewee stated a similar point of view, ‘Yes, I do believe that the governance system applied in IT contributed in achieving the programme success; but, there are still so many things to do to improve it’ (Participant 19).

Programme type and typology

The interviewees’ provided different answers when asked the question ‘In relation to the external factors and their influence on programme success, how does the influence differ by different programme’s type?’ Two interviewees stated that the influence

differs according to the type of programme. For example, an interviewee from a managerial level stated: ‘SAP/ERP is different from networking programmes’ (Participant 18) but no further explanation was provided. While another interviewee from the projects section said: ‘In an organisation like FEWA, any change in regulation we may get impact...since we are government and we have to adopt the change’ (Participant 19).

Influence of programme manager

Interviewees explained that the influence of the programme manager differs depending on the type of programme. Participants held different views in relation to the influence of a programme manager. One of the interviewees emphasized the importance of this role when he stated: ‘See ... it’s a big responsibility, it’s a key role that he plays... people when they see a certain manager they might even accept a solution easier if they see a certain person who is acceptable to the people themselves’ (Participant 17). On the other hand, another participant stated:

The role depends on the ‘authorization level’...not all the time because under the programme there is a project manager who’s handling the day to day work , programme is facilitating monitoring the performance of the program managing dependencies and Risks across the programme (Participant 19).

According to the answers given by interviewees, the programme manager has no influence on external factors related to the government regulations but he/she may have an influence on the success of the programme, if the factors are internal ones related to the operational level.

Programme context: conclusion

The following Table 50 provides summary of the findings of this section:

Programme Context	
External influence	
Interviews	- Several external factors were identified such as the market, customers, government regulation.
Review of documents	- Strategic and operational plans.
Observations during meetings and discussions (formal & informal)	---
FEWA structure	
Interviews	- There is a section that is responsible for managing IT projects.
Review of documents	- IT organisation structure. IT Job descriptions
Observations during meetings and discussions (formal & informal)	---
Governance	
Interviews	- The existing system is good but requires improvement and decentralization
Review of documents	- FEWA's governance system
Observations during meetings	---

and discussions (formal & informal)	
Change management	
Interviews	- Very important for managing IT programmes successfully.
Review of documents	- Change Management presentations.
Observations during meetings and discussions (formal & informal)	- It is important to prepare employees for the changes in order to ensure smooth and successful implementation of IT projects. - People resist change if they are not prepared and convinced with the new changes.
Programme type & typology	
Interviews	- Participants mentioned that the influence of these factors depend on the type of the programme.
Review of documents	---
Observations during meetings and discussions (formal & informal)	---
Influence of programme manager	
Interviews	- Contradicting view, some see that the programme manager plays a major role while others consider his role minimal when the external factors are mandates from the government.
Review of documents	---

Observations during meetings and discussions (formal & informal)	---
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**Table 50: Case Study (3): Summary of the Results (Programme Context)
According to the Source of Information**

5.6.3 Case Summary

The ‘IT Transformational Programme’ is managed by the IT Department which is one of FEWA’s support departments under the ‘Shared Services Directorate’. FEWA’s top management decided to restructure the IT Department in order to meet the internal IT requirements in addition to external mandates by the federal government. An external consultant was contracted to perform a gap analysis covering three main streams namely: people, processes and technology. The programme included several projects such as IT service management (ISO 20000), GIS improvement and reviewing department’s organisation structure. The outcomes of this programme enhance the IT services and contribute to achieving FEWA’s strategic objectives. Through the review of the programme’s results related to the three-year strategic cycle (2014-2016), it was found the programme achieved the planned benefits and was efficient in relation to aspects of time, within budget and specifications.

The analysis of the IT transformational case study allowed the researcher to evaluate the success of the ‘IT Transformational Programme’. Based on aspects of the success criteria, the business success has been driven by the organisation and the State’s

strategies. Although, programme's stakeholders and their satisfaction are considered vital to the success of the programme, only a few practices were instigated. In terms of efficiency, the programme was a success according to the time, cost and quality measures. The remaining aspects of the success criteria were partially considered by the programme but were not clearly understood or mentioned by the interviewees. In relation to the success factors, the researcher decided that most important success factor was the availability of skilled and knowledgeable people. Participants raised it as an issue that FEWA faces due to the workforce competition. However, the programme succeeded because it depended on the resources provided by the consultancy organisation. Communications and tendering processes were another two important success factors required to achieve success. Finally, the context has its impact on managing the IT programme in a successful manner.

5.7 Cross Case Analysis

This section is mainly dedicated to the analysis of the findings from the three case studies that have been presented in this chapter. The aim is to answer the research questions and to develop an understanding of the influencing criteria and factors that would affect programme management in FEWA. The findings contribute to the discipline of programme management. This section first provides a cross case analysis for both core cases ‘Water’ and ‘Electricity’, then it assesses between both cases and the IT Transformational case. Similarities and differences related to the three main aspects (success criteria, success factors and programme context) are presented.

5.7.1 ‘Water Programme Vs. Electricity Programme’

Comparing both cases revealed a number of similarities and differences as shown in Table 51 below.

Success Criteria

Programme Success Criteria	Similarities	Differences	
	Cases (1) & (2)	Case Study (1) Water Programme	Case Study (2) Electricity Programme
Business success	<ul style="list-style-type: none"> - Achieve vision, and strategic objectives. - Provides services to meet the demand. 	<ul style="list-style-type: none"> - Reputation - Reliability - Benefits 	<ul style="list-style-type: none"> - Sustainable infrastructure/net work

	- Revenue		
Stakeholders satisfaction	- Classification/ Internal & External	- Customer satisfaction & happiness - Contractor satisfaction	- Satisfaction was not mentioned.
Programme efficiency	- Time, cost, specifications	- Functionality & Operation	- Budget
Preparation for the future	- Introduce innovation and new/latest technologies.	- Change the way of doing business	- Expand power plants to be pioneer to supply power & electricity by 2021. - Sustainable services
Social effects	- Customer needs	- Happiness	- Sustainable services at a distinct level
Programme team	- Teamwork/good teams	- Coordination	- Competent Project Manager

Table 51: Similarities & Differences of Success Criteria for Case Studies 1 &2

The similarities between the core cases among the success criteria show that both programmes consider business success is to achieve FEWA’s strategic objectives and to achieve its vision. Success is also seen as the continuous provision of FEWA’s services water, electricity, making revenues and profits. In Case Study (1) business success is seen as to achieve reliability and the organisation’s reputation. Participants from this programme are aware of the concept of ‘Benefits’ which is translated into continuous supply of water services. While in Case Study (2) there is a focus on

ensuring sustainable services through the infrastructure and network. In relation to stakeholders, both cases, classified them into two main categories namely internal and external. One main difference between the two cases is that in the first case study, satisfaction was mentioned only for customers (only one participant mentioned contractors' satisfaction), while it was not mentioned at all in Case Study (2). For both cases 'Programme Efficiency' is measured through time, cost and specifications. However, in 'Water' functionality and operation were also mentioned. Regarding the 'Social Effects' criterion, both cases are limited to meeting customer needs. In Case Study (1) there is a focus on happiness while in Case Study (2) the social effects were seen as sustainable services, at a distinct level reflecting the vision of the authority. Finally, both cases included mention of teamwork but in 'Water' the emphasis was more on coordination and in the 'Electricity' case it was predominantly on the competences of the project manager him/her self.

Success factors

Table 52 below provides a comparison between cases (1 & 2) in relation to the programme success factors.

Similar Success Factors	Differences	
	Water	Electricity
The availability of resources (HR, Technical & Financial)	---	---

Communication	Focusing on external stakeholders, government authorities, contractors, etc.)	General statement
Programme manager	Skilled programme manager (manage project, good supervision, manage time, budget and risk, effective planning)	Competent programme manager (decision maker, problem solving)
Programme management approach	Focusing on good planning & close supervision and monitoring (Process)	Project management process
Team	Focusing on trust & confidence	General statement
Risk management	---	---
Others	---	<ul style="list-style-type: none"> - Criteria for selecting Suppliers - Tendering Process - Motivation, encourage decision making, accept mistakes (no blaming) - Employees behaviours (Commitment)

Table 52: Similarities & Differences of Programme Success Factors for Cases 1 & 2

The availability of different resources and managing risk were seen as success factors by participants from both programmes while the remaining success factors were considered differently by each programme. So, for ‘Communication’, the ‘Water Programme’ focuses on external stakeholders especially government authorities and contractors while in the Electricity Programme, communication was mentioned as a general factor. Regarding programme manager’s competences, the ‘Water Programme’ focuses on the way that the manager managed the programme’s processes, whereas in

the ‘Electricity Programme’ the focus is on decision making and problem-solving competences. Finally, ‘Water Programme’ focuses on trust and confidence in ‘Teams’ while it was only more generally stated in the ‘Electricity Programme’. Additionally, the ‘Electricity Programme’ identified other factors that are seen to have an impact on the success of the programme, these are: suppliers’ selection criteria, the tendering process, motivating and encouraging employees to take decisions in addition to employees’ commitment towards work.

Leadership style and competences

Table 53 below makes a comparison between both case studies in relation to the leadership style and competences:

Leadership Style & Competences		
Similarities Case Study 1 & Case Study 2	Differences	
Leadership Style	Water Programme	Electricity Programme
- Leadership style is influenced by the programme type	Autocratic Vs. Democratic	Transformational
Leadership Competences		
1. Most important leadership competences: - Critical analysis’ & judgment - Engaging communication - Managing resources - Achieving	---	---
2. Least important competence: - Interpersonal sensitivity		

3. Competences fall under the IQ and MQ groups of competences due to the complexity of both programmes.		
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Table 53: Similarities Vs. Differences of Leadership Style and Competences for Cases 1 & 2

In both cases, the style of leadership depends on the type of programme. In the ‘Water Programme’ as explained earlier in this chapter, the researcher found that there is a relationship between the leadership style and the team members. Their previous work experience and professional backgrounds have an impact on the style followed by the programme manager. Accordingly, the style ranges between an autocratic and democratic style, although in the Electricity Programme the transformational leadership style is preferred. Regarding the leadership competences, both programmes have identified the most important ones as critical analysis & judgment, engaging communication, managing resources and achieving. The least important competence was identified in both cases as ‘Interpersonal sensitivity.’ This reflects the fact that both programmes are similar in nature and complexity as the identified competences fall under the intellectual and managerial competences dimensions.

Programme context

The following Table 54 provides a summary of the similarities and differences related to the programme context for both ‘Water’ and ‘Electricity Cases.

Programme Context		
	Similarities	Differences

	Case Study 1 & Case Study 2	Water Programme	Electricity Programme
External factors	<ol style="list-style-type: none"> 1. The federal directions & regulations 2. Local governments' entities (municipalities & public works). 3. Economic recession 	Environmental factors	Other federal entities
Programme manager influence	<ol style="list-style-type: none"> 1. At the 'Planning Stage' 2. Operational decisions 	Negotiation skills	Decision making & problem solving

Table 54: Similarities Vs. Differences of Programme Context for Cases 1 & 2

Based on the comparison shown in Table 54, both programmes are influenced by the political environment (the directions of the State/Federal Government and decisions of the local government entities in the emirates where FEWA operates) and the economic recession. These two areas have a major impact on the success of programmes. The main issues are with municipalities and public works bodies. However, other factors were also mentioned, so for the 'Water Programme' Environmental factors were specified while other federal entities were stated by the 'Electricity Programme' such as the Ministry of Infrastructure Development, Ministry of Climate Change & Environment, The Civil Defense Department. For both cases, the influence of the programme manager is limited to the planning stage and operational decisions. Programme managers' Negotiation skills are seen as important for solving these issues while decision making and problem solving are important in the 'Electricity Programme' are considered important.

Governance

There were no differences between both cases in relation to programme governance. The governance system in FEWA contributes to the success of both programmes, although it should be reviewed and improved as stated by almost all interviewees. In the ‘Water Programme’ a suggestion by a participant was to change the members of Projects’ Steering Committee to include members with financial, legal and technical experience. This need has recently raised as the authority is adopting a new business model which is the Public Private Partnership projects (PPPs) that requires these types of expertise.

5.7.2 ‘Water & Electricity’ Vs. IT Transformational Programme’

In this section, a cross case analysis is made between the core programmes (Water & Electricity) with the IT Transformational Programme. The analysis identifies similarities and differences among the three main aspects namely: success criteria, success factors and programme context.

Programme Success Criteria	Similarities	Differences (Case 3)
	Cases 1, 2 & 3	
Business success	<ul style="list-style-type: none"> - Achieve vision, and strategic objectives. - Provides services to meet the demand. 	<ul style="list-style-type: none"> - Change the way of doing business (Transformation to digitizing). - Cost Effective & improve efficiency - Improve skills, policies, technology infrastructure.

	- Revenue	
Stakeholders satisfaction	- Classification/ internal & external - Customer satisfaction	- Internal & external stakeholders' satisfaction
Programme efficiency	- Time, cost, specifications	---
Preparation for the future	- Introduce innovation and new/latest technologies.	- Continuous improvement that matches market's trend
Social effects	- Customer needs	- Easy services and increase the use of them
Programme team	- Teamwork/good teams	- Not Mentioned

Table 55: Similarities & Differences of Success Criteria for Cases 1, 2 & 3

Table 55 above shows that all three cases consider business success as achieving FEWA's vision and strategic objectives. For the IT Programme, success is also related to things such as changing the way of doing business, improve efficiency, skills, procedures, etc. In relation to 'Stakeholders' Satisfaction', all three programmes have clearly identified their stakeholders, internally and externally. But the IT Programme was different from the two other programmes' in emphasizing their satisfaction which was one of the gaps identified within the case analysis presented earlier on this chapter. For the next success criterion, 'Programme Efficiency' is measured by all programmes through cost, time and specifications. Preparation for the future was also considered by all programmes, what is different in the IT programme is that it is seen as continuous

improvement to meet the rapid changes in the market. Regarding the social effects, it is considered by the IT Programme as to provide easy services and increase their use by customers. The last criterion is ‘Programme Team’, which was not stated or mentioned in this programme, instead, ‘people’ and training them was the main focus. This is due to the fact that this programme was managed by the external consultancy company with coordinators from FEWA.

Success factors

Table 56 presents the similarities and differences in the success factors as seen by all three programmes.

Similar Success Factors Cases 1 & 2	IT Transformational Programme Differences
The availability of resources (HR, Technical & Financial)	Knowledge, technical expertise, experience & skilled people
Communication	Coordination, networking & building relations
Programme Manager	Not mentioned
Programme Management Approach	Not mentioned
Team	Only people & training were mentioned
Risk Management	Not mentioned
Regulations & Tendering Process	Regulations & Tendering Process
Others:	<ul style="list-style-type: none"> - Finding Partner/ Implementer - Time Management - Change management

Table 56: Similarities & Differences of Success Factors for Cases 1, 2 & 3

The above table presents a comparison of the success factors considered by the three cases. The main similarities are in having skilled human resources, communication, regulations and tendering process; Time management was also considered as a success factor for the IT Programme, in addition to ‘Finding Partner/ Implementer’. This later factor could be related to the nature of IT programmes.

Leadership style and competences

The following Table 57 presents the main similarities and differences related to leadership style and competences as considered by all three cases.

Leadership Style & Competences	
Similarities Case Studies 1, 2 & 3	Differences
Leadership Style	
- Leadership style is influenced by the programme type	Democratic Vs. Dictator (Similar to Case Study 1)
Leadership Competences	
1. Most important leadership competences: <ul style="list-style-type: none"> - Critical analysis’ & judgment - Engaging communication - Managing resources - Achieving <i>(Competences fall under the IQ and MQ groups of competences due to the complexity of both programmes.)</i>	1. Most important leadership competences: <ul style="list-style-type: none"> - Strategic Perspective - Vision & Imagination <i>(Competences fall under the IQ and MQ groups of competences due to the complexity of both programmes.)</i>
2. Least important competence: <ul style="list-style-type: none"> - Interpersonal sensitivity (Competence fall under the Emotional Competences)	2. Least important competences <ul style="list-style-type: none"> - Emotional Resilience (Competence fall under the Emotional Competences)

Table 57: Similarities Vs. Differences of Leadership Style & Competences for Cases 1, 2 & 3

The three programmes show similarities in relation to the leadership style and competences required to lead the programmes. The table below shows that the type of programme influences the leadership style. Further the competences required for managing all three programmes are categorised under both the Intellectual and the Managerial competences which reflects the complexity of these programmes.

Programme context

For ‘Programme Context’ and their impact on programme success, Table 58 shows the main similarities and differences across the three programmes.

Programme Context		
	Case Study 1 , 2 & 3 Similarities	IT Transformational Programme Differences
External factors	<ul style="list-style-type: none"> - The federal directions and regulations - Economy (Market, Recession) 	<ul style="list-style-type: none"> - Quality of the implementer - IT Market
Programme manager influence	No influence on external factors	Depending on the type of programme

Table 58: Similarities Vs. Differences of Programme Context for Cases 1, 2 & 3

The external factors for all three programmes are the same which is the federal directions and regulations. However, The IT Programme has another two factors ‘Quality of the implementer’ and the Market. These two are related to the nature of the IT programmes. In relation to the Influence of the programme manager, all three programmes are obliged to follow the regulations by the federal government and in this case, the programme manager has no influence. However, in the IT Programme participants see that the influence of the programme manager depends on the type of the programme.

Governance

All three programmes consider the governance system in FEWA important and contributes to the success of the programmes, though it still needs to be reviewed and improved. In the IT Programme, there was a view that it should be decentralized, but this is not straightforward to implement in the Authority as it follows the Federal government rules and regulations.

FEWA structure

Regarding the organisation structure, there is a similarity across all three programmes. For the ‘Water’ and ‘Electricity’ Programmes, there is a projects department in each directorate. The same applies to the IT Programme; it also has its own projects section or PMO as stated by one of the participants. Although each programme is managed through a specific business unit, the IT Programme was the only programme to finish on time, according to the cost and specifications. The reason may be due to the consultants who managed the programme, as was mentioned earlier in this chapter.

Change management

Change management was seen by the IT Programme as crucial to achieve success and benefits for the programme, while it was not as important to the other two core programmes. The reason can be referred to the rapid changes in information technology area which is not the same in the 'Electricity & Water' programmes.

5.8 Chapter Summary

To summarize this section, the researcher, through the cross-case analysis, has found that in all three programmes 'Success Criteria' are considered with similarities and differences that were presented. The main findings in this aspect are related to 'Stakeholders Satisfaction', 'Social Effects' and 'Programme Team'. For the satisfaction of programmes' stakeholders, only the IT Transformational Programmes was fully aware of its importance to programme success while the other two programmes focused solely on customers' satisfaction. All three programmes neglected 'Social Effects' and 'Programme Team' as success criteria. Social effects were seen as to meet customers' needs and provide them with easy services. The Programme team was not emphasized. In relation to the second aspect 'Success Factors', the analysis revealed that The IT Programme have not considered the three main success factors namely 'programme manager', 'programme approach' and 'risk management' because the programme was fully managed by the external consultants. The leadership style was similar between both the 'Water Programme' and the 'IT Programme'. Both prefer the democratic style with autocratic style used to manage risks. While in the 'Electricity

Programme’, the ‘Transformational style was preferred. All three programmes agreed on the fact that the leadership style is influenced by the programme type. Moreover, the most important leadership competences were almost similar in all three cases and came under the ‘Intellectual and Managerial Competences’; the least important ones were ‘Interpersonal Sensitivity’ and ‘Emotional Resilience’ and they fall under the category of ‘Emotional Competences’. For the ‘Programme Context’ aspect, and its impact on programme success, there is an agreement across all three of the programmes that external factors affect the success of the programme. These factors are mainly the directions by both the federal and local governments. Further, the programme manager will not have any influence in such cases. In the ‘Water Programme’, the programme manager’s negotiation skills were seen important to affect the success of the programme when facing difficulties with the local government. For the IT Programme, it was said that the role of programme manager and his influence depends on the type of the programme. Finally, the remaining aspects namely, governance, organisation structure and change management, show similarities. The governance system in FEWA was considered as a contributor to the success of the programme, though it should be reviewed and modified periodically. FEWA’s organisation structure was also seen to have an impact on programme success. In each case, there is a separate business unit that is responsible for its programmes which resulted in a silo mentality. Finally, change management was considered crucial to achieve benefits of the IT Transformational Programme, which was not the case for the other core programmes ‘Water’ and ‘Electricity’. This can be justified by the nature of each programme as clarified in the cross-analysis section.

Chapter 6 Discussion of the Results and the Proposed Framework for Programme Success

6.1 Introduction

In the previous chapter, the researcher reported the results from interviewing a selected number of participants, reviewing documents, and observing relevant meetings pertaining to three different programmes led by FEWA's managers and directors. This chapter discusses the research results and explains how the thesis has achieved the research objectives and answered the research questions. The main findings and their contribution to knowledge and practice are presented including the proposed framework for managing programmes in the UAE public utilities sector which is developed based on the findings of this empirical research. The chapter highlights the main implications of this thesis from theoretical and managerial aspects. Finally, the research limitations are stated.

6.2. A Summary of the State of the Literature on the Measurement Dimensions for Successful Programmes

Essentially, in all three cases, CSFs were specified in the project objectives and the programme manager was accountable to FEWA for the assessed degree of programme success for each CSF.

The topic of success often involves two main aspects, success criteria and success factors. Success is normally defined in terms of success criteria. Cooke-Davies (2004) highlights that success criteria are the measures against which it is judged to decide

whether the outcome of the project is a success or a failure. These criteria depend always on project success factors generally known as CSFs. Critical success factors are the inputs and systems required to deliver the success criteria (Cooke-Davies 2002; Wateridge 1995; Mir & Pinnington 2014). The same concept is used with assessing programme success. The discussion of both success criteria and success factors provide answers to the first question.

In the present study, the researcher has evaluated three programmes in the utilities public sector in the UAE: Water, Electricity and IT Transformational programmes based on both aspects of success. For each of these cases, six constructs were identified and used to analyse their success. Previous research by Shao and Muller (2011), identified six programme success constructs namely, business success, stakeholder satisfaction, programme efficiency, preparation for the future, social effects and impact on programme team. The identification of these constructs was based on project success criteria model considering the distinctiveness of programmes (Shao & Muller 2011). As mentioned in the previous chapter, the researcher used these constructs to investigate the practices and assess FEWA's selected programmes; the findings are discussed in the following sections.

6.2.1 Success Criteria

The results showed that only a few criteria that are highlighted and defined in the literature were acknowledged and considered by interviewees when managing their respective programmes. The criterion of 'Business Success', 'Programme Efficiency' and 'Social Effects' were the most often mentioned success criteria considered by participants across all three programmes. Others were not clearly understood or at least

not explicitly acknowledged. Each success criterion is discussed in detail in the below section.

6.2.1.1 Business Success

Business success can be translated into a number of things such as creating value, benefit realization, reputation, strategy achievement, revenue, and objectives. All of these are strongly present in the culture of FEWA. Participants emphasised the importance of several of these criteria. All three programmes consider 'Business Success' in order to achieve FEWA's strategic objectives through ensuring the provision of sustainable services to customers. The results echo what Thiry (2004) and Shao and Muller (2011) mentioned in relation to the ability of programme management to deliver strategic change or synergetic benefits (Shao & Muller 2011). Levin (2013) indicates that the best practice approach to programme management requires alignment between individual projects within the programme and the strategic direction of the organisation. It is also worthwhile to mention that Thiry (2015) affirms that programme management fits with the large context of the organisation; every programme has a specific strategic objective to be achieved (Rayner & Reiss 2013) and programmes are perceived as vehicles for strategy implementation (Pellegrinelli et al. 2007). In this study, each of the programmes being investigated is linked to one or more organisational strategic objectives. As has been mentioned in the literature review (Chapter 2), programmes provide a transformational way which integrates projects and the strategies of organisations (Shao, Muller & Turner 2012). Successful programmes are concerned with delivering benefits and strategies; benefits could be tangible and intangible (Shao, Muller & Turner 2012). Similarly, Maylor et al. (2006) mentioned that the success of programmes lies in

achieving organisational strategies through programmes. Further, the success of programmes is linked with bringing about change (Pellegrinelli 1997; Lycett, Rassau & Danson 2004; & Reiss et al. 2006) and value creation and the learning loop as presented by different programme management standards (see Chapter 3). This success criterion is important and has been considered as the driving source for all three programmes in this study. It is probably in part attributable to the culture of achieving benefits, vision and mission to provide UAE citizens with the best services alongside increasing FEWA's revenues and profits.

6.2.1.2 Programme efficiency

Programme efficiency is one of programme's success measures. Efficiency indicators are time, cost, quality/specifications and functionality (Shao 2010). This measure is undoubtedly the criterion which all participants talked about stressing the importance of finishing on time, within budget, and according to specifications. There is a clear emphasis on the "Iron Triangle" of time, cost, and quality/scope. The focus on efficiency seems to root itself in the "culture" of the managers and implementers themselves as project managers. Even so, the analysis of the results revealed insufficient control over the Water and Electricity programmes which caused loss of synergies between projects within both programmes and resulted in delays and sometimes cost overruns (Rijke et al. 2014). This situation indicates the limited perspective on managing programmes at FEWA, as they are seen and managed predominantly as projects. Indeed, it is also significant because most of the involved parties are engineers and come from a background where efficiency is an essential success indicator for projects. However, 'Programme Management', as previously

mentioned, involves integrating and managing a group of projects that are related with the specific intent to achieve increased benefits. Such benefits will not be effectively realised whenever these projects are managed independently (Lycett et al. 2004). The fundamental thinking underlying this definition of programme management considers two main aspects, efficiency and effectiveness along with business-focused goals. So, in order for programme management to achieve its goals, it requires realizing maximum benefits with efficient execution of projects and aligning projects with external requirements, drivers and cultures (Lycett et al. 2004; Shenhu & Akintoye 2009; Reiss et al. 2006; & Shao 2010). It is often the case that engineering programmes risk being deemed failures whenever they are assessed exclusively on measurements of cost and schedule (Rebentisch 2017). Additionally, engineering programmes will always face unpredictable organisational, political as well as technical challenges, which have to be overcome by the team managing these types of programmes (Rebentisch 2017). Measuring programme success must take into consideration both efficiency and effectiveness indicators such as benefits (Shao 2010). As previously identified in the extant literature, efficiency is highly important and to be considered as a measure of success in programmes. However, this criterion should be part of a framework of performance indicators. Moreover, programmes at FEWA would benefit from a more comprehensive programmification of the organization's strategic initiatives, and not further extend the project management approach as it does not seem to be the best way forward in managing programmes successfully.

6.2.1.3 Social effects

Successful programmes are measured in terms of their social effects and this is done in FEWA. Social effects include the influences programmes have on society such as improving the quality of lives for citizens, social economic benefits, development in science and technology (Shao 2010). Social effects as a criterion was somewhat timidly present in the findings. The researcher believes that this is caused by social effects being closely tied or connected to business success in the minds of participants. Indeed, if we even compare both in the literature, we can find that there are considerable overlaps especially for government programmes. They are both about benefit realization, when the benefit is offered to the citizen, it implies a social effect. The concept is clearly talked about in FEWA's mission and vision, and there are, for example, indicators to retrace the number of service interruptions, considered a negative element hindering social comfort. However, when 'social effects' is mentioned, it is often combined with consumer satisfaction and sustainability of services. The socioeconomic benefit is considered one of the most important success criteria in programmes concerned with building large infrastructures for the public and promoting the development of science and technology (Shao & Muller 2011). Whereas the results on measuring social effects were not representative in the study conducted by Shao, Muller and Turner (2012) causing the authors to exclude them from the study, the results in this study demonstrate the significant social effects of government programmes which is a contribution of this study.

6.2.1.4 Stakeholder satisfaction

Based on the evidence of the three cases, stakeholder satisfaction is not systematically managed in FEWA's programmes. Previous literature has identified stakeholder

satisfaction as one of programmes' success dimensions. It ensures the success of programmes in terms of the impact on stakeholders' satisfaction and engagement (Shao 2010; Shao & Muller 2011). Whereas stakeholder satisfaction is clearly an important success criterion which was emphasised in the literature (Shao & Muller 2011; Rijke et al. 2014; Pellegrinelli et al. 2007), the researcher found that it was not considered clearly as a success measure by the managers and decision makers in the programmes under study. Although, interviewees could easily list and even categorise their stakeholders, they did not mention having a strategy or an approach to manage their expectations or satisfaction. A culture of engagement and satisfaction seems to be missing in FEWA. Participants often talked about external stakeholders, such as other local and federal government bodies blocking projects' execution and delaying delivery, but they did not seem compelled to find a strategy to systemize a form of management that would make things easier with all these stakeholders. Rijke et al. (2014) clarify that the insufficient balance between project control and stakeholder engagement may lead to illegal project decisions that lack the support of stakeholders or create false expectations. This could result in disappointing outcomes such as cost overruns, inadequate progress and poor quality, especially in cases when tensions between stakeholders occur (Hertogh & Westerveld 2010). Further, Rijke et al. (2014) asserts that the programme's initiation stage is considered key to successful programmes as opportunities are discovered, and ideas are created and transformed into the programme design. Therefore, stakeholder collaboration, at this stage, is considered very important due to its role in aligning objectives, roles and responsibilities of different stakeholders, in addition to positioning and formalising the ideation strategically in a way that a supported programme's vision is developed with the main

programme's goals and with a priority focus that allocates resources to these goals (Shehu & Akintoye 2009; Rijke et al. 2014).

As has been asserted above, the satisfaction of stakeholders is generally missing from programme management in FEWA. The only time it was considered important was in the IT transformational programme, where incidentally projects finished on time. Here the participants reported that delays often happened because other stakeholders blocked execution at a certain time, there is a direct connection that seems to exist between stakeholder satisfaction and success of projects carried out under those programmes. In this regard, Shao, Muller and Turner (2012) explain that the delivery capability measures the success of the programme “from the perspective of successfully delivering what the program is supposed to deliver, whether the stakeholders are satisfied with the deliverables...” (Shao, Muller & Turner 2012, p. 41). The results also show that the programme team and other internal stakeholders do not receive the required attention. Moreover, there was no existing method to measure the satisfaction of suppliers, contractors, and government entities. The only type of satisfaction encountered by the researcher was the customer and employee satisfaction survey routinely completed for the UAE Prime Minister's Office. Stakeholder satisfaction was seen as important but there was still no clear methodology or management plans to tackle it. Further, there is a clear indication that considering stakeholder satisfaction as a success criterion for the execution of programmes is critical for the success of programmes and projects managed under the same programme. The neglect of ‘stakeholders satisfaction’ in FEWA's programmes has led to issues that have had a negative impact on FEWA's programmes which reflects the importance of this criterion for managing programmes

successfully. Hence, this confirms the importance of the dimension as it has been emphasised in the existing literature.

6.2.1.5 Preparing for the future

Preparation for the future is another programme success criterion. This criterion includes elements related to changing the way of doing business, building standards, adopting and implementing new technologies, building talents, influencing the industry and the future (Shao & Muller 2011). FEWA's strategy indicates future perspectives through the use of words such as 'sustainable development', 'efficiency', 'innovation. The vision and mission statements involve a direct indication of the types of improvement that is explicitly talked about by participants 'improving the standard of living', 'sustainable services, and innovation in doing business. 'Innovation' and 'Future Foresight' are two new concepts that were recently added to the UAE National Agenda 2021 and the UAE Vision 2030. Ritson, Johansen and Osborne (2011) clarify that learning and innovation in programmes are fundamentally important for success. Globalization and technological innovation generate dynamic and complex environments for businesses where change has become a constant factor (Ritson, Johansen & Osborne 2011). Therefore, it has been to adopt programme and project prioritization categories in order to ensure alignment between business priorities, current capability, and capacity to deliver (Ritson, Johansen & Osborne 2011). Further, Levin (2013) points out that programme management focuses on defining, planning, executing and controlling activities that are required for developing a product, service or a capability from the initial idea on to its introduction to the intended recipient. The role of project management is to integrate with programme management in order to

produce the required outcomes for the innovation programme to realise its intended benefits. The optimization and integration of these elements are crucial to managing innovation initiatives, given their ambiguous and uncertain nature (Levin 2013). While there is an effort made in FEWA's programmes to prepare for the future, they lack an overall framework. Participants talked about benchmarking with best practices, attending conferences to acquire knowledge, but there are no instigated knowledge management or capacity building systems in the programmes studied. Programme management adds value through considering a more holistic view which focuses on benefits. Ultimately, an innovative initiative is considered as involving experimentation and learning which aims to find the best solutions for customers in order to support "the job to be done" (Levin 2013). Preparing for the future has been confirmed though as a success criterion in the government programmes, which is consistent with the previous literature on programme success.

6.2.1.6 Programme team

According to Shao & Muller, the programme team is an important measure of success and can be evaluated through team building, good interaction within programmes, team members' satisfaction, speciality improvement in addition to low fluctuation (Shao, Muller & Turner 2012). However, in this study and as it has been reflected in the results chapter, there is no clear approach to team interaction or team building. Hu, Chan and Le (2012) mention that building the programme team refers to building individual as well as group competences in order to enhance the performance of the programme. Pellegrinelli (2002) advocates that a strong programme team generally includes a diverse group of people from various organizations. Hence, programme team building

is important to unite these people and improve their coherence for sustaining the success of the programme (Pellegrinelli 2002). Similarly, Shehu and Akintoye (2010) argue that employees' training programmes can serve as an effective method of team building in the programme. In the case study research for this thesis, the researcher did not find evidence that a specific effort was placed on selecting a team instead of a group of individuals nor that there was a deliberate effort to enable synergy amongst them. Managers tend to choose their team members according to their technical expertise within the respected departments and their knowledge of the type of programmes which again reflects the confusion between projects and programmes. In their research, Martinelli, Waddell and Rahschulte (2014) revealed that one of the common errors in implementing programme management is failing to understand the difference in structures between programmes and projects. Martinelli, Waddell and Rahschulte (2014, p. 93) point out that:

...projects, especially larger ones, tend to be vertically structured with multiple layers of organisations. Programmes, by comparison, require system-level coordination, collaboration, and management. Therefore, they need to be flat and horizontally structured to create the cross-project, cross-discipline network necessary to promote effective collaboration, coordination, and decision making.

Based on the above, the authors highlight that in order to be successful, a programme team must be structured in a way that facilitates the coordination of its activities as well as the interdependent deliverables. Additionally, the structure should promote effective communication of what is being achieved by whom and for whom (Martinelli, Waddell & Rahschulte 2014). The absence of a structured mechanism for team selection and lack of a structured approach for managing teams in the organisation under study resulted in a lack of communication and coordination which negatively affected the

programmes being investigated. This confirms the importance of the programme team as a success criterion as has been stated in the existing literature on programme success.

6.2.1.7 Sustainability

Sustainability is a new success criterion that should be added to the existing ones, especially for government programmes in the UAE. It is worthwhile to mention that sustainability has gained widespread recognition and importance by the UAE Government as in other parts of the world. Hence the government launched the ‘Sustainable Development Agenda’, in collaboration with the World Economic Forum (WEF) (Khaleej Times 2017). The UAE strives to achieve the Sustainable development goals which involve seventeen goals aiming “to provide better living conditions to all” (Government.ae 2018). Sustainability has been evident through the analysis of FEWA’s programmes and supports this new contribution.

Recent studies in the project management discipline has considered aspects of sustainability as success criterion (Ika, Diallo & Thuillier 2012; Martens & Carvalho 2016). And since programme management has its roots in project management and programme success dimensions were developed based on the project success theory (Shao, Muller & Turner 2012), sustainability can be added as a new success dimension for public programmes in the UAE. Deloitte and Touche (1992 in Roula, David & Uchenna 2014, p. 1) clarify that ‘sustainability’ from an organizational point of view, implies “adopting business strategies and activities that meet the needs of the enterprise and its stakeholders today while protecting, sustaining, and enhancing the human and

natural resources that will be needed in the future”. It is simply about ‘What we do and how we do it, for the benefit of society today and tomorrow’ (Tam 2017, p. 160). Although, the existing success criteria for programmes seem to have aspects similar to those included in sustainability such as business success, social effects and preparing for the future, the concept of sustainability is broader, more comprehensive and deeper. To clarify the differences Tam (2017) identified several sustainability success criteria, in the context of building a power plant, related to economic, environmental and social aspects that should be considered when building a power plant. For example, ‘economic sustainability success’ includes aspects related to whole life costing, cost effectiveness and efficiency, profitability, build up project capability, invest in social and human-made capital, legislation, etc.; ‘environmental sustainability success’ includes aspects related to preferential use of renewable over non-renewable resource, minimize energy, water and material consumption, etc. and in relation to ‘social sustainability success’, this aspect may include health and safety working environment, business ethics, skill training for workforce, employ disadvantaged people, etc. This example shows the importance of adding sustainability as a programme success dimension which will at the same time in line with the discipline of project management that has recently added ‘sustainability’ as a success criterion. Several models of sustainability in project management were clustered into the three pillars of the bottom line, economic, environmental and social dimensions (Martens & Carvalho 2016). In the context of programme management, sustainability includes two main components: the first is related to promoting positive and minimising negative impacts on economic, environmental and social sustainability within the process of programme development; and the second component is about realising that programme’s benefits contribute to the wider society (Tam 2017). The importance of sustainability cannot be denied and

has become a component of business success Tam (2017) and a success dimension for government programmes.

The results of this research extend the previous literature and theoretical understanding of success criteria (Shao 2010; Shao & Muller 2011) and provided success criteria for complex programmes that are managed in the government sector. An important contribution of this study is adding 'sustainability' as an additional success criterion to the existing literature of programme success. This dimension has been given increased attention in the recent literature on project management and project success. Accordingly, programme success criteria for the government sector are: business success, stakeholders' satisfaction, programme efficiency, social effects, preparing for the future, programme team and sustainability.

6.2.2 Success Factors

Choosing appropriate critical success factors are considered the driving elements that lead to meeting the objectives of programmes. Cooke-Davies (2002, p. 185) defines CSFs as "Those inputs to the management system that lead directly or indirectly to the success of the project or business".

The analysis resulted in a set of success factors that are presented in Table 59 below along with comparison with the existing ones found in the existing literature by (Shao 2010; Shao & Muller 2011).

Critical Success Factors		
Results of the current study		Shao & Muller (2011)
1	Availability of employees (Number of required people)	Programme manager
2	Availability of knowledgeable and experienced people	Stakeholder/collaboration
3	Effective communication	Networks/context
4	Availability of resources (financial, equipment)	Strategy/goal alignment
5	Leadership style and programme manager Leadership	Process
6	Programme team	Plan
7	Programme planning and related processes	Team
8	Time management	Resources
9	Risk management and mitigation	Culture
10	Culture (Context)	

**Table 59: A Comparison of Ratings of Programme Critical Success Factors
(Results of the Study Compared to the Literature)**

It is observed that three factors were not mentioned by participants in this study namely, ‘stakeholder/collaboration’, networks/context and strategy/goal alignment. It is noticeable that the factors 7, 8 & 9 are related to ‘Processes’ and will be discussed together, below. In this research, there is an emphasis on human factor, and these factors are now further discussed.

6.2.2.1 Talent management

The results revealed that having skilled and competent human resources who have the “right” knowledge and expertise is crucial according to the participants across all three

programmes. Participants stated that the right people are those who have technical knowledge, skills and experience in similar projects. The analysis further indicated: lack of proper training, lack of incentive programmes to attract and retain talent. Even with the IT transformational programme where the implementer was an external consultant, some participants complained about not being able to hire the right people as FEWA's packages are not always as competitive and the transfer of people's credentials, experience and expertise can also be a challenge. Rebentisch (2017) highlights the criticality of 'Talent Management' for organisations managing technical programmes particularly for government agencies that often are characterized by a reluctance to invest in training and developing their staff. According to the PMI Thought Leadership Report (2014), projects and programmes are essentials for any strategic initiatives within organisations as they are a major means for change. So, having the talent to implement those initiatives successfully is considered as the critical capability which gives organizations a competitive advantage to navigate through necessary change. "Excellence in managing the talent is a key to unlocking that capability" (PMI 2014, p. 2). The importance of skilled, knowledgeable and experienced employees has been emphasised in the existing literature as a success factor. This result has been confirmed in this thesis, however, the comprehensive perspective in covering this factor which is 'Talent Management' is considered a contribution to programme success factors in the public sector.

6.2.2.2 Effective communication

Communication is an important success factor in managing programmes. The analysis of the findings identified a need for improving communications among all FEWA's

programmes. The PMI Standard for Programme Management clarifies that managing programme communications include activities that are necessary for facilitating timely and appropriate generation, collection, distribution, storage, retrieval and ultimate disposition of programme information (PMI 2013). These activities aim to link the people and information required for successful communications and decision making (PMI 2013). As such, the importance of communication for managing programmes was emphasised by Rebentisch (2017) as he recommends maintaining clear visibility across various aspects during the progress of the programme which ensures that all internal and external stakeholders share a single view in relation to the details throughout the programme's lifecycle. Accordingly, it would assist in their understanding of how their contributions fit within the overall programme (Rebentisch 2017). Managing communication within and across FEWA's programmes both internally and externally is an area that requires attention in order to avoid the significant problems which exist in the programmes being analysed in this study. The importance of this factor has been proven in the existing literature on programmes and projects success factor, and is confirmed through the findings of this research.

6.2.2.3 Availability of resources

This factor measures the extent to which resources are available for programmes. The term 'resource' refers to different types of resources such as human resources and financial resources. Resource availability is also a prerequisite for programme management (Shao, Muller & Turner 2012). According to the PMI Standard of Programme Management, programme resource management is defined as 'Program activities that ensure all required resources (people, equipment, material, etc.) are made

available to project components as necessary to enable delivery of program benefits” (PMI 2013, p. 168). The case study results confirmed the criticality of this success factor. The human resources have been discussed within the new ‘Talent Management’ perspective. The availability of other financial and technical resources such as equipment and vehicles were also mentioned by participants as important to the success of their respective programmes. This shortage and issues found through the analysis of FEWA’s programmes can be referred, among other things, to the absence of a comprehensive system of resource management. Managing programme resources effectively is a critical aspect of the business management role of programme managers and for a programme to be fully successful, it should be adequately resourced (Martinelli, Waddell & Rahschulte 2014). Further, resource management requires programme managers to understand the skills and levels of experience of employees, in addition to the number of resources required for the programme (Martinelli, Waddell & Rahschulte 2014). In other words, the alignment of a programme with the organisation’s strategic goals, the development of a viable business case and the management of programme finances are all crucial aspects of the programme manager’s role. The findings related to the availability of the programmes’ resources indicate its importance as a success factor which is in line with previous literature on programme management and programme success.

6.2.2.4 Programme manager and leadership style

The programme manager has been identified in this research as an important critical success factor which is similar to the results found by Shao and Muller (2011). According to their study, the programme manager was considered as the most important

success factor in managing programmes. This can be referred to the vital role he/she plays as the leader of the change management team (Levin 2013). A programme manager has a very challenging set of responsibilities, and some of the most important roles are strategist, communicator, integrator and overseer (Levin 2013). The PMI Standard of Programme Management explains this “Program managers should address a number of issues systematically and effectively during the course of the program; for example, optimizing resources among program’s components, evaluating total cost of ownership, and overseeing requirements and configuration management across components” (PMI 2013, p. 15). So, a successful programme manager needs in addition to possess strong project management skills, to gain proficiency in broad-based leadership, business and financial, customers and markets, in addition to other process competences (Martinelli, Waddell & Rahschulte 2014). The role that a programme manager plays is separate and distinct from that of the project manager (PMI 2013). Likewise, Martinelli, Waddell and Rahschulte (2014) highlight the point that programme management encompasses a broader role when compared with project management. He/she is required to have a holistic view of the programme objectives, organisational culture and processes. This means that a programme manager needs skills that are both outcome-focused and adaptive in nature (Heaslip 2014). A programme manager needs to have a learn-and-adapt approach to management and a leadership style that is different from the command-and-control style, that is more often required for the project manager (Heaslip 2014). Similarly, Partington, Pellegrinelli and Young (2005) affirm that programme management competences are not simply an extension of those required for project management. The authors add that “It seems to require a subtle blend of interpersonal skills and personal credibility, a deep understanding of the political dynamics of the formal and informal networks that form

the organizational context, and great knowledge of the broader strategic context” (Partington, Pellegrinelli & Young 2005, p. 87-88). In this empirical research, the results showed that there is a consensus among participants over the criticality of the programme manager and his/her leadership competences as success factors. The most important leadership competences for all three programmes are found to be under the IQ and MQ groups of competences, which reflect the complexity of programmes. The findings echo the existing literature in this area (Shao & Muller 2011; Muller & Turner 2010; Turner & Muller 2006). Additionally, the findings also indicated that the required leadership style depends on the type of programme. In this regard, Levin (2013) stated that a transformational leadership style is the optimal style that most often suits complex projects and programmes.

6.2.2.5 Programme team

The programme team is defined as “Individuals participating directly in activities of the program or its components” (PMI 2013, p. 168). Although participants stated it as a success factor, the researcher observed that teams were not gaining the attention of their programme managers which affected the success of the programmes being studied. In this regard, Levin (2013) clarifies that team management and team building differ in both projects and programmes. Further, the programme team tends to be large and complex, extending cultural, geographical and organisational boundaries (Levin 2013). Therefore, the programme team should include appropriate skills, knowledge and expertise in areas that are relevant to the programme (MSP 2011). Thiry (2015, p. 19) stated that “The program management team need to align the program with both the corporate strategic objectives and the objectives of each of business units and make

sure the projects within the program are aligned and synchronized". The programme team has been found in this study to be one of the programme success factors which is asserted in the existing literature on programme success (Shao 2010; Shao & Muller 2011).

6.2.2.6 Programme management approach/model

The remaining factors mentioned in (Table 59) namely: processes (planning, time management, risk management and governance) which were also mentioned by participants have been argued to be programme success factors in the literature (Shao, 2010; Shao & Muller 2011). After analysing the data, the researcher found that there is no structured approach used by FEWA to manage its programmes. Programmes are managed as projects which explains the problems and issues related to delays, cost overruns, and lack of communication across different internal and external stakeholders. It is important to remember that programme management is different from project management. Thiry (2015) clarifies that programmes are complex, subjected to high ambiguity and uncertainty, cyclical in nature and involve an important learning aspect. Therefore, it is important to adopt a structured and documented mechanism or an approach that manages programmes through its different stages in order to achieve strategic objectives and realise benefits. The elements identified in this study are included within the programme management standards and models.

This thesis has confirmed the existing literature on programme success factors. A new aspect has been identified through the analysis of the results and was added to the

factors that contribute to the success of government programmes which is ‘Talent Management’.

6.3 Programme Context

Program context plays an important role in managing programmes. Pellegrinelli et al. (2007) and Partington et al. (2005) assert the importance of understanding context in managing a programme. A set of dimensions for programme context was developed by Shao and Muller (2011) which included three constructs: programme typology, the scope of the programme and characteristics of programme context. Programme typology for this study includes attributes of the size of the programmes being investigated and their nature. Scope of the programme context has been identified internally as, FEWA’s board of directors, other programmes and projects in the authority, and the functional departments. Externally, is taken to refer to the environment outside of FEWA which contains programmes stakeholders and the public/society. Finally, for the characteristics of the programme context, this dimension consists of four sub dimensions: stability of the programme context, support from the programme context, harmony of the programme context, interaction between programme context and the programme (Shao & Muller 2011; Shao, Muller & Turner 2012). Due to the nature of FEWA being a federal government entity, the results will be discussed covering mainly, programme typology, external environment and culture, and organisational structure affecting the programmes under study.

6.3.1 Programme Typology

Programme typology is assessed on the bases of a series of attributes such as industry, size and nature. All three programmes in this study are of an engineering and technical nature and their size varies according to the budget and number of people involved. The analysis of the results obtained from the programmes in this study indicated no relationship between the programmes' success dimensions and the type of the programme. Similar results have been reported in the literature for example in the study by Shao, Muller and Turner (2012) who indicated that in most cases analysed in their research, the programme success dimensions did not significantly vary by the type of programmes.

6.3.2 External Influences

6.3.2.1 Political environment

The external environment includes the political, economic, social, technological, environmental, and legal domains that each separately and in combination have their impact on the organisation and on programmes. A major finding of this empirical research is the impact that contextual factors can have on the success of the programmes. The external factors especially the government directions and decisions and the relationship with governmental stakeholders (local government) had their influence on the success of the programmes. This result is in contradiction with what was found by Shao, Muller and Turner (2012) who reported no significant interaction between programme success and programme context. Although, it was mentioned by Shao, Muller and Turner (2012) that programme directors and managers should take the responsibility to shape the context of programmes, and their organization to address changes in the environment, participants across all three programmes admitted that their

role is minimal when it comes to governmental directions and decisions. They can only make internal decisions that accommodate the governmental policy decisions.

Culture was mentioned by a few of the participants in the programmes studied within this research as a success factor for their programmes. So, for electricity and water projects, the culture among the population, in the northern emirates in which FEWA operates, were described to be obstacles to performing drilling and expansion works.

6.3.3 Internal Influences

6.3.3.1 Organisational structure

The stability of organisation structure, policies and procedures constitute the ‘Stability of the programme context’ (Shao & Muller 2011). The results from analysing all three programmes indicated issues related to the structure of the ‘Projects Department’ within both Electricity and Water directorates. The structure results in lack of communication and coordination and negatively impacted on the two programmes studied. The same issue was noticeable within the IT Department; however, the structure was modified more than once. Reiss et al. (2006) highlight the importance of programme structure “Experience shows that giving the programme a clear-cut structure with well-understood organization of roles and responsibilities contributes greatly to success” (Reis et al. 2006, p. 167). Moreover, a key element to be considered in the structure is to ensure a clear distinction between project, programme and corporate level functions and activities taking into consideration the appropriate responsibilities allocated to specific posts (Reiss et al. 2006). Similarly, Martinelli, Waddell and Rahschulte (2014) state that programme management organisation needs to be established as a ‘true function’ within

organisations along with having a well-defined structure with clear roles and responsibilities that are communicated across the organisation. Such organisation structure can increase the likelihood of success (Levin 2013).

The analysis of programme context indicates its vital influence on engineering and technical programmes managed in the government sector in the UAE. This makes a new contribution to the discipline of programme success. Based on the discussion above and the contributions of this thesis, a new programme management framework has been developed and is discussed in the following section.

6.4 Programme Success Framework for Government Utilities Programmes in the UAE

The proposed framework developed in this thesis, Figure 32 provides a holistic framework for managing public technical programmes in the UAE.

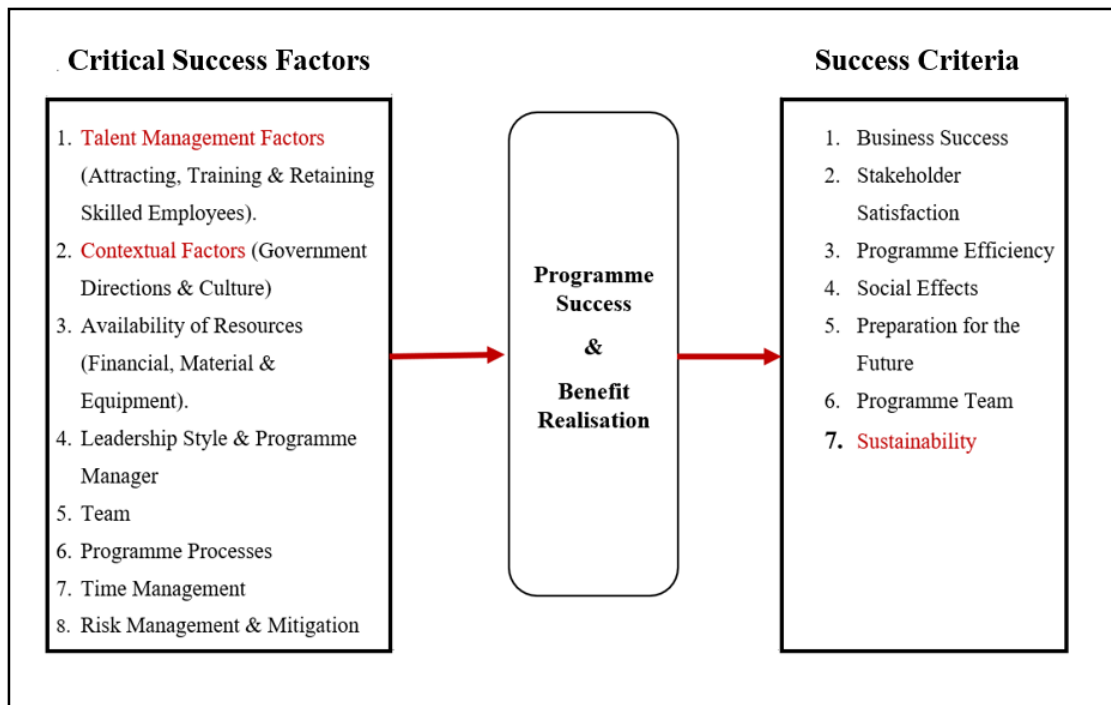


Figure 32: Programme Success Model for Government Programmes in the UAE

As illustrated in Figure 32, the framework presents a new success dimension and two additional factors that would assist programme and project managers in the UAE Government sector. It is based on a set of critical success factors which include talent management, effective communications, resource availability, programme team and programme management approach. The contextual factors especially the directions by the government and the culture are additional success factors. The framework includes a set of seven success criteria/dimensions. A new success dimension has been added to the literature which is sustainability; this is in addition to the ones previously developed by Shao, Muller and Turner (2012) namely, business success, stakeholders' satisfaction, programme efficiency, social effects, preparation for the future and programme team. Although the framework was developed specifically in the context of the UAE public utilities sector, it can be utilised for other programmes in the UAE Government sector, as most of the dimensions are generic and can be applied to any

type of programme as has been discussed in the literature and is confirmed in this empirical research for the thesis.

6.5 Answers to the Research Questions

As previously mentioned, the research questions presented in Chapter 1, were inspired principally by the constructs of Shao, Muller and Turner (2012). It is important to convey, however, that although Shao & Muller's dimensions were used as a basis for this thesis, they were not a limiting constraint. The researcher ensured to include any element that would be a part - or not - of the dimensions identified by the authors who have debated alternative ways of "Measuring Programme Success". The research questions were explored and answered in the analysis and discussion chapters. The researcher summarises these results in relation to their respective research questions as follows:

R.Q.1. What are the critical measurement dimensions for successful programmes in different contexts?

The programme critical success dimensions/criteria identified in this thesis support the existing ones established in the model developed by Shao, Muller and Turner. The researcher added a new dimension that is 'Sustainability'. So, there are seven proposed dimensions namely, business success, stakeholder satisfaction, programme efficiency, social effects, programme team, preparation for future and sustainability. Furthermore, the contextual factors are recommended to be added to the success factors due to the

key role that context plays in facilitating the implementation of government programmes.

R.Q.2. What approaches/practices are deployed by organisations to manage their programmes?

There is no clear approach or methodology that was followed or documented in managing FEWA's programmes. The overall planning and implementation is sporadic. Moreover, simple tools such as MS Project are used which is likely to be inadequate software tools for such complex projects and programmes.

R.Q.3. In what ways do programme management standards/models contribute to programme management and success?

Based on the empirical results, it is claimed by the researcher that having a systematic approach is essential to manage FEWA's programmes especially those with high complexity. FEWA can adopt a suitable standard/model, developed by any of the professional programme management bodies to manage its programmes.

R.Q.4. To what extent are various programme measures appropriate for successful programme management in different contexts?

In all three cases, the measures selected by Shao seemed to be an encouraging fit for programmes success and appropriate methods of measurement at least within the three programmes investigated. The additional dimension which is the main result of this

thesis ‘Sustainability’ is argued to be essential in government programmes due to the wide spectrum of their benefits which have an impact on the three pillars, environment, social and economic.

6.6 Research Implications

Based on the research findings, a programme success framework has been developed as a result of this research. The framework illustrated in this present study enriches the literature on programme management and programme success. The implications of this study are presented covering theoretical and managerial implications.

6.6.1 Theoretical Implications

The theoretical implications of the present thesis focus on programme success which covers programme success criteria, programme success factors and programme context. The main contributions of this study are that it has identified a new programme success dimension which is ‘Sustainability’. This aspect has been observed to be essential to the success of programmes managed in the UAE government sector and may be appropriate to many other government contexts in other countries. As was clarified earlier on in this section, the UAE Government has emphasised sustainability in its vision and in the national agenda. Additionally, the researcher has also reviewed the recent literature on project success which indicates an increasing inclination to consider sustainability. In relation to programme success factors, the researcher has considered the availability of human factors from a new perspective which is ‘Talent Management’. This factor notably was crucial to the success of programmes in FEWA

which require talented and skilled employees. Finally, the researcher has added another success factor which is the contextual factors which had an important impact on the success of FEWA's programmes. The empirical research is considered one of a few studies that address the success of programmes and it is among the first to cover the success criteria of programmes in the UAE Government sector.

6.6.2 Managerial Implications

The managerial implications of this thesis are related to the leadership competences for programme managers. For the complex programmes investigated in this thesis, both Intellectual Competences (IQ) and Managerial Competences (MQ) are considered the most important leadership competences required for managing complex programmes. Accordingly, programme managers should work on developing these competences which would contribute to managing their programmes in a more successful manner. Moreover, identifying these competences would assist in choosing the right people with the right competences to manage technical and engineering programmes.

6.7. Research Limitation

Every research project is performed on the basis of some assumptions which best fit the context of the study. Besides, research projects are conducted within a specific time and limited resources. These constraints apply to this research project. In addition to these constructs, the researcher has identified the following points as limitations for the research conducted in this thesis:

- Although, the total number of interviews (20) that were conducted with FEWA's officials is considerable especially since the interviewees/participants were key officials whom were involved in the top management team and other related positions to the programmes being investigated. More interviews from specific levels such as regional engineers, project engineers could have been beneficial for adding value and clarity to some areas related to the programmes. The researcher found it difficult to convince people to be interviewed especially those at the lower levels, though full support was given by the top management.
- The case study approach. It is in itself a limitation to generalisation because of the small number of programmes/cases being investigated. Only three programmes of a technical nature were studied and analysed. Therefore, the results cannot be generalised among all types of programmes in the government sector or beyond
- The researcher is an employee in the organisation. This may have had an influence and biased the data collection, its analysis and interpretation. Holding a director position and being a member of the top management team within the organisation under study might had an impact on the information being collected. This means that participants may not release some information especially information that might have negative results or impact in order for it not to be used against them by the researcher despite all necessary actions and commitment related to confidentiality issues which were undertaken by the researcher.

- The study was limited only to three programmes and all of them are of an engineering and technical nature. As mentioned in the previous point, such limitation would make it difficult to generalise the results and apply them to other programmes. It would have added more value to this study if other programmes were added such as quality management, customer service/happiness or human resource management, etc.

- The inability to record some interviews with key people within every programme led to a loss of valuable information. The researcher faced it twice, the first time was due to technical problem with the researcher's recording device and the second time when participants themselves refused to record the interview. Further, some officials and participants did not provide the researcher with some documents related to the projects' charters, even though several requests were made by the researcher. Such documents would have provided more information about the programmes' life cycles.

6. 8 Chapter Summary

This chapter has discussed the results in light of the existing literature on programme management and programme success. It has also explained how this thesis has answered the research questions and achieved its objective related to developing a framework that supports the success of UAE public sector programmes. Finally, the implications of this thesis have been presented from two aspects, theoretical and managerial. The research has developed a framework for managing successful programmes in the government sector. The framework has identified success factors

and success criteria in addition to different aspects related to the context of programmes that have critical impact on the success of the programmes. Considering the limitations incurred in this thesis, the researcher sees that future research could apply the framework and the identified measures to other programmes especially those not included in this study either from different sectors in the UAE or different cultures beyond the UAE and the GCC region.

Chapter 7 Conclusion and Recommendations

7.1 Introduction

This thesis has attempted to understand the phenomenon of programme success criteria and success factors in order to fill gap in the existing literature through evaluating selected programmes from the public utilities sector in the UAE. In this chapter, the conclusions will be drawn. This chapter is divided into two main sections, the first section presents a summary of the research results which includes revisiting the main aim and objectives of this thesis and the results. The second section provides explicit recommendations on programme management for both internal and external stakeholders and other related aspects.

7.2 Research Results

The purpose of this study was specified in the research questions presented in Chapter 1 of this thesis. These questions mainly focus on identifying the critical measurement dimensions for successful programme management in different contexts. Based on the fact that this area is new in the UAE and especially in the government sector, the case study approach was selected and deemed as the most appropriate to investigate programme management practices and to achieve the objectives of this study. Accordingly, three cases/programmes were selected from The Federal Electricity and Water Authority, which is a federal entity that operates in the Emirates located in the Northern part of the UAE. The three programmes are, Water, Electricity and IT Transformational programmes. These programmes underwent a deep investigation by

the researcher using face-to-face semi-structured interviews with a total number of 20 participants representing different levels and from the concerned business units. In order for the researcher to understand the various aspects of the programmes/cases under study, other sources of information were used mainly the documents related to the programmes and observation.

The analysis of the collected data was based on the existing literature on both disciplines programme management and project management, since programmes are rooted in the discipline of project management. A new framework for managing programmes was developed which identifies various success factors and criteria. The following points summarise the results obtained from the in-depth investigation and analysis of the three programmes:

- Success criteria. The results obtained through the extensive analysis of this aspect among the selected programmes have echoed what exists in the literature and proved their applicability in government technical programmes. An important contribution of this thesis is adding a new success criterion to governmental programmes that is 'Sustainability'. Hence, programme success criteria for the government sector are: business success, stakeholders' satisfaction, programme efficiency, social effects, preparing for the future, programme team and sustainability.

- Success factors. Results related to programmes success factors are inline with the existing literature. Though, elements or factors related to people or human resource should be looked at from a holistic perspective. Accordingly, a new

aspect has been identified and added to the list of success factors which is ‘Talent Management’ (Talent acquisition, development and HR policies).

- Programme context. The analysis of the programmes being investigated reflected that the external environment, especially the government directions or the political environment has a great impact on the success of governmental programmes and should be considered as a vital success factor. This result is considered as another contribution to the discipline of programme success.

Based on the above listed results, the researcher has suggested a number of recommendations as explained in the following section.

7.3 Recommendations

In this section, the researcher provides a number of specific recommendations for improving the management of FEWA’s programmes.

7.3.1 External and Internal Stakeholders

7.3.1.1 Government organisations (federal and local)

As it has been explained in this thesis, FEWA as a federal entity operating in the Northern part of the UAE are obliged to deal and coordinate with the local government bodies in five Emirates. Therefore, it is recommended that FEWA develops a structured approach that would effectively manage the relationship with its external stakeholders

from both the federal as well as the local governments. Although FEWA has taken the first step of identifying and classifying its external stakeholders, it failed to effectively manage the relationship with them. It is not enough to know programme stakeholders, it is required to understand their interests in the specific programme along with their impact on the programme (Pellegrinelli et al. 2007). This means that it is important to fully understand cultural differences, values, perspectives, work styles as well as communication styles of these stakeholders (Levin 2013). This is very important especially that FEWA's programmes span geographical locations and cultures (Levin 2013) to a certain extent. Effective stakeholder management and communication are crucial to the success of programmes. It should be integrated into the delivery process rather than being treated separately (Pellegrinelli et al. 2007). This implies that programme managers are required to effectively communicate with each stakeholder to understand their particular needs and communications requirements in order to effectively manage them (Levin 2013). It is worth to mention that it is the responsibility of programme managers to properly examines stakeholders' areas of interest prior planning and designing the content, type and mechanism of the communication (Levin 2013); a stakeholder engagement approach is preferred (Pellegrinelli et al. 2007).

7.3.1.2 Internal stakeholders

The analysis of the results showed that internal business units, employees and teams/committees are ignored during the lifecycle of the programmes. Similar to the approach suggested to manage external stakeholders, in the previous section, FEWA needs to have a comprehensive and structured approach to ensure a smooth management to the relationship with both internal and external stakeholders.

7.3.2 Programme Managers

7.3.2.1 Leadership competences

Programme managers are considered as an important success factor in programme management. FEWA's top management should consider individual's leadership competence profile (Shao & Muller 2011). The analysis of the three programmes identified the most important competences for managing technical programmes which falls under the IQ and the MQ groups of competences namely: critical analysis and judgement, engaging communication, managing resources and achieving and strategic analysis. In addition to 'Self-Awareness' which was found to be the most important competence under the EQ group of competences. Therefore, programme managers are required to develop their leadership competences in terms of IQ, MQ as well as EQ, as these are key success factors for programmes (Shao 2010). Developing these competences could be either through self- development or through targeted training (Shao 2010).

7.3.3 Programme Team

Programme team is an important success measure. In FEWA, this criterion has not been given the required attention. The results indicated the absence of structured approach on team interaction and team building. Therefore, it is recommended that FEWA develop a structured approach to form, evaluate and motivate teams. Strong teams should be cross-functional comprising a diverse group of people from different business units and external organisations, whenever required (Pellegrinelli 2002). Further, Programme managers should consider the difference between programmes and projects

when forming teams. A programme team must be structured in a way that facilitates coordination between activities along with the interdependent deliverables, hence promoting effective communication of achievements and achievers (Martinelli, Waddell & Rahschulte 2014). Besides that, it is also recommended to provide teams and individuals with the necessary training for building individual and group competences in order to develop programmes performance (Hu, Chan & Le 2012). Additionally, it is recommended that FEWA adopts a rewarding team-based performance as well as individual performance. Such a rewarding system will encourage team members to work towards achieving programme's common set of goals (Martinelli, Waddell & Rahschulte 2014).

7.3.4 Programme Management Approach/Model

The analysis of the programmes indicated that there is no structured approach or model followed in managing authority's complex programmes. The programmes are managed as projects. Therefore, it is recommended that FEWA must adopt a programme management approach. Although project and programme management share a common objective related to accomplishing change in a controlled manner (Gardiner 2005), they differ in terms of the level to which external change is controlled (Buuren, Buijs & Teisman 2010). Further, projects relatively clear in terms of their deliverables and tasks, beginning and end (Buuren, Buijs & Teisman 2010). A programme management approach is considered as a high-profile approach to implement strategy (Partington, Pellegrinelli & Young 2005). Further, it is a mechanism that coordinates projects and prioritise resources to deliver further advantages to the organisation (Buuren, Buijs & Teisman 2010). So, when the programme manager develops a framework for several projects, it would result in cost and efficiency gains, increase the possibility of package-

deals in addition to opportunities to share and reduce risks (Buuren, Buijs & Teisman 2010). An approach to programme management is recommended. This approach has to be scalable, flexible and suitable for both the context of the organisation (FEWA) and the capabilities of those applying it (Lycett, Rassau & Danson 2004). According to Martinelli, Waddell and Rahschulte (2014) best practice organisations use a programme management model to achieve several objectives, establishing continual alignment of outputs and business goals, establishing a modular approach that is more flexible and integrating distributed project work into a whole solution. FEWA has to take the necessary actions to prepare the culture for such transformation. This would require setting the common programme management processes, training people to apply these processes (Martinelli, Waddell & Rahschulte 2014). In this regard, it is worth to ensure that a programme culture needs to redefine project managers' roles from tangible results managers to 'tangible results-leading-to business benefits' managers (Thiry 2015). This implies that project managers will develop in this new role through redefining their particular projects in relation to the overall programme (Thiry 2015). So, projects components "will be considered in respect to and in comparison with each other, rather than in isolation, moving the locus of work to the programme manager's level" (Thiry 2015, p. 740).

7.3.5 Talent Management

A comprehensive talent management approach is recommended for FEWA, to cover all related aspects starting from attracting the best talent, retaining and developing them through applying appropriate HR policies. It has been observed through the results and discussion chapters, that shortage in the number of skilled and knowledgeable

employees is considered as one of the key success factors. The following are recommendations related to different talent management aspects.

7.3.5.1 Talent acquisition

Based on the leadership competences identified as a result of the analysis of three technical programmes, FEWA must build the technical competence framework for programme managers. This framework must be used for selecting and hiring programme managers.

7.3.5.2 Learning and development

As mentioned earlier in this section, leadership competences must be developed among FEWA's programme managers. It is worth to mention that the researcher found out that all participants do not have professional certificates in programme management. Only one participant has a project management certificate and the rest have attended training related to project management. Programme managers will learn from on-the-job training while running their programmes, however, it is also recommended that FEWA invests in developing their capabilities in order to achieve the potential of the individual (Martinelli, Waddell & Rahschulte 2014). Therefore, it is necessary to include training module within the annual training plan in order to improve programme managers' leadership competence; this is in addition to focusing on professional programme manager certification.

7.3.5.3 HR policies

The results indicated the fierce competition from other similar entities and the challenges related to retaining employees. Therefore, it is recommended that FEWA review its policies and conduct a benchmarking study with the workforce market in order to come up with a better salary structure similar or even more attractive than the ones of its competitors. This will enable the authority to retain its current employees and attract talents from the market.

7.3.6 Contextual Factors

The results obtained through this study indicate the impact that the external factors have on the success of the three programmes investigated in this thesis, recommendations are listed below in relation to: external environment and organisation structure.

7.3.6.1 External environment (political/government directions)

The government directions found to be of a great impact on the success of all three programmes. It is recommended, as stated earlier, that FEWA must have a structured approach for stakeholder engagement. It is important to adopt an approach that allow partnering with key external stakeholders in order to understand their interests which assists FEWA in working out a successful strategy (Pellegrinelli et al. 2007). It is also recommended to conduct regular appraisals of strategic benefits achievement and stakeholders' satisfaction; this assessment should be rooted in the programme control process (Thiry 2002). Further, programme managers must take the responsibility of shaping the context through aligning the programme to the evolving needs of the authority and sheltering projects from the uncertain environment (Pellegrinelli 2002).

7.3.6.2 Organisation structure

The way FEWA manages programmes should be changed as it was structured to manage projects. Another fact which was identified that there is different projects department distributed among each directorate which resulted in working in silos. Moreover, it is based on a traditional hierarchal structure which created collaboration barriers for programme managers who are leading distributed teams (Martinelli, Waddell & Rahschulte 2014). Therefore, in order for FEWA to manage its programmes successfully, it needs to have more flatten organisation that increases the effective collaboration among a network of resources (Martinelli, Waddell & Rahschulte 2014). In other words, it is recommended that FEWA considers the transition from being primarily project-oriented to programme-oriented organisation. Such a transition can have a significant impact on improving the authority's ability to achieve its strategic objectives and the financial returns (Martinelli, Waddell & Rahschulte 2014). Establishing a specific programme management function that has well-established structure and clear identification of roles and responsibilities would contribute to managing programme successfully.

7.4 Recommendations to Practitioners

This thesis provides project and programme management practitioners and engineering consultants with a frame work that specifies a clear set of success factors and success criteria to be considered when managing programmes in the government sector and more specifically when managing technical programmes. In general, it is essential to define critical success factors and prioritise them in order to link benefits with strategic

objectives. Programme's key stakeholders must be involved as these success factors will help define the scope as well as the clarity of programme's objectives (Thiry 2015).

7.5 Recommendation to Academic Researchers

This thesis provides a framework for managing programmes in the public utilities sector in the UAE and the GCC region. It is considered one of few studies that covers the programme success criteria and success factors. Further studies should be undertaken by researchers to cover the following:

- 1) Other governments, semi-government and private entities.
- 2) Other type of programmes, as this study has focused only on technical and engineering programmes.
- 3) Validate the proposed success framework in other sectors, industries and cultures.

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Appendices

Appendix 1 Criteria for Case Selection

Standard	Programme Management	Applicability
PMI (Project Management Institute)	“A program is defined as a group of related projects, subprograms, and program activities managed in a coordinated way to obtain benefits not available from managing them individually. Programs may include elements of related work outside the scope of the discrete projects in the program. A project may or may not be part of a program but a program will always have projects” (PMBOK 2013, p. 9).	Applicable Cases: 1,2,3
PMAJ (Project Management Association of Japan)	“A program is long-term activity to achieve strategies and includes multiple projects. Correct recognition and definition of programs enables effective yield of profits, which would never have been generated if individual projects were operated without interrelationship with each other” (P2M 2005, p. 7).	Applicable Cases: 1,2,3
MSP (Managing Successful Programmes)	“A temporary flexible organization created to coordinate, direct and oversee the implementation of a set of related projects and activities in order to deliver outcomes and benefits related to the organization’s strategic objectives. A programme is likely to have a life that spans several years” (MSP 2011, p. 5).	

Appendix 2 Interview Protocol



Dear Participant,

Today, many organisations are becoming more aware about programme management. It is a project management approach used to implement strategy, maintain and develop new capabilities to manage change.

The growing use of programs (**Large Projects**) has led to increasing interest in understanding program success. I am researching the success of different types of programmes in a project-based organization in The United Arab Emirates Government Sector, namely The Federal Electricity and Water Authority (FEWA).

This attached list of questions will be asked by the researcher during the proposed interview which gives you the opportunity to express your views on a wide range of issues related to programme success criteria and factors.

These interviews will provide the primary data essential for my research study. Therefore, I seek your assistance to be as open, honest as possible as you can in providing your responses.

The researcher assures that no individuals will be identified from their responses and the results of the analysis will be used only for the purposes of research publication.

Thank You,

The Researcher

Interview Protocol

I. Personal Information

1. Name:
2. Position
3. Number of years of experience in FEWA
4. Number of years of experience in managing projects and programmes
5. Do you have professional qualifications (certification) in the area of Project /Programme Management?

II. ¹Programme Type

1. What programmes are you currently managing?
2. What is the size of the project (budget, timeline, number of projects involved within this programme, number of people involved, technology involved (Such as Microsoft Project, CAD...etc).
3. What are the criteria used by FEWA to classify programmes as small, medium and large?
4. What benefits can FEWA achieve from the programmes that you are currently managing or working on?
5. Do these benefits achieve a strategic objective or contribute to achieving the vision of FEWA?
6. Identify the different stakeholders of the programme(s) which you are currently managing (investor, owner, contractor, consumers, programme director, programme manager, programme team members, etc.)

III. Programme Success Criteria (*Measures used to decide whether the outcomes of the Programme is a success or a failure*).

¹ Programme is "Programmes' consist of multiple projects that run in parallel or (partly) sequential".

1. What criteria do you use to judge that the programme is a successful one?
2. What qualitative measures do you use to judge that the programme is successful?
3. What quantitative measures do you use to judge that the programme is successful?
4. What are the thresholds for success and/or failure in programmes that you manage?
5. Do you think that the time frame of a programme affects the success criteria ?
6. Do you think that the success criteria change during the following:
at the end of the programme,
in the months following the programme completion,
in the years following the programme completion
what are the differences across the above stages?
7. What are the differences of success criteria in relation to different programme's stakeholders?

IV. Programme Success Factors (Internal) (*Inputs & systems required to deliver the success criteria*)

1. In your opinion, what are the key factors to achieve programme success in the programme which you are currently managing?
2. Based on your answer to question (1), If you are to manage another programme, do you think that the same success factors will apply OR will you need to consider other factors?
3. In the programme currently managed by yourself,(or involved with) what competences do you think you require in order to achieve success?
4. What leadership style do you follow/adopt in managing your programme?

5. In your opinion, do you think that the leadership style is influenced by the type of programme? How does this happen?
6. Can you grade the importance (Low, Medium, High) of the following skills and personality characteristics as a programme manager?

Competency	Low	Medium	High
Critical Analysis & Judgement			
Vision & Imagination			
Strategic perspective			
Engaging communication			
Managing resources			
Empowering			
Developing			
Achieving			
Self-Awareness			
Emotional resilience			
Motivation			
Interpersonal sensitivity			
Influence			
Intuitiveness			
Conscientiousness			

V. Programme Context (*"dynamic cultural, political and business environment in which the program operates"*)

1. What are the external factors that may influence the success of the programme?
2. How does the influence differ by different programme's type?
3. To what extent can the programme manager influence these factors?

VI. How do you manage and follow up programme during its various Phases?

VII. What other information you would like to add which was not covered and you think that may be significant to programme management and programme success?

Thank You for your time and the valuable information provided.

Appendix 3: Publisher Permissions

8/14/2017

The British University in Dubai Mail - Your query regarding use of our intellectual property



Maha Ibrahim <120093@student.buid.ac.ae>

Your query regarding use of our intellectual property

2 messages

Koch-Blackman, Diana (Axelos) <Diana.Koch-Blackman@axelos.com>
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