Developing a Framework to Assess the Portfolio Governance, Risk and Compliance of Abu Dhabi Government Entities in the UAE

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Abstract

Governance, Risk and Compliance (GRC) is a methodology used to improve a company's decision, both tactical and strategic. It also directly helps an organisation to fully understand the risks it faces. Portfolio project management, on the other hand, refers to the successful centralised management of project portfolios in order to achieve the strategic objectives of an organisation. This study aims to develop a framework by combining the elements of Portfolio, Governance, Risk and Compliance for public organisations in Abu Dhabi to achieve maximum organisational success. This study will provide Abu Dhabi Government with the framework to reduce the failure of projects by controlling risk, guaranteeing project compliance and, most importantly, ensuring governance on each project under the umbrella of GRC. Thus, the aim of the study is to propose a conceptual framework for Abu Dhabi government entities to implement Portfolio Governance, Risk and Compliance (PGRC) in their Projects, Programmes and Portfolio. To achieve this successfully, an in-depth literature review was done to identify the elements of PGRC and a conceptual framework was developed. In order to test the validity of the framework, research interviews for the case study were utilised and these comprised PGRC related data and details that were gathered from the perspective of PPM, GRC and overall project management approaches. The researcher analyses the case studies from various perspectives and outlines the leading aspect of the entire research, which is PGRC. The researcher also enumerates the benefits, risks, barriers and good practice regulations of development of PGRC for entities in Abu Dhabi. The researcher revisits the framework to add further elements that were identified during the course of the research. This led to the formulation of a complete framework that is applicable universally.

Keywords: PGRC, framework, governance, portfolio project management, compliance, risk

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Table of Contents

List of Tables

List of Figures

List of Abbreviations

CEO	Chief Executive Officer
COSO	Committee of Sponsoring Organisations
CSR	Corporate Social Responsibility
CS	Company Secretary
EGT	Evolutionary Governance Theory
ERM	Enterprise Risk Management
GRC	Governance, Risk and Compliance
KPI	Key Performance Indicators
MPT	Modern Portfolio Theory
OECD	Organisation for Economic Cooperation and Development
PGRC	Portfolio Governance, Risk and Compliance
PM	Project Management
PMO	Project Management Office
PPM	Portfolio Project Management
PPP	Portfolio, Projects, Programmes
ROI	Return on investment
SSIK	Situational, Strategic, Integrated and Keeping it controlled
SOX	Sarbanes-Oxley Act
UAE	United Arab Emirates

1. INTRODUCTION

Governance, Risk and Compliance (GRC) is a methodology used to improve an organisation's decisions, both tactical and strategic. It directly helps an organisation to fully comprehend the risks it faces. An organisation that can't comprehend its considerable number of risks cannot make solid, vital and strategic choices that promote supportable cost efficiencies, accelerate execution and drive gainful development.

The portfolio methodology is the best for managing risks in a project portfolio (Makarova, 2015), because it leads to the conformity and reallocation of assets among tasks and also recognises extra portfolio risks and interdependencies between risks.

From the above, this study presents Portfolio Governance, Risk and Compliance (PGRC). One of the elements of GRC is risk. During the last few decades, there was a great emphasis on risk management and its associated frameworks, with the advocates of this school of thought relating it closely to the success of a project (Wood, 2002). Cagliano (2014) insisted that with the growing pressures to increase the quality of projects and also reduce cost and time at the same time, it is imperative to effectively manage risks. Managing risk is a dynamic and complex process, including probability, risk identification, scheduling, and performance. At the same time, cost, management and performance management are directly affected alongside the disruption of schedules. There is a strong relationship between risk management and the success of a project (Carvalho and Roque, 2014). From the beginning of a project to its completion, risk management is considered critical (Wengert &Schittenhelm, 2013).

The world of business is now more competitive than in the past, where different aspects, which were once neglected, have gained significance, including risk management (Bansal and Clelland, 2004). It is now mandatory that in today's complex businesses, the owners should be aware of the risk involved in them and need to plan for them (Vij, 2019). Risk management is an integrated process of identifying the potential problems and related activities needed across a project life (Chapman, Ward &Chapman, 2012). In the field of business today, the success of a project depends on aggressively identifying risks early (Anderson, 2009). The process primarily depends on collaboration and coordination between the related stakeholders (Makarova, 2015). Furthermore, an integrated approach is used to effectively mitigate and anticipate the risks that can critically affect a project (Wengert and Schittenhelm, 2013).

Another major element of GRC is governance, where corporate governance is another concept, which has become popular in recent years, especially after the fall of big business giants globally such as Lehamn Brothers, Tribune Company and Chrysler (Collier, 2009). Also, the term

has different meanings and significance for different people and businesses (Mohamad, 2013). The accountant relates it to compliance (Collier, 2009), lawyers relate it to rights and ownership (Loughrey, 2011), while economists relate it to conflict of interest and social responsibility (Aras &Crowther, 2009). Still the quest for a comprehensive definition continues, but it is an integrated system which includes the processes employed to control and direct an organisation. Efficient governance allows for the in-time identification of possible risks and their related remedies (Yoshimori, 2005).

Corporate governance focuses on developing and establishing a decision-making architecture of the upper level to the front line, which aims to strengthen a business model and maximise performance. In other words, decisions are made mainly to reduce risk and contribute to the value of a project (Bailey &Peck, 2012). Abdallah and Ismail (2017) confirm that organisations that are well governed perform better than those that are not well governed. The ultimate goal of corporate governance is to ensure accountability, timely disclosure of information, and authority. This is vital for the long-term value creation of an entity and its sustainability (Mohamad, 2013).

Research has shown that corporate governance is equally important for internal and external stakeholders (Chilosi &Damiani, 2013). The primary goal of a business is to achieve a certain level of sustainable compliance, but the leaders are required to unveil new and unprecedented methods for reducing costs, improving business performance, and strengthening the decision-making process (Berman, 2009). In short, in a competitive and fast paced business, success depends on attaining a balance between risks and opportunities, which become more complex with time as, budgets, scope, programmes, and projects become more intricate. The concept and application of portfolio management have gained attention in this regard. It is a process of holistically looking across different processes, critically analysing strategic alignment and portfolio's return on investment (ROI) (Connor, Goldberg &Korajczyk, 2010). It is a systematic process of opting for the right programmes and projects for corporate strategy. Furthermore, it translates and applies strategic vision to individual projects to obtain the greatest potential efficiency.

Compliance has to do with an entity adhering to all the laws, rules and regulations governing the operations and management of its business; it also relates to how an entity treats its staff and customers. The main aim of compliance framework is to ensure that organisations conduct and manage their business responsibly. Organisations can grow organically by obeying legal rules. According to Sanaei, Sobhani and Qatari (2015), as a business grows, so does its

responsibilities which include abiding by the legal frameworks, ensuring the health and safety of its workers and warranting fair pay.

GRC allows an entity to integrate isolated systems and programmes in an efficient and effective business-wide, risk-based internal control structure and aligns strategic initiatives with the risk management process. Therefore, it is a branch of management, which is used to achieve a balance between the competing demands of stakeholders, regulators, market forces, and customers (Sinnett, 2006). Domains of governance, risk and compliance are usually considered separately, although there are improvements in their integration to create higher business value (Vunk et al, 2017)

GRC holds fundamental importance in the world of business and it is key to the success of a government entity. The research aims to develop a relationship between compliance and portfolio management and develops a conceptual framework to enable top management to strategically align resources and processes in the government sector.

1.1 Background

Over the years, the adoption of PPM has led to a significant growth in a variety of disciplines with the aim of ensuring that tasks are aligned to the diverse range of sectors and departments (Kaiser, 2015). Notably, the continuous higher economic requirement to reduce time to market indicates that these kinds of projects are not conducted individually and are always meant to satisfy a larger scope of priorities. Given that interrelationships in various business environments have led to a rise in the number of projects that are undertaken in conjunction with the government, there has been an increase in the need to have GRC in running portfolios, programmes and projects. Long (2017) insisted that GRC has a role to play in organisations and confirmed that poor implementation of integrated GRC model can have hazardous impacts on organisations and their projects. The combination of these aspects has led to model results from projects conducted by various organisations and government departments across the globe. In the last decade, the examination of portfolio administration has ventured into a more complete administrative methodology – alongside the attention placed on apparatuses, systems and strategies – including parts of how portfolio administration is perfected. Late concentrates likewise demonstrate that numerous organisations have actualised devices, strategies and techniques for dealing with the portfolios undertaken over the last two decades (Patanakul, 2015; De souza et al., 2015; Paguin et al., 2016; Badewi., 2016)

Irrespective of the increased adoption of suitable PPM and GRC in the management of various projects, the value arising from such projects is subject to scrutiny through case studies,

which concluded that most projects are not completed within the specified time frame and budget; this therefore leads to the delivery incomplete reports (Kock, 2012). As a consequence, there is a disconnect between existing projects that are misaligned or managed as a single project. In the aftermath of this, government and enterprise project governance, and compliance officers have endeavoured to develop structured approaches to manage multiple projects in a manner that maximises value addition in the project activities. Furthermore, the integration of GRC together with PPM in the management of various projects has enhanced the alignment of enterprise and government projects with the critical strategies that form part of the approval and initiating processes (Park, 2015).

The value associated with the creation of the key elements of governmental and enterprise strategies, and the success associated with such projects are dependent on the scope of the resulting benefits for the final customers. Project value, as explained by Ernst & Young (2016), refers to the implicit and explicit functions that arise due to the existence of a project, which seeks to satisfy the needs of all stakeholders.

1.2 Portfolio Governance, Risk and Compliance (PGRC)

1.2.1 Portfolio project management (PPM)

Academics and business practitioners have recently given great attention to portfolio project management (Teller and Kock, 2013; Taroun, 2014). Verzuh (2015) indicates that PPM has taken on a significant role in the supervision and designing of projects. Since PPM entails numerous dynamics, Tsaturyan (2015) notes that there have been significant complications associated with the restructuring and reconfiguring of projects with the aim of aligning them to their purposes. Paquin et al (2016) identify the need for impact assessment of projects and how they will add to an organisation's profitability and operational risk. Notably, many government and enterprise projects are halted before completion, thereby making them ineffective in meeting their expected objectives. There are considerable losses incurred by such projects. These problems are associated with bureaucracies that complicate the normal procedures of PPM and GRC practices. For instance, government projects experience curtailed funds, due to restricted assets and finances. This causes misalignment of the project objectives with the expected outcomes, thus reducing the values of the projects. Ernst & Young (2016) indicate that instances of less effective projects can be attributed to ineffective governance risk-management and compliance, which are mainly associated with poor portfolio project management.

Moreover, PPM plays a major role in monitoring, controlling and organising projects. Though PPM has changed at a very fast rate, the challenges, reconfiguration and reconstruction of its aspects have been more stressful (Andersen et al., 2005; Archer & Ghasemzadeh, 1999). Due to the inadequate evaluation and implementation of various improvements that are associated with PPM, a vast majority of projects are prematurely closed before achieving the goals to meet the intricacy of evolving projects (de Bony, 2010; Yuming & Quan, 2007).

To illustrate this, the above situation is currently experienced in government and enterprise settings where activities are complex, assets are restricted and the PPM skills of those involved are in the formative stages (Author & Levine, 2006; Bardhan *et al*., 2010; Beringer *et al.,* 2012). In addition, the PPM's context can be vague, thus leading to ineffective accomplishment of a project's objectives. From the circumstances seen above, PPM's complexities introduce challenges in undertaking operations during the commencement of a project, hence introducing challenge associated with elucidation of the project's objectives (Carvalho *et al.,* 2011; Chen & Yur-Austin, 2013; Chiang & Nunez, 2009). This scenario occurs since all aspects of PPM might not be implemented due to the enormity of complex assignments within a project (Archer & Ghasemzadeh, 2011; Bible & Bivins, 2010).

The current shortcomings of PPM have been fuelled by inadequate resources and expertise, as well as poor implementation policies (Rank, 2015). This might result in the complete revision of a project's objectives and restructuring of its management team. This can widen the scope of the project and delay its handover. Recent studies have shown that projects which lack effective senior management support risk not delivering the expected goals to the government (Kerzner, 2013; Kaiser et al., 2015).

For the creation of interfaces in-between the top management and project teams, institutional arrangements and systems must be implemented. These will assist with the enhancement of value generated by the strategic alignment of projects for the government. Some of the standard realignments that need to be put in place in order to streamline PPM include increased resource allocation, decentralisation of decision-making and active participation of external stakeholders (Ponsteen, 2015). Harmonising the structure of governance with the project management team in order to align project management with the strategic objectives remains a major problem for the government.

1.2.2 Governance, Risk management and Compliance (GRC)

The advantages of an extensive GRC execution are significant for organisations and enterprises, wherein, only a few of them have started putting resources into GRC arrangements, as GRC does

not last for long (Frigo and Anderson, 2009). Vicente and da Silva (2011) and Frigo and Anderson (2009) discussed the risks organisations can confront without GRC and concluded these to be:

- Exposure to hazard and obligation of budgetary punishments coming from consistent disappointment
- Increasing the fracture of individuals, procedures and innovations
- Excessive delay to the organisation
- Wasted time and assets

Despite the various advantages of GRC activities, there are likewise an assortment of difficulties connected with their implementation as well as the process of GRC integration. These issues, as recorded by Aberdeen Group (2008) for the implementation and by Mitchell (2007) for GRC integration are covered in Table1.1.

Challenges in GRC implementation by Aberdeen Group (2008)	Challenges in GRC integration by Mitchell (2007)
• Ineffective Communication of procedures and policies	• People like their jobs: the endeavour to incorporate GRC often results in an increase of staff turnover or demotions.
• Business processes that have to be redesigned	• People are fond of their storehouses: for a long time, the storehouse approach has existed in associations. Changing administration issues can result if the arrangements are altered.
• Upgrading cost of data	• People like their spreadsheets: since the objective of GRC is to raise the level of capability, induction of new abilities is essential.
• Communication barrier in terms of governance initiatives, to decision-makers	• Insufficient knowledge: Proper execution of GRC requires sizeable expenditures.

Table 1-1: Challenges of GRC Implementations
Sources: (Aberdeen Group 2008) and Along Line Integration (Mitchell 2007)

Notably, successful enterprise governance ensures that the goals of a business or project are taken into consideration when determining the required progress of an enterprise. In this regard, Racz *et al.* (2010) point out that GRC supports the ordering and decision-making process, and therefore evaluates performance and compliance, as stipulated by laws, regulations, and strategies, against the agreed-upon evolution of infrastructure development within an establishment. Furthermore, GRC also entails detailing of the tenure of organisational capabilities and duties, thus resolving overlaps. The model given above may lead to improvement of an enterprise's performance. For instance, the application of GRC in the development of different infrastructures projects within Abu Dhabi will entail the detailing of the tenure of organisational

capabilities and duties, thus resolving overlaps. Racz et al. (2010) indicate that the GRC model with regards to PPM may lead to smarter investment and improved business performance when controlled at the enterprise level. Also, the amalgamation of GRC can lead to improvement in the effectiveness of an enterprise, since the activities discussed earlier overlap in areas of responsibility and processes (Joslin &Muller, 2015).

In terms of efficiency, the introduction of GRC streamlines processes and avails transparency and accountability within an enterprise. This is achieved through decreased data islands that often slow down organisational responsiveness, and increase risks to a project by obscuring risk identification, thereby leading to inadequate risk impact assessments. Moreover, the combination of governance, risk management, and compliance streamlines enterprise processes and enhances accountability and transparency by capturing and recording processes and their outcomes, as evidenced by Joslin and Muller (2015). This helps enterprises to make decisions on resource obligations that are required for goals to be achieved (Steinberg, 2011). It also brings together suitable groups of people to elucidate what needs to happen and evaluate risks that may affect the achievement of such projects. Governance, risk and compliance can be viewed as three pillars that work together for an organisation to meet its set objectives. As governance is a set of processes created and implemented by a designated body within an organisation, it reflects the structure of the organisation and how it is managed in order to achieve its set of objectives (Ponsteen, 2015). Alternatively, to accomplish the organisational goals, risk-management involves risk prediction and management in order to identify and to deter those risks (Table 4-2). Finally, compliance invovles policies and procedures, laws and regulations set up by an organisation with the aim of attaining its success (Steinberg, 2011).

1.2.3 Portfolio Governance Risk and Compliance (PGRC) setting

Recently, the acceptance of the need to have GRC on a portfolio has increased in specific governmental entities in Abu Dhabi, largely due to the strategic importance of aligning the infrastructure and development projects and programmes with the strategic aims and objectives of the government, as well as corporate GRC. Government representatives and senior management have to ensure that the government is able to identify and mitigate the risks facing them and their projects. Government should have the capable resources to handle any obstacles facing them and convert the obstacles to corporate value. Although project governance and risk can always be indicated at the project level, they cannot be indicated at the programme and portfolio level (Sanchez et al., 2009). For effective corporate operations, corporate strategy, portfolio, programme and project strategy need to be integrated, which are considered as

problems yet to be solved (Peltokorpi and Tsuyuki, 2006). Activities of business alignment along the integrations of project governance and the associations among process and structure are the primary requirements of having PGRC.

Portfolio	Government	Risk Management	Compliance
The management of a single or multiple, portfolios in order to achieve organisational strategies and objectives is known as portfolio management. An organisation assesses, nominates, prioritises, and assigns its limited resources in order to optimally accomplish organisational strategies congruous with its vision, mission, and values through the use of Interrelated Organisational Processes, which is a part of Portfolio management (p.5)	• How should the system be executed? • What is assurance that the arrangements and strategies are set up to run an organisation. • How can the arrangements be conveyed? • How can these arrangements and strategies be taken over and overhauled? • What controls are set up? • How can these techniques be successfully used for checking?	• The risk of neglecting to follow directives (for monetary reporting, exchange, ecological assurance or security). • The risk of not having sufficient administration structures to stay under control and viably oversees. • Not identifying the operational dangers that may have a critical effect on a business early is a major risk.	• Agreeing with outside guidelines. • Complying with inner benchmarks. • C stands for controls, as the best approach to screen that the business is agreeable.
Source: PMI (2013)	***Source: Broady and Roland (2008)***		

Table 1-2: The aspects of Portfolio and GRC

A comprehensive view of PGRC can be indicated through the GRC dimensions work with corporate GRC. Figure 1.1 shows the tiny relationship with GRC level (corporate and portfolio). This indicates the activities of the portfolio to be managed and accomplished strategically to achieve the maximum alignment position between portfolio and corporate GRC.

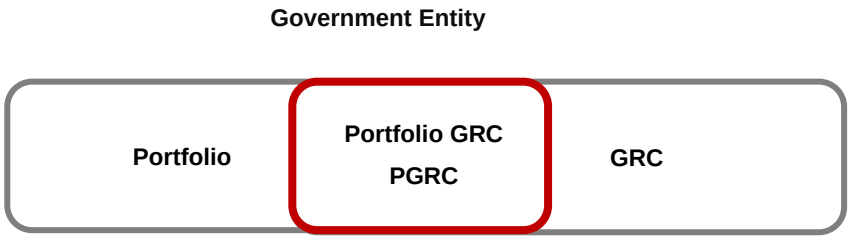

Figure 4-1: Portfolio Governance Risk and Compliance (PGRC) Setting
Source: Developed by author for research purpose

1.3 Problem statement and study motivations

1.3.1 Problem Statement

As well known, a majority of strategic planning is not achieved due to the differences between strategic planning implemented in real practice and corporations' objectives (Mintzberg; Waters, 1985; Hrebiniak, 2005). As Porter and Montgomery (1991) noted, in order to transform planning into real actions, corporations have to be effective in their abilities. Kaplan and Norton (1996) similarly found that articulating strategies of corporations are easier compared to putting strategy executions into practice. Hence, the defined strategic objectives and planning has to be transformed into action plans as well as translated projects. Yet, there is always a gap amongst executive top-level management, who formulate and define the strategic planning, middle-level managers and those who in fact run the projects that are expected to transform strategy into reality. Even though numerous guidelines, strategies and procedures have been formulated on how complex projects are to be managed (e.g., Meredith; Mantel, 2000; Kerzner, 2013; PMI, 2008), there are few guidelines, strategies and procedures on how projects can be managed as an integrated project (Cooke-Davies, 2002), whose parts should present joint reliability, reinforcement and consistency, with regard to budgetary, priorities, limitations and constraints. Corporations on specific government entities do not see their programmes and projects within their portfolio. This leads to a lack of proper selections and prioritisations of projects (Gray; Larson, 2005; Meskendahl, 2010; Morris; Jamieson, 2005; Srivannaboon; Milosevic, 2006a, 2006b) and inability to execute the projects in a cohesive and consistent manner in order to reach planned corporate objectives. These set obstacles to executive management and stakeholders. Also, PMI (2013) stated that the PPM should not be looked at as a project individually but rather should be viewed at the corporate level.

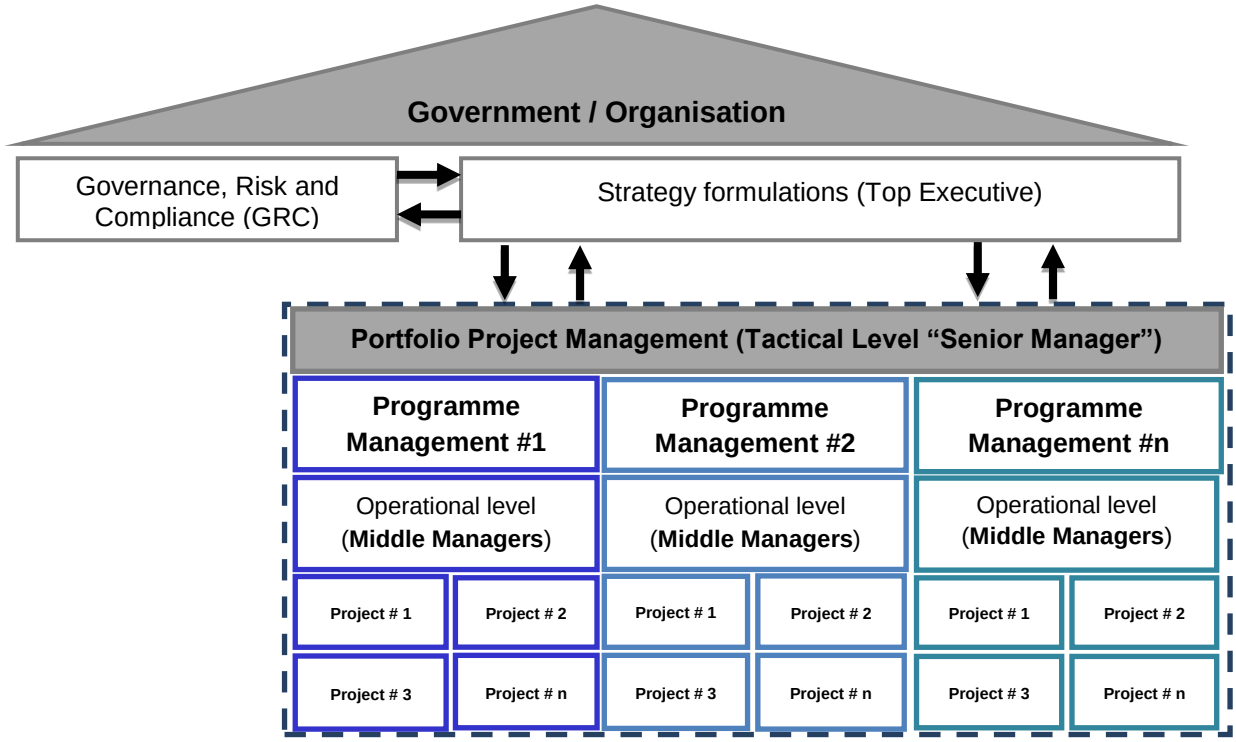

Figure 4-2: The role of project portfolio management

Source: Developed by author for research purpose

Cooper, Edgett and Kleinschmidt (2000) also discussed that corporate should not only be "*doing work right*", but also "*doing the right work*". According to Levine (2005), in order to turn objectives into reality, a bridge should be built between the strategic objectives of the corporate and operational management of portfolio management. While project management should be operational in nature, portfolio management needs to take a more tactical role. This can lead to a proper control of projects and support corporate GRC, as well as project GRC (Figure 1-3).

The obscurity of dimensions and indicators that can be used to characterise and measure the quality of project portfolio management and the GRC of organisations eludes the academic literature. Recent literature discusses Project Risk Governance (PRG), which is governance of the risks related to projects (Fink, 2013), and Enterprise Project Governance (EPG), which is governance of the running projects by enterprises (Dinsmore, PC & Rocha, 2012). Therefore, the gap in literature is in covering Project GRC, as shown in figure 1-3.

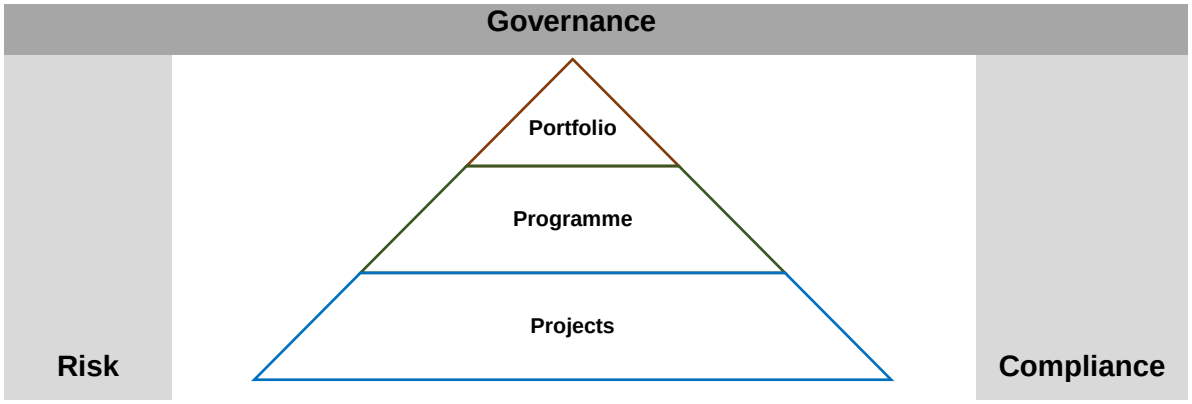

Figure 4-3: Project Governance, Risks and Compliance

Source: Developed by author for research purpose

From figures 1-2 and 1-3, we can indicate the problem as being the absence of alignment between project, programme & portfolio GRC with corporate GRC. Figures 1-4 shows the missing links.

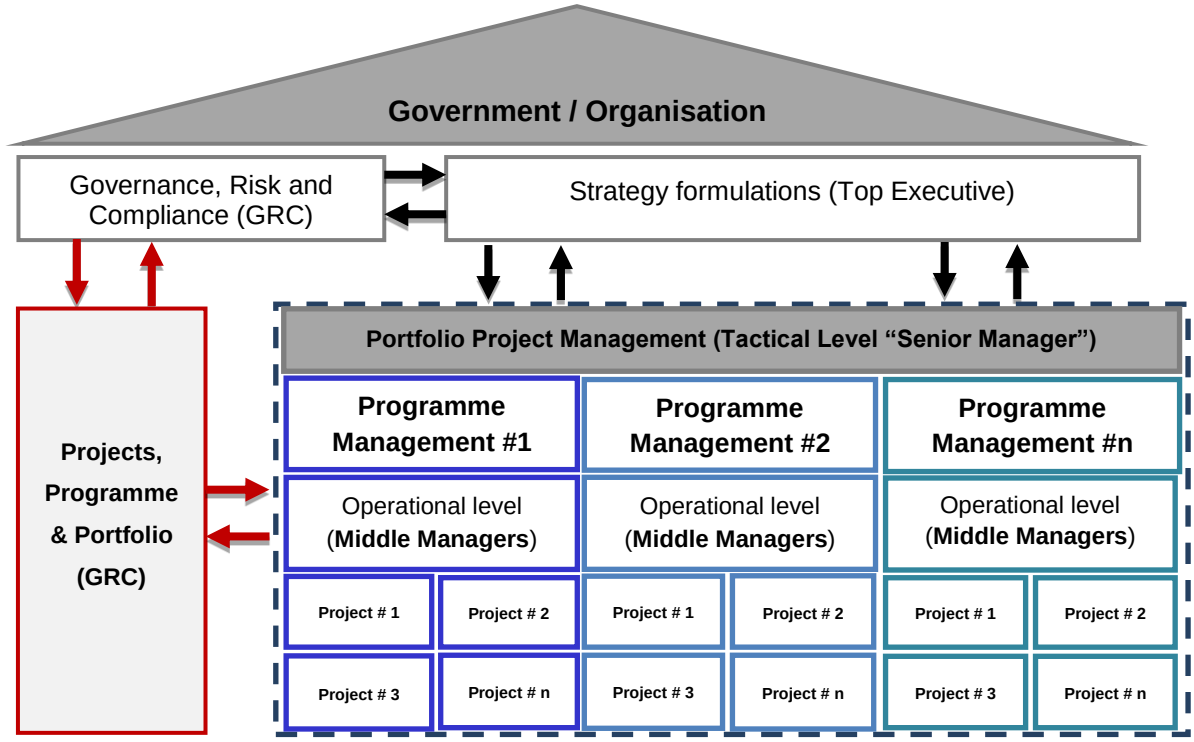

Figure 4-4: Research Problem

Source: Developed by the author for this research purpose

1.3.2 Gaps and Motivations of the study

From the discussions above, it is challenging to establish project GRC on governments for numerous reasons. GRC and PPT are distinct areas which play an equally important role in government organisations (Figure 4-5).

The alignment of project GRC with corporate GRC is significant for government success. This is due to the fast rate at which organisations are given specific government projects, which require prompt responses to any demands or changes without following traditional approaches. The dynamic changes in the real world require dynamic changes to the management of an organisation by having proper GRC at the corporate level and demanding projects to adopt corporate business without losing the GRC at the corporate and project levels. Project GRG is also complicated by the nature of risk itself (for example, it can be positive or negative) and the capabilities of organisations to manage risk. The lack of knowledge of PGRC and experience in its usage are the main motivations for this research. However, the following table reviews the relevant literature on the domain of GRC and portfolios with their findings and focus explicitly depicted.

SR#	Source	Findings and focus	
1	PricewaterhouseCoopers (2004)	**Finding**	A four-stage model, and in addition authoritative substances, exercises and the connections required inside these steps
		Focus	GRC Model (Operational)
2	Tapscott (2006)	**Finding**	In order to accomplish the “trust” desire, which is a fundamental point when implementing a coordinated approach to deal with GRC; four centres of qualities for the endeavours are required.
		Focus	Four core values approach of GRC
3	Mitchell (2007)	**Finding**	For “principled performance” a framework was introduced
		Focus	‘A framework, designated as GRC360, is used to help organisations drive principled performance’
4	Open Compliance and Ethics Group (OCEG) 2007	**Finding**	Nine categories and 29 sub-elements per sub-practices make up the composition of the OCEG Capability Model GRC360.
		Focus	An understanding of GRC applications and activities
5	Rasmussen (2009)	**Finding**	GRC Enterprise Architecture: A blend of the OCEG Capability Model and “Enterprise view of Risk and Compliance”.
		Focus	GRC Enterprise Architecture
6	Paulus (2009)	**Finding**	Status investigation, Requirements modelling, Situation improvement and crisis and incident management; A Four Phase Model
		Focus	GRC Architecture model

7	Frigo and Anderson (2009)	**Finding**	Setting general shared objectives for inclusion of esteem and ensuring basic procedures connected with GRC rehearses is a part of the 'risk policies and appetite' approach.
		Focus	GRC Strategic Framework
8	Gericke et al. (2009)	**Finding**	A GRC framework, consisting of strategic, conceptual, technical, cultural and organisational categories, was introduced for the situational method implementation of GRC.
		Focus	The GRC rollout
9	Racz et al. (2010b)	**Finding**	A definition in line with forming the base in the domain of GRC.
		Focus	A "GRC Research Frame of reference", derived from the definition of GRC.
10	Wiesche et al. (2011)	**Finding**	The accounting feature of GRC is incorporated in the "Framework for GRC IS Value Drivers".
		Focus	A Framework for GRC to Accounting Information Systems linkage.
11	Vicente and da Silva (2011)	**Finding**	OCEG Capability Model (2009) includes the Key functions and Concepts of GRC
		Focus	Conceptual Model for Integrated GRC
12	Strecker et al. (2011)	**Finding**	Deployment of a process for IT risks assessment and the modelling approach used ifor risks.
		Focus	Multi-Perspective Risk Management model
13	Scott and Perry (2012)	**Finding**	Accounting for risk management targets and provides distinctive proof of related practices in the field of energy.
		Focus	On the information system risks utilisations
14	Hoffmann et al. (2012)	**Finding**	In compliance with a few GRC rules, executable process models are sent.
		Focus	'A semantic annotation approach for processing models of GRC'
15	Ali and Green (2012)	**Finding**	Aiming for effective IT governance, a theory-based model was implemented and the deviation of results from the testing of this model was observed.
		Focus	'Governing outsourcing of relationships by Model'
16	Ly et al. (2012)	**Finding**	Systems emplaced for Process management for boosting semantic limitations and the criterion which strengthens incorporated consistency support throughout the lifecycle of the procedure.
		Focus	'Process management: Semantic Technologies approaches'
17	Paul C. Dinsmore PMP (2012)	**Finding**	Organisational survival depends on new projects which use Enterprise Project Governance (EPG) to add traceability measures and accountability corresponding to corporate governance

		Focus	The book focuses on the practical methodologies in order to incorporate enterprise project governance according to the culture of the organisations aligned with corporate governance in order to have maximum efficiency across the corporate departments.
18	Butler and McGovern (2012)	**Finding**	Compliance Information Systems for GRC was analysed through environmental management
		Focus	'Management systems for environmental compliance: A design framework'
19	Yu et al. (2013)	**Finding**	Including an enterprise-wide perspective, the IT internal control framework achieved regulatory, specialised and physical inner control fortification.
		Focus	"Internal Control Framework which is IT GRC-based"
20	Asprion and Knolmayer (2013)	**Finding**	Enhancing the quality by applying quality aspects on GRC software
		Focus	Adjustments for software compliance model
21	Nissen and Marekfia (2013)	**Finding**	Strategic GRC-Management requirements research.
		Focus	A research aimed at managing the GRC
22	Spanaki and Papazafeiropoulou (2013)	**Finding**	GRC implementation process with an analysis framework.
		Focus	"GRC implementation: An analysis framework"
23	Dieter Fink (2013)	**Finding**	Dieter Fink breaks new ground in Project Risk Governance (PRG), in two ways. First, he shows project risk management in the light of today's organisations, whose objectives are increasingly implemented through projects so as to better adapt to the swiftly-changing markets. Next, a governance perspective is applied to examine risks at the project and corporate levels, a severely under-researched approach for which the theoretical knowledge and professional practices have not completed maturity.
		Focus	How to have governance on the project risks
24	Nissen and Marekfia (2014)	**Finding**	Two models for strategic GRC- Management.
		Focus	GRC strategic management model
25	Mossalam (2015)	**Finding**	The business sector survey led by the creators uncovered that the present level of joining between hierarchical task administration (OPM) and other significant practices is insufficient.
		Focus	Actualising sound hierarchical task administration structure can empower the sort of visibility and control that are fundamental to effectively convey the normal advantages from activities and portfolios.

26	Joslin and Muller (2015)	**Finding**	Will profit venture administration professionals by giving experiences into the decision of PMM in various administration connections.
		Focus	Presents the relationship between the utilisation of a project management methodology (PMM) and undertaking achievement, and the effect of project administration connection on this relationship.
27	Kaiser et al., 2015	**Finding**	In the first place, they offered a substantive hypothesis that incorporates technique usage, hierarchical data preparing, and auxiliary adjustment. Second, they present another precursor of effective PPM, in particular basic arrangement.
		Focus	Understanding the role of structural alignment
28	Patanakul, 2015	**Finding**	Six proposed attributes for PPM 1) Strategic alignment, 2) Adaptability to internal and external changes 3) Expected value of the portfolio. (The next three are operational attributes) 4) Visibility of the project, 5) Portfolio decision making transparency 6) Predictability of project delivery
		Focus	To disseminate better understanding on PPM effectiveness.
29	De souza et al., 2015	**Finding**	Presented how PPM can be conceptually defined and operationally developed.
		Focus	PPM – portfolio project management evaluation.
30	Tsaturyan and Muller, 2016	**Finding**	A four-dimension framework including governance, relational, regulation and structure
		Focus	Integration of loosely coupled governance
31	Eik-Andresen et al (2016)	**Finding**	Regardless of relative expansive deferrals in the portfolio, the portfolio supervisor figures out how to meet the financial plan. Accomplishment on venture (project) level is not a matter just like achievement in overseeing a portfolio.
		Focus	Addresses strategies for representing portfolios in spite of deferrals
32	Paguin et al., (2016)	**Finding**	To lower an association's operational risk the PMO can devise survey and actualise venture proficiency administration (PEM) and undertaking hazard administration programmes (PRM) amid the PM period of the competitor’s capital speculation; their financial quality decides their most extreme acceptable usage spending plans.
		Focus	Economic conditions required from a hopeful capital speculation venture for its induction inside an association's task portfolio.

33	Badewi., 2016	**Finding**	BM was observed to be less huge and to have less effect on task speculation achievement. By the by, the likelihood of having achievement is upgraded altogether when PM and BM practices are joined together.
		Focus	To test the effect of BM practices on the accomplishment of interests in tasks, mulling over the effect of PM practices on that achievement.
34	Muller et al., 2016	**Finding**	Development of a framework with structure for government and projects governance.
		Focus	To bring in a general-Purpose Framework
35	Abdallah, A. & Ismail, Ahmad. 2017.	**Finding**	There is positive relationship between governance quality and organisational performance.
		Focus	The relationship between governance and performance is highest when the largest shareholder is government.
36	Hadjinicolaou, N. & Dumrak, J. 2017.	**Finding**	PPM led to benefits including better decision-making, efficient use of resources, reducing risk as well as aligning with business strategy.
		Focus	Application of PPM in Australia
37	Musawir, A. & Martins S., Carlos E. & Zwikael, O. & Ali, I. 2017.	**Finding**	The research found that there is a positive relationship between effective project governance and project success and identifies the importance of project governance in meeting business strategic objectives.
		Focus	Relationship between project governance and project success
38	Pries-Heje, J. & Jakobsen, P. & Korsaa, M. & Johansen, J. 2017.	**Finding**	The combination of strong senior management and PPM allows to get the most out of the PPM as well as meeting the organisational objectives
		Focus	Integration and alignment of projects with business operations
39	Romano, L., Grimaldi, R. and Colasuonno, F.S., 2017	**Finding**	The well-planned and wee-organised demand management approach to collect internal and external data to maximise the value added to portfolio management helps in selection of projects and thus effective in successful portfolio management.
		Focus	Relationship between demand management and portfolio management
40	Fabito, B. & Ching, M. & Celis, N. 2018	**Finding**	It was found from the research that government agencies in Philippines were unable to comply with Data Privacy Act because of three main factors, namely lack of awareness, budget and time constraints.
		Focus	Compliance issues of government organisations to Data Privacy Act in Philippines
41	Lappi, T. & Aaltonen, K. & Kujala, J. 2019	**Finding**	Governance practices focussing on project portfolio management are applied differently across various organisational levels.
		Focus	Application of project governance in e-government context

42	Maceta, P. & Berssaneti, F. 2019	**Finding**	Strategic alignment is same as found in PPM implementation in private and public sector whereas public sector was found to be better in documentation but had lower risk awareness compared to private sector. The project selection criteria are found to be different in public and private sectors.
		Focus	To compare PPM practices in private and public sector
43	Yamakawa, E. & Miguel, P. & Zomer, T. & Killen, C. 2019	**Finding**	The analysis of 470 articles shows that each literature discussed two or more sub-categories of PPM which shows synergy between the sub-categories as well as the use of tools for complex decision-making in PPM.
		Focus	Systematic literature review of literature on PPM

Table 1-3: Focus and findings of GRC and Portfolio

A closer look at table (1-3) illustrates, the amount of work done so far with respect to GRC and portfolio in different themes. However, no studies have been conducted on PGRC. The absence of clarity on the measurements and markers with a specific end goal to portray and measure the quality, administration (governance), risk and consistence of associations of task portfolio administration is a gap, in the above scholarly writing. The literature on PPM in general is substantial, with various aspects, applications, and roles of portfolio project management being discussed in the context of public and private sector organisations; but the literature on the purpose, definition, and role of PPM is severely lacking since little research has been conducted in this field (Strang 2011; Unger et al., 2012; De Reyck et al., 2005). Various researches on PPM have been conducted while disregarding the interrelation between GRC and Portfolio Management (Teerikangas, 2015; Enoch, 2015).

Another important aspect noted from the review of the previous literature is that GRC and PPM have not been explored together. Besides, it was noted that the research on GRC in general and PGRC in particular has been almost non-existent in UAE organisations (public or private) leaving a significant gap which this research aims to partially fill. No previous research has been done on PGRC in terms of specific portfolio, its benefits, challenges, key success areas, adoption process, views of government representatives about it and other aspects in UAE government organisations.

The key motivation is:

***There are many projects under construction by the government of Abu Dhabi, the Capital City of the United Arab Emirates (UAE) and no attempt has been made to assess residual risk and enhance decision-making while maximising output when PGRC is considered*.**

This gives a call to researchers in this field to extend their work on the field of PGRC. In summary, the following points are the motivations for the study and the problem statement:

1. The GRC concept is not examined regarding project management in a specific portfolio.
2. Portfolio was not an advanced practice in government as it is today
3. PGRC was not examined in previous researches, where previous researches examined Project Risk Governance (Fink, 2013) and Enterprises Project Governance (Dinsmore, PC & Rocha, 2012).
4. PPM adoption by governmental entities has not been extensively examined by previous research, as well as how the adoption will support the corporate GRC
5. Previous research has not identified the benefits of having PGRC, as well the challenges of establishing project GRC.
6. Prior researches have not examined the value propositions of having PGRC, as well as how it can support the government authorities / corporate GRC.
7. The experiences and viewpoints of governmental entities, their adoptions of PPM and how to have PGRC in their projects are questions not analysed in previous researches
8. The current era of PPM and GRC is important to governmental authorities, which require statistics in this area.
9. This research will contribute to the government domain on how Project GRC will enhance decision-making, reduce risks and maximise government efficiency

1.3.3 Contribution to knowledge

With respect to governance risk compliance, within Portfolio Management studies, it is evident that scholarly articles have neglected much that has been put into practice by project managers without acknowledging the interdependence of the two attributes. Although PPM has been put into consideration as an essential player in the field of public management and effecting government practices, the particulars as to what factors have been put together in order to attain the required blend of PPM and GRC have not been considered as having a significant impact (Gozman, 2015). The discussion of PPM rotates around the current practice of PPM, which builds up management of projects thus giving rise to guidelines meant to monitor projects being carried out across the country. To bring about effective management of the government's exposure to risk, which is critical to financial sustainability, as well as forming an integral part of governance risk compliance (Joslin& Müller, 2015) is the contribution to be made by this research. Another

contribution is identifying the interrelations among the methodology of project management and the success of the project in various project governance circumstances.

A government, having a framework which assimilates the process of managing risk into overall compliance, planning and strategy, is a recommendation of GRC. The study also contributes to knowledge by giving an examination of the focus of PPM and how PGRC can be actualised in the legislative system of government authorities (Martinsuo, 2013; Jonas et al., 2013). This will indicate the views of significant partners about PPM, as well the specific end goal to show what the prerequisites and desires are (Voss, 2012). The contribution of PPM in relation to GRC encompasses the wider risk exposure of practices of government entities, such as elevating the prospects of attaining the objectives and furnishing the outcomes desired by the government. It also encourages organisational management to be proactive in light of governance and controls, which increases their ability to actively identify opportunities, threats, weaknesses and strengths. It leads to improvement in legal compliance and instils confidence in stakeholders. PPM practice helps to provide a reliable basis of planning and setting priorities in every government entity. This study is unique and will contribute to the domain of PPM and GRC for the following reasons:

1. The study discusses the project GRC in the context of government and how project GRC will help corporate GRC. This will tackle the changes in demands.
2. Corporate GRC will be applied to observe the portfolio, programmes and projects, as well as at the corporate level.
3. The increasing number of government projects requires a mechanism or framework to have GRC on the projects for proper corporate GRC.

1.4 Research aim and objectives

To provide a direction for this study the guidelines for the research have been derived from the objectives. The objectives of this research will provide a unified aim, which will be the primary motivation of this study. The research aim is to:

Propose a conceptual framework for Abu Dhabi government entities to apply Portfolio Governance, Risk and Compliance (PGRC) in their Projects, Programmes and Portfolio.

Based on the aim of the study, the following objectives were developed for this study:

Objective 1: To identify the factors influencing Portfolio Governance, Risk and Compliance and the adoption and participation phases of PGRC in government organisations in Abu Dhabi

Objective 2: To identify the factors affecting the adoption of PGRC in government entities in Abu Dhabi and validate it through the development of a conceptual framework.

Objective 3: To identify strategic steps required by governments to gain maturity in PGRC.

1.4.1 Research Questions

To achieve the aim of this study, the following research questions were developed:

RQ1: What are the factors that influence Portfolio Governance, Risk and Compliance (PGRC) in government entities and how do they influence the adoption and participation phases of PGRC?

RQ2: What are the factors contributing to the effective adoption of PGRC in government entities in Abu Dhabi?

RQ3: What strategic steps should be taken by Abu Dhabi government to have maturity in PGRC?

1.5 Thesis Outline

According to the methodology proposed by Phillips and Pugh (2010), the thesis structure entails four elements as shown in Figure (1-5):

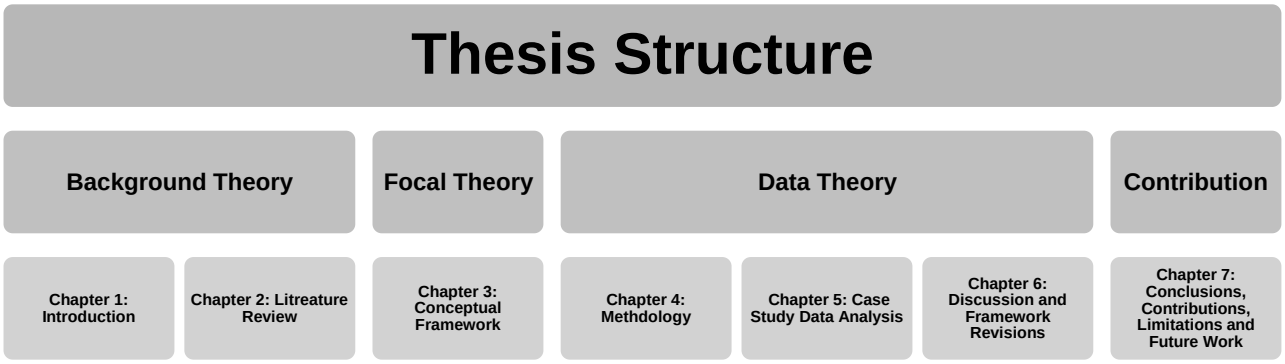

Figure 4-6: Thesis Structure

The *Background theory* delves into the research area, discussed in *Chapter 1*. *Chapter 2* explores the research background in detail by critiquing other scholars and previous literature in the research domain. *Chapter 3* elaborates on the *Focal theory,* which proposes a conceptual framework. *Chapters 4 to 6 covers the Data theory. Chapter 4* also describes the adopted *methodology, which* describes the epistemological stance alongside other suitable research methodologies. Following that *Chapters 5 and 6* present data collection, analysis and discussions. *Chapter 7* elaborates on the research contributions and suggestions for future study. Figure 1-6 illustrates and summarises the research outline.

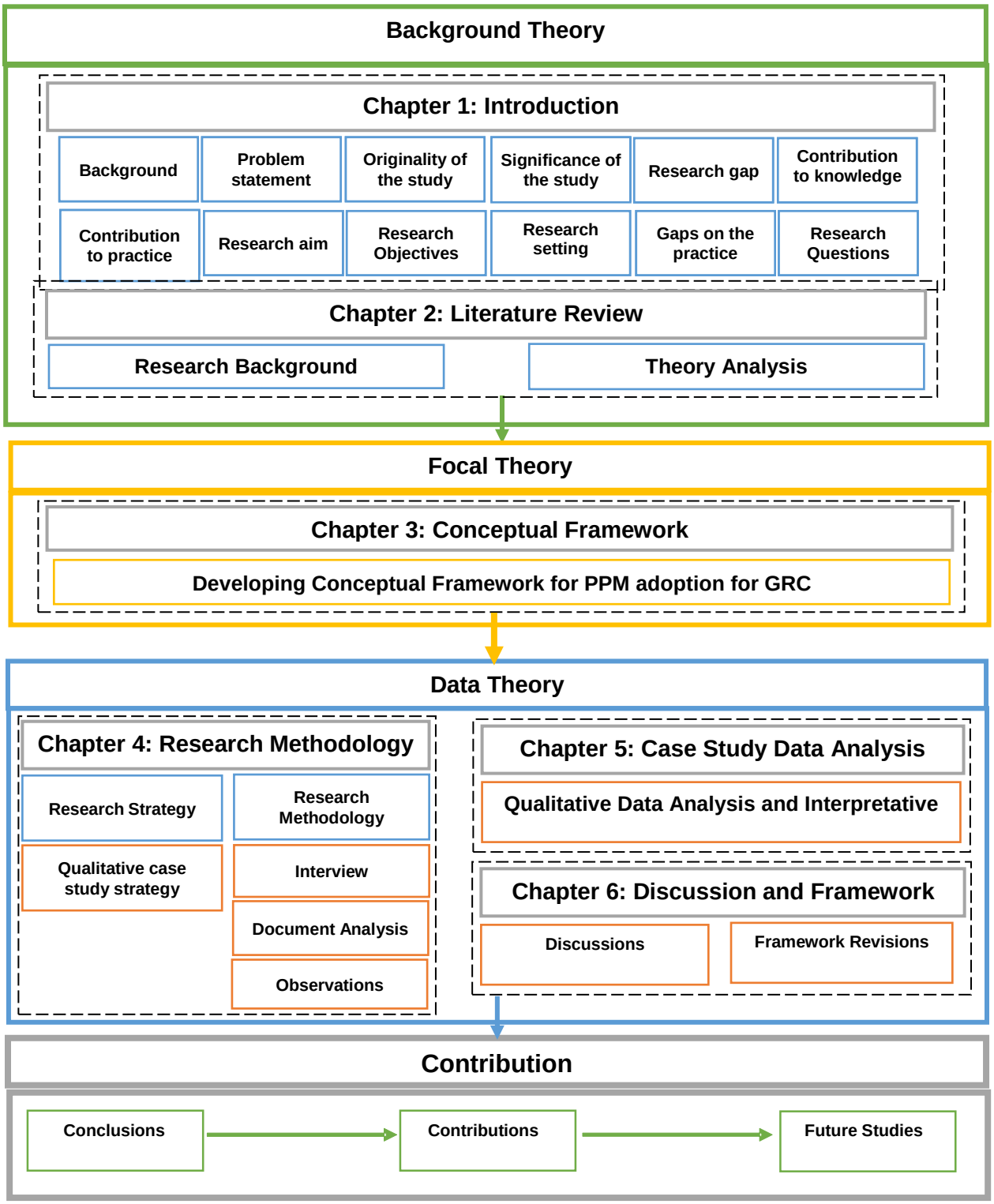

Figure 4-7: Thesis Outline

2. BACKGROUND

2.1 Introduction

This chapter gives a detailed background of Abu Dhabi in relation to the context of PGRC. It describes Abu Dhabi in terms of its geographical location, population and other key areas. Abu Dhabi government entities are briefly discussed. The current GRC and PGRC practices in Abu Dhabi are then explored.

2.2 Abu Dhabi – Emirate Description

United Arab Emirates (UAE) is an Arab country located in the Middle East. According to Zahlan (2016), until the 1970s the country was hardly known outside its region, and after 1970, it made huge progress which brought it into international limelight along with many misconceptions in the West about its medieval splendour and autocratic rule. Matsumoto (2019) also confirms that UAE is a wealthy country. The country has seven emirates namely Abu Dhabi, Ajman, Dubai, Fujairah, Ras al Khaimah, Sharjah and Umm al Quwain.

Abu Dhabi is the capital of UAE. It is the oil rich Emirate which has been diversifying its economy because of the government policies to reduce dependence on oil (Sharpley, 2002). The country is a desert, but has engaged in numerous projects to transform itself into a greener country through massive forestation and agricultural programmes (Sohl, 1999). According to Abu Dhabi Statistics Centre (2019), the population of the Emirate was 2.6 million in 2014 (out of which 80% are expatriates and 20% are UAE nationals). The population has grown by more than 120-fold since 1970 after the emirates were united to form United Arab Emirates. Majority of the population live in urban areas compared to rural areas as found in most of the developing countries around the world. More than half of the population are males corresponding to the large number of expatriate populations coming from their home countries to work in UAE. Abu Dhabi accounts for 86% of the total area of the country which makes it the biggest Emirate. The Emirate's GDP increased to 693% from 1970 to 2013, according to Abu Dhabi Statistics Centre, with both oil and non-oil sectors increasing at a fast pace. The Emirate has been engaged in Plan 2030 which aims to make Abu Dhabi have a more diversified economy, with industrial developments, infrastructure improvements, increase in tourism, more and better opportunities for women as well as other key strategic areas to make the Emirate lesser dependent on oil.

2.3 GRC in Public Sector and its Relevance to Abu Dhabi Government Entities

Government organisations face various issues in their operations just like non-government and for-profit organisations. Government organisations are huge in size with more complex processes and thus maintaining compliances is very complicated. Governments all over the world face many challenges of managing governance in their multiple departments, managing risks associated with their projects and associated compliances. Just like for-profit organisations, government organisations also face environmental, health and safety, technological and other risks. They have limited resources (human, material and finances) which need to be used efficiently. Latest advances in technology have made government organisations to face new issues including cyber-security and privacy issues since they have personal information data which make confidentiality imperative and risks higher. Fabito et al (2018) identified three factors which hamper their compliance: lack of awareness, budget and time constraints. These issues if managed manually can be costly, tiresome, complicated and complex; hence governments are encouraged to look for a technological solution to manage governance, risk and compliance.

The various departments of Abu Dhabi Government can benefit by technologically using GRC to help them reduce the burden of compliance and risk management. Mathews et al (2003) identifies that most governments fail in recognising issues associated with risk and compliance management especially for information privacy aspect. No evidence has been found from the literature that Abu Dhabi Government entities have technologically implemented GRC. GRC platforms can offer various functionalities which can be deployed by Abu Dhabi Government to achieve better results. GRC solutions would help the Emirate Government to manage daily activities across all of its departments in a less-complicated manner while ensuring all compliances are met. The structure is a multi-tier hierarchy which is expected to lead to various issues when implementing GRC in government organisations in Abu Dhabi and these issues can be eliminated by using GRC platform. The activities can be streamlines leading to efficient workflows across all departments and government entities. Nissen and Marekfia (2013) note that there is an increased demand for an integrated approach for governance, risk and compliance. A platform where governance, risk and compliance are integrated will be an important source to improve processes for Abu Dhabi organisations since they are more prone to risks due to their size and resources.

A GRC solution is expected to provide a holistic approach to managing the risks of the Emirate's government entities by identifying, analysing, evaluating and mitigating risks. This will in turn improve organisations' performances and enable them to meet their goals. The GRC solution can also help the government entities in their audit management since audit data can be

easily collected, maintained, analysed and stored using this software. GRC solutions can also ensure that compliance and regulations are met across the various entities of Abu Dhabi Government dispersed in various locations and geographies. This can be done by enabling the government organisations to manage and store data securely over the cloud and make them to safely access information across different locations. This will help Abu Dhabi government organisations to meet compliance requirements with limited time and money.

Frigo and Anderson (2011) state that organisations of all sizes and types need to excel at strategic risk management to be safeguarded against internal and external factors. Abu Dhabi Government also needs to get engaged in a systematic risk management process. Since the government gets involved in numerous projects, GRC is beneficial for its project management equally. Decisions regarding project selection, project risks, resources allocation, regulatory and compliance issues and scheduling and auditing can be effectively managed using GRC solutions. Automated reports can be generated which can help project managers and personnel get timely information providing real-time visibility into different aspects of projects.

If GRC solution is implemented in Abu Dhabi government departments, it will strengthen governance and build trust amongst its departments as well as within the public by systematic risk management process. Ahmed Alnejad and Ghasempouri (2015) identify trust as an important outcome of GRC platforms. The platform enables organisations to identify risks early and manage them effectively by taking timely actions. Violations of laws can be identified and corrected quickly and thus leads to increase in key stakeholders' trust in their organisations. The GRC solution can be implemented to ensure that laws and regulations are kept. Government organisations also have issues of making efficient use of public funds which they are entrusted with. A GRC framework can help helps to manage risks and thus ensures that projects undertaken by government organisations are completed successfully and meet the goals and objectives of government. Exposures to risks are quantified both in isolation and jointly leading to proper risk management techniques undertaken by the government. GRC solution can provide an effective platform for Abu Dhabi companies to standardise and manage risks, both strategically and operationally. It can also consolidate information from financial system to enable reporting against risks by using metrics available in organisations for compliance monitoring. If Abu Dhabi government aligns GRC policies with organisational goals and objectives and strategy, there will be increase in trust at the departmental level as well as public level. Racz et al (2010) confirm that integrated approach for GRC is highly recommended.

2.4 Need to Integrate PPP and GRC for Abu Dhabi Public Sector Entities

It has been noted from the review of previous research that project portfolio management (PPM) is fundamentally a different concept altogether from project and programme management. Project and programme management involves effectively and efficiently managing projects, that is timely execution of projects, making full use of resources for projects and meeting their goals; whereas project portfolio management means doing the right projects at the right time and involves selecting and executing projects based on organisational goals and strategy. Thus, completely different techniques are required in PPM compared to project and programme management. Rank et al (2015) identified a positive relationship between proactiveness and future preparedness. Project portfolio management can help managers to be proactive and prepare for the future. Effective portfolio management enables organisations to align their projects with their strategy, make better use of the available resources and create value for themselves. Organisations often do not really know what portfolio management is. This makes them to select wrong projects and thus not meeting their strategic goals.

In previous researches, PPM frameworks and techniques have mostly been developed in the areas of product development and investment environments (Bhasker, 2017), and public sector organisations have not been studied widely in relation to PPM frameworks. Public organisations in Abu Dhabi may have specific requirements for PPM frameworks because of their unique requirements, specific structure, hierarchy, procedures, wide variety of projects they get involved into and stakeholders' interests. Clear identification of roles and responsibilities should be made as part of PPM framework for government organisations.

Besides, because of the long and difficult communication processes in the government organisations, project and portfolio decision-making should be done in the same process to improve communication as well as to reduce conflicts in decision-making. The PPM framework specifically designed for government organisations should also consider the difference in information requirement at each stage, selection, execution and monitoring. Portfolio-level information content should be used in the portfolio process to guarantee high-quality decisions. Projects should be evaluated on generic criteria to avoid any chances of conflicts and bias. The government portfolio process should be integrated with existing management practices to avoid excess bureaucracy; however, some changes should be made to make PPM framework result-oriented.

The political aspect of government organisations and the fact that they are responsible to the public and other stakeholders for the use of their resources make it imperative to connect PPM with decision-making system of the organisations. This makes it necessary to ensure

unbiased and fact-based decisions are taken when selecting and executing projects. Abu Dhabi's public sector organisations should also consider the important role of information in taking correct decisions. When evaluating and comparing two potential projects, correct decision can only be reached when correct and unbiased information is used for decision-making. Maceta and Berssaneti (2019) confirm that public organisations have lower awareness of risk, which makes them prone to failures. Availability and use of information for risk management and project selection are thus necessary. Along with information, the link between projects and organisational strategy and goals should be ensured before deciding to embark on them.

As there is almost non-existent previous literature on Abu Dhabi government organisations, there is a strong need to study the integration of PPM into GRC as well as the decision-making processes. The barriers and challenges expected need to be identified to ensure that overall implementation is successful in public organisations. The aim is to improve decision-making process, reduce the risks involved, make best use of available resources and provide higher satisfaction to stakeholders in general and the public in particular. Two possibilities have been identified for PPM by Martinsuo (2001): to maintain and implement current strategy or to renew existing strategy. Abu Dhabi government entities can use any of the two strategies while implementing PPM. Organisations that are willing to continue with their existing strategies can choose PPM to execute the projects which complement their current strategy and not those that are against it. This can lead to directing the available resources towards achieving the organisational goals. Thus, the focus of PPM will be defined based on the requirements of the organisations.

Abu Dhabi public organisations have generally demonstrated efficient project management capabilities, which shows that they are ready for PPM implementation. Highly developed infrastructure, proper telecommunications and road and traffic systems, well-running airports and ports, well-developed healthcare and education systems and other facilities show Abu Dhabi governments' capabilities in project management since they are known to be involved in delivering world-class projects. The next step towards PPM is thus expected to be highly welcomed by government entities if implemented correctly.

2.5 Conclusion

This chapter attempted to study the relevance of GRC and PPM to Abu Dhabi Government organisations. No previous research has been done on Abu Dhabi public entities, which made the researcher to study its relevance in terms of readiness of the organisations, its current state, important aspects and key success factors. The Abu Dhabi government organisations are very good candidates for PPM framework because of their nature and higher expectations of the public. The PPM framework once implemented successfully can lead to the alignment of their projects with strategic goals resulting in higher public satisfaction.

3. LITERATURE REVIEW

3.1 Introduction

In Chapter 1, the research on PGRC led to the identification of the research aim and objectives. In this chapter, the wide literature in the area of PPM and GRC is evaluated to determine its role in developing further the capabilities of PGRC. The chapter presents PGRC as a consolidated component and highlights its importance by investigating past research in this area. In sections 3.2 and 3.3, PPP is evaluated followed by a detailed analysis of its components, whereas 3.4 elaborates on the process of PPM and its challenges. Similarly, in sections 3.5 and 3.6, the concepts of GRC and PGRC are examined in detail. The theories supporting GRC and PPM models are evaluated in section 3.7, thereby narrowing down to the selection of one theory which is utilised to develop the conceptual framework in Chapter 4.

3.2 Portfolio Project Management

Portfolio is a term widely used by diverse organisations, thereby leading to the representation of various meanings (Martinsuo, 2013). It is associated with different types of portfolios; however, irrespective of its application, it has no commonly accepted definition and hence it is referred to as project portfolio (Kaiser et al., 2015; Brook and Pagnanelli, 2014). The transformation process executed by firms is on three main levels that have diverse objectives (Neckowicz et al., 2015). However, they are required to work in a coherent manner so as to deliver an effective transformation. The three levels are portfolio, programme and project management, where the focus of project management is on ensuring that it delivers tangible outcomes (Young et al., 2012; Aiello and Gatti, 2017).

Portfolio management lays emphasis on making decisions around programmes/projects and executing them on the basis of overall organisational goal and objective alignment (Jonas et al., 2013). Programme management in this respect has been regarded as a middle layer that emphasises delivering benefits to business (Unger, Gemünden and Aubry, 2012). In definition, a portfolio is noted as a collection of projects (or programmes) that are managed with effective coordination to achieve a set of corporate objectives (Morris and Jamieson, 2005; Khameneh et al., 2016). Portfolio management is a level above project management and noted as a critical aspect of businesses that engage in more than one project (Teller and Knock, 2013). Hence, PPM can be defined as ‘a coordinated management of one or more than one project portfolios in order to achieve a pre-determined set of business objectives (Winter et al., 2006). As seen in figure 3-1, the relationship between a project, programme and portfolio is managed through PPM, with

elements of a portfolio quantifiable in nature (Aiello and Gatti, 2017; Young et al., 2012). For an organisation to achieve its goals and objectives, it is highly essential that there is an alignment of the elements of portfolios with the corporate strategy (Killen and Hunt, 2013).

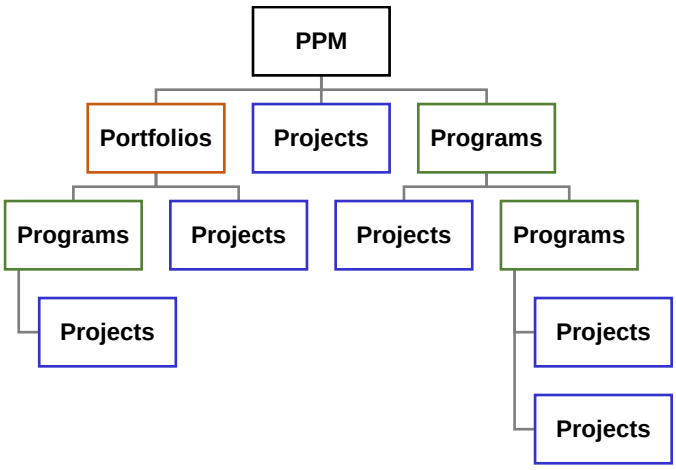

Figure 4-8: Relationship between PPM Elements
Source: (Young et al., 2012; Aiello and Gatti, 2017)

Programme management assists in identifying projects according to their interrelationships and new opportunities and capabilities that they can deliver. Programme management has its own benefits such as alignment of business strategy and operational execution, greater visibility of projects by senior management, explicit recognition and understanding of dependencies; however, the concept does operate at a lower level than a project portfolio. Projects within programmes share a common, overarching objective and projects in a portfolio share the same set of resources (Blomquist & Müller, 2006).

In a corporate environment, the functioning of a company is associated with the project environment (Browning & Yassine, 2010). According to PMBOK (PMI, 2013), a project is noted as a temporary task undertaken for the development of a unique service or product. Within this definition is the need to deliver value. While there are other literature sources offering a definition with a wide view such as in (Morris & Jamieson, 2005; Newell et al., 2008; Voss & Kock, 2012; Killen et al., 2015), a project can be noted as a temporary medium of assigning resources in order to achieve an organisational benefit (Browning & Yassine, 2010). The companies that have effectively utilised projects as result-oriented action have moved to value creation; thereby characterising them as less bureaucratic, flexible, innovative and team-work oriented (da Silva &Oliveira, 2016a; Cicmil & Hodgson, 2006). Today's business can be said to be successful if there is realisation of business strategy, achievement of competitive edge and stakeholders' benefits (Winter et al., 2006). The focus of project management has thus been shifted from

product creation to value creation (Musawir et al, 2017). This awareness has led to the inclusion of multiple projects and development of this aspect as a practice leading to creation of project portfolios (PMI, 2013).

The concept of project management and its development can be traced back to a report published by the UK Institution of Civil Engineers (Wideman, 1995). It discussed post-World War II national development and drew attention to the need for a systematic approach with a planned breakdown of activities to achieve a fixed objective. In literature, project has been described in many ways; for example, it can be described as "*a temporary endeavour to create a unique product, service or result*" (PMI, 2013). Projects have also been described as, "Building blocks in the design and execution of organisational strategies, with the means for bringing about realisable changes in products and processes" (Cleland, 2007, p.91). The process of project management involves a complex mix of key stages, for example, project initiation, planning, execution, control and closure. The Project Management Institute (PMI, 2013) illustrated in Figure 4-9 below the process of project management. The initiation phase includes a feasibility study, market research and the organisation of the PMO. Reviewing a project from the angle of organisational fit and overall contribution to the strategic objectives of an organisation is also included in the initiation phase (Heising, 2012; Martinsuo, 2013). In the planning phase, people across an organisation pool their knowledge to define the scope of a project and analyse its roadmap (Killen et al., 2012; Teller & Kock, 2013). In this stage, a variety of plans are defined, for example financial, resource, quality and communication. The final step, closing includes decommissioning of resources, handing-over of project documentation and releasing final deliverables. These steps or phases comprise the definition of deliverables based on the various work packages. Monitoring to ensure minimum or zero deviations, as well as overall success controls a project's deliverables, scope risk and resources (PMI, 2000).

Figure 4-10: The process of project management
Source: PMI (2000)

Before the emergence of portfolios, there existed programmes. The term programme management has been defined in the literature in various ways; however, most definitions refer to the coordinated management of a collection of interrelated projects (Young et al., 2012; Sarbazhosseini et al., 2014). The definition that indicates the organisation-wide performance

governance framework has risen from the need of companies to respond to the challenges of their competitive markets (da Silva &Oliveira, 2016b; Korhonen et al., 2014). The importance of programme management in organising both potential and approved projects and activities and presenting an integrated approach to project management has often been discussed in the academic literature (Jonas et al., 2013; Kock et al., 2015). This approach analysed the needs of working with higher-level objectives that helped implement business strategy and simultaneously made important projects visible to top management and enabling them to prioritise those with the highest potential for stakeholders' value maximisation. Often, it is found that programme and project portfolio are mistaken to be the same (Romano et al., 2017; Eric-Kirkland, 2015). However, there is a difference between these two elements, as shared in the table below (Milosevic et al., 2007; and Killen, 2014). As observed, a broader context exists in PPM over programme management, both in projects that are related or unrelated to an entity. In terms of duration, it is finite in nature for programmes, whereas it is infinite (i.e., on-going) for portfolios (Teller, 2013). Furthermore, project (programme) selection, approval, reviews and control are wider in portfolio management (Curlee, 2014). On the other hand, programme management allows the monitoring and leadership of projects to achieve set goals, whereas it is realised through strategic management in PPM (Eik-Andresen et al., 2016; Lerch & Spieth, 2014).

Factor of differentiation	Programme	Portfolio
1. Function versus Process	Is a function of management that allows the idea of feasibility to be determined (in business & execution), transforming the idea into an action plan, executed with success?	Is a process applied for evaluation, prioritisation, selection as well as resource utilisation for ideas to align with corporate objectives
2. Value determination and acquisition	Is aimed at achieving a business value through single opportunity development and introduction to the market	Is aimed to determine the business value of an organisation through its existing opportunities
3. Management of risk	Is availed through all disciplines within a single service/product/infrastructure capability development	Is availed through determining business/technical risks involved in each concept (opportunity), followed by risk balancing and return on portfolio opportunities
4. Management of resource	Is achieved through staffing of core team programme members while ensuring availability of adequate staff within the programme development life cycle	Is achieved through the alignment of resources with opportunities leading to creation of the highest strategic business value

Table 3-1: Differentiation between Programme and Portfolio Management
Source: (Milosevic et al., 2007)

In PPM, a distinction between the three elements is observed, as per the project management theory, as shared in table 3-1 (Blomquist & Müller, 2006; PMI, 2013). While they are noted as being closely linked, they are still quite distinct. PPM is noted as a broad concept with a series of processes that lead to selection, prioritisation and allocation of resources for multiple projects (at independent levels) and programmes (PMI, 2013; Voss & Kock, 2013). Different authors have studied PPM and provided its definition based on their review of its scope and application as seen in table 3-1. According to the International Project Management Association (IMPA), PPM is the management of a set of projects that are brought together to achieve a set of strategic goals within a set of allocated resources with lower risk (IMPA, 2015). As observed in table 3-2, while the basic concept of PPM has remained the same, it has evolved to include factors such as risk and compliance.

Author(s)	Definition of Portfolio Project Management
IMPA (2015)	"as a set of projects (or programmes) brought together for the provision of an optimum usage of the resources of an organisation and achievement of its strategic goals with effective risk management"
PMI (2013)	"as a coordinated management of project portfolios (one or more than one) to achieve a set of strategies and goals"
Killen et al. (2011)	"as the grouping of various methods to analyse and manage a group of projects collectively as per various characteristics"
Blichfeldt and Eskerod (2008)	"as the managerial activity for initial screening, selection & prioritisation of project proposals, the concurrent re-prioritisation of portfolio projects, followed by the resource allocation/reallocation to projects as per priority"
Levine (2005)	"as a set of processes, supported by people and tools, to guide the enterprise in selecting the right projects and the right number of projects, and maintaining a portfolio of projects that will maximise the enterprise's strategic goals, efficient use of resources, stakeholder satisfaction, and the bottom line"
Elonen & Artto (2003)	"as the management of interfaces between projects, and the coordination of collections of projects in accordance with resource and other constraints"
Cooper et al. (2001)	"as a dynamic process of decision-making that enlists the usage of new products along with research and development of projects is constantly upgraded"
Dye & Penny packer (1999)	"as the art and science of applying a set of knowledge, skills, tools, and techniques to a collection of projects to meet or exceed the needs and expectations of an organisation's investment strategy"

Table 3-2: Varied Definitions of Portfolio Project Management

Some of the most important aspects discussed on PPM in the literature deal with the project portfolio that raises the need for a centralised view of companies' projects. The preparation of an inventory of current and proposed projects, preferably through a central area responsible for collecting, analysing and distributing project information in a common format is seen as the primary step in the adoption of the PPM approach (Doloi and Baradari, 2013). In PPM, risk analysis indicates how a portfolio should not be chosen considering only the individual characteristics of the investments, but rather how it should be built based on the overall risk and reward of the portfolio. Scholars, such as McFarlan (1981), in his research on risk analysis, argued that two of the main reasons for project failure were, "failure to assess individual project risk and the failure to consider the aggregate risk of the portfolio of projects". In PPM, interdependencies exist. They include sequential interdependencies, overlapping interdependencies, competition for scarce resources and change bottlenecks, as identified by Thorp (1999). The author pointed out that one advantage of PPM was its ability to reduce inter-programme competition for resources and to turn programme overlaps into productive interdependencies.

In PPM, prioritisation, alignment and selection deal with how and why organisations when combining portfolio alignments and balance must come up with a clear picture of which projects should be cut off and which ones should be funded (Martinsuo &Killen, 2014; Korhonen et al., 2014). PPM is also affected by constraints, such as scarce human resources, staffs' capabilities, budgets and infrastructure (Teller, 2013; Goldman, 1999). Prioritisation includes dynamic reassessment of the portfolio that raises the issue of managers ignoring options embedded in the portfolio (Beringer et al., 2013). This can allow them to either abandon unprofitable projects before further investments are made or to expand successful investments (Sicotte et al., 2014). This observation was made during the research of Jeffery and Leliveld (2003) as they observed only 26 per cent of the respondents in their survey tracked financial measures after an investment was made. Similarly, the importance of specialised software for PPM is believed by many in the academic literature as a farce with no requirement for it (Gutiérrez &Magnusson, 2014). Some researchers claim that besides working as a process change catalyst, specialised software is indispensable due to the time-consuming process of updating all information needed for the decision-making process (Mosavi, 2014; Teller & Kock, 2013). The PPM approach can be of benefit to many organisations as it can maximise the value of IT investments while minimising risks (Datz, 2003) and improving communication (Unger et al., 2014).

3.3 Components of Portfolio Project Management

In PPM, there are a few main components that define its importance and hence, the framework of operation (Kaiser et al., 2015; Yang et al., 2014). These components include strategy, governance, processes, and methods. In this section, each of these components of the PPM is examined in detail.

3.3.1 Strategy

Within the tactical and strategic processes that exist in an organisation are general relationships that define strategy. As identified by Ye et al. (2014) and Bakar and Yusof (2016), strategic alignment is crucial for the successful management of a project portfolio. They emerge from the mission, vision and objectives of an organisation. To achieve strategy execution, there is a requirement for strategic management of the processes, tools and systems that lead to the definition and development of high-level operational planning and management, as well as PPM (Too &Weaver, 2014; Castelli et al., 2014; Alneyadi & Ali, 2014). As a result, a tactical implementation of the operations relevant to the projects is achieved. Post the assumption that the goal, mission and the strategies are identified by the leadership, the next step involves

identifying specific projects to execute strategies (Bakar &Yusof, 2016). It is these projects that are involved in the portfolios of a given organisation and are referred to as a 'strategic plan' (Danesh et al., 2015; Hyväri, 2014). Figure 3-3 explains the linkage between strategy and portfolio project planning with a strategy for execution. This requires a strategic management process, system and tools that lead to portfolio project planning as well as its management (Momcilovic et al., 2014; Møller et al., 2016).

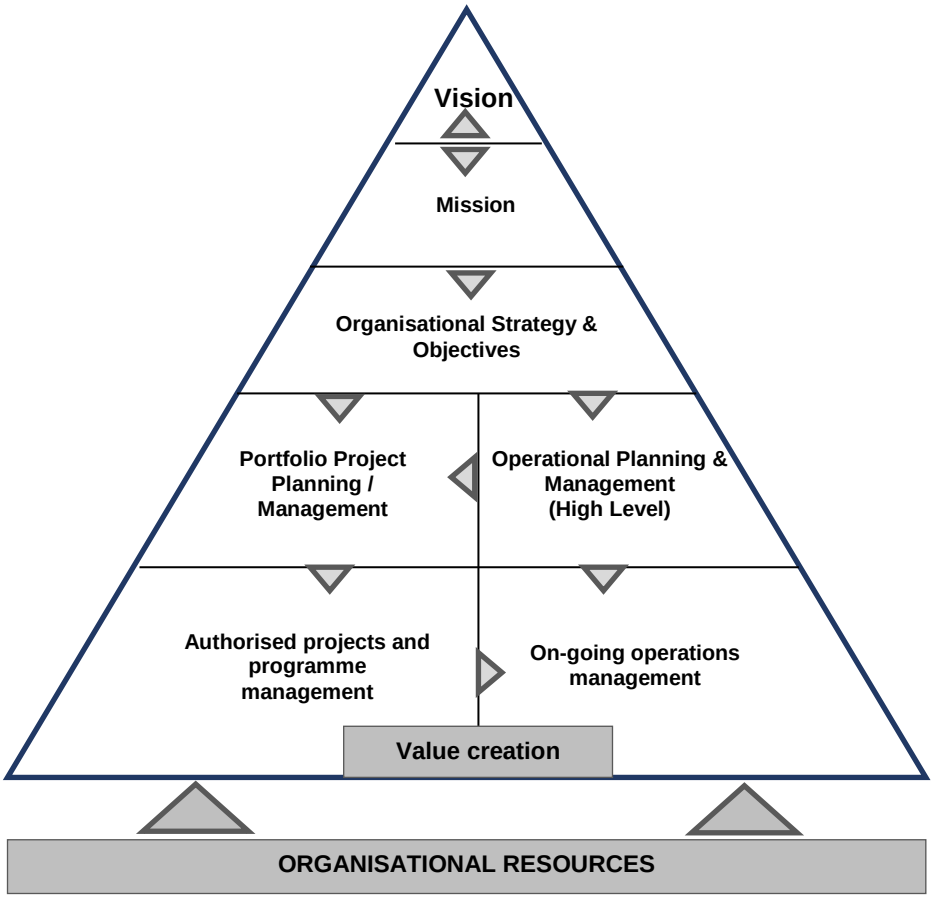

Figure 4-11: Portfolio Project Management and its Organisational Context
Source: (Momcilovic et al., 2014)

As seen in figure 3-3, mission, vision and objectives are the top guiding forces for setting goals and hence, listed on the top of the triangle (Momcilovic et al., 2014). This directs the organisational actions needed for achievement of goals. The influencing relationships can be reviewed based on the flow of the arrows; they emerge from the top element of the triangle and are directed towards two primary elements – 'Portfolio Project Planning / Management' and 'Operational Planning & Management (High Level).' These two represent the process required to achieve the actions. At the bottom of the chain is value creation, which is an effect of all project

activities on an on-going phase. The value creation stage also ensures the stability of existing value and new value development through efficient and effective execution of the portfolio operations within an organisation.

In PPM, the link between the strategies of each element can be further broken down as depicted in figure 3-4 (Kuster et al., 2015; Morris &Jamieson, 2004). In PPM, both aspects of the project and operations should be considered for success (Romano et al., 2017; Kock et al., 2015). From the operations end, operations management processes and recurrent activities are utilised for facilitating high-level plan development and management. Similarly, from the project end, the project or programme management process is undertaken to achieve effective project development plan (Teller, 2013; Eric-Kirkland, 2015). However, on the tactical level, the question lingering is 'how efficient is the project or operation to gain optimal performance from effective usage of resources, and efforts while complying with the standards and values of the firm?'

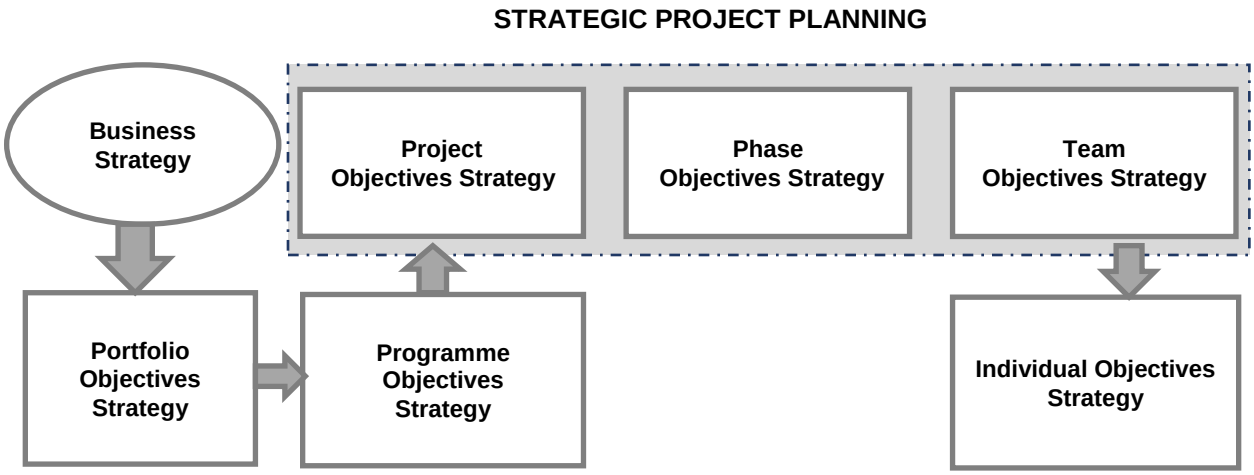

Figure 4-12: Schematic showing portfolio, programme and projects as per strategy
Source: (Kuster et al., 2015)

In order to achieve their respective strategic intent, organisations rely on their programmes and projects (Voss &Kock, 2013; Lerch &Spieth, 2013). This interconnection is further strengthened by PPM through the sharing of goals and resource allocation in a systematic manner (Bakar & Yusof, 2016; Too &Weaver, 2014). They include provision of direction through strategic intent and priority development to determine the allocation of financial resources in a portfolio; mapping of strategic intent on portfolio components with resource allocation; effective delegation of each portfolio to subset with strategic intent and clear definition of each project and its contribution towards the overall strategy within the allocated resources (Kuster et al., 2015).

3.3.2 Governance

As stated by PMI (2006, p. 08), "*Governance is the act of creating and using a framework to align, organise and execute activities in a collectively coherent and intelligible manner in order to meet goals*". For an organisation, governance ensures that all critical enterprise level functions are integrated with a common mission to achieve an ultimate goal (Jonas et al., 2013). This is noted as a reason of integrating governance with PPM (da Silva &Oliveira, 2016b; Sarbazhosseini et al., 2014). Such integration can have an effect on the overall financial condition of an organisation when involved in PPM or bring in high efficiency in internal operations (Killen et al., 2015; Teller & Kock, 2013). PPM can also be noted as an organisational governance method applied by firms and included within their internal governance framework (Aiello & Gatti, 2017). It establishes within firms' power, work protocol, and rules of conduct, which they can utilise for strategic goal advancement and achievement of corporate objectives and benefits (Neckowicz et al., 2015; Brook & Pagnanelli, 2014). Apart from its organisational role, governance is also applied in operations, which are the day to day activities of firms (Kaiser et al., 2015). The operations involve processes that may not be specific to a project. However, in operations management, they are process outcomes emerging from the components of a portfolio (Martinsuo, 2013; Korhonen et al., 2014). Organisations must consider both project and operations aspects in such scenarios (Romano et al., 2017; Killen, 2014). From the operations side, firms utilise operations management processes as well as recurring activities to achieve a higher level of planning and management. Similarly, from the project side, effective project planning and implementation enables the utilisation of the programme or project management process (Curlee, 2014; Lerch &Spieth, 2013; Voss & Kock, 2013).

Governance in PPM is targeted to distribute responsibility amongst various members (i.e., internal and external) that are involved in decision-making (Alneyadi &Ali, 2014; Danesh et al., 2015). The internal group comprises core members, such as board members, managers, senior executives and employees. The external group comprises regulators, shareholders, customers and suppliers. Apart from the internal and external groups, other parties may also be included, such as sponsors, leaders, and advocates (Rajegopal et al., 2007; Hyvari, 2014). The hierarchical view of the PPM team is shared in figure 3-5. As observed in the figure, each role within the hierarchical system of PPM collates at the executive level, wherein decisions on whether or not to 'go-kill-hold-fix' are undertaken for balanced PPM (Møller et al., 2016; Rajegopal et al., 2007; Kuster et al., 2015).

Literature on PPM is primarily categorised under five main goals (Unger et al., 2012; Beringer, Jonas &Knock, 2013): defining goals and objectives (i.e., articulating clearly what the

portfolio is expected to achieve); understanding, accepting and making trade-offs; identifying, eliminating, minimising and diversifying risk; monitoring portfolio performance (i.e., understanding the progress that portfolio is making towards the achievement of t goals and objectives) and finally establishing confidence in achieving a desired objective (Teller & Kock, 2013; Caniels & Bakens, 2012). Most of the literature in this case provides similar lists of objectives to be achieved through the adoption of PPM approaches.

In terms of the pre-conditions for PPM, research primarily discusses the preconditions that organisations should consider when adopting PPM approaches. These are organisational strategy, leadership and team (as observed as the key phases in figure 3-5). A study by Matheson and Matheson (1997) described how a firm designed a task force to develop a strategy for its lacklustre R&D portfolio; however, it was in vain since the company lacked a business strategy in the first place. Such examples in the literature indicate the importance of organisations to have a clear strategy in place that must be communicated across all their departments. These must be aligned to the PPM goals. Also, involvement of business leaders is critical; as Kendall and Rollins (2003) noted, “without the full understanding and support of top executives the constant fight over resources and reprioritisations will never be resolved”. The involvement of business leaders and top-level people in an organisation is a necessary precondition for the adoption of PPM approaches (Aubry et al., 2012). Team Skills in PPM relate to building a team that can analyse the sensitivity of results and evaluate risks that might affect a projects’ returns (Caniëls and Bakens, 2012).

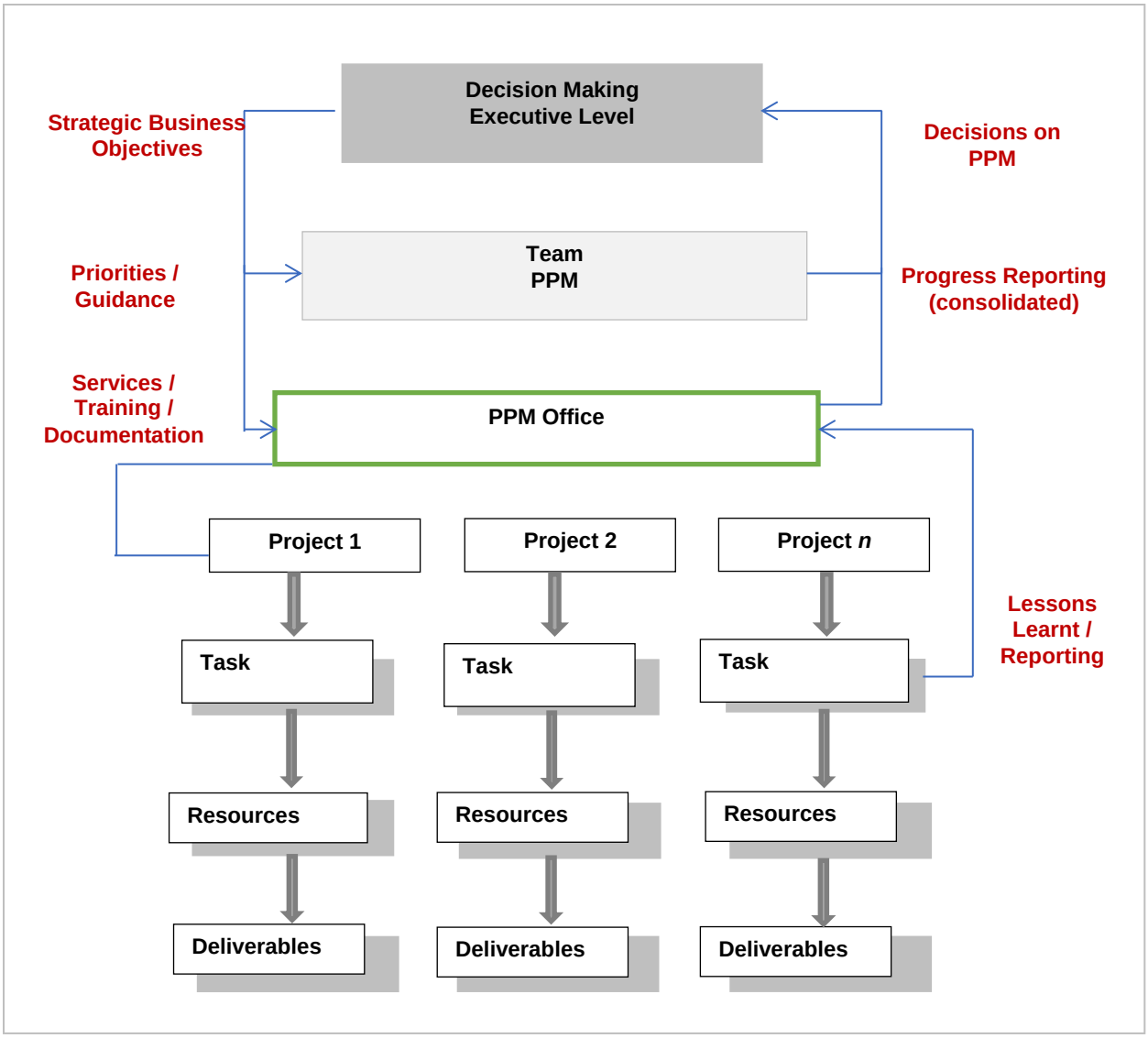

Figure 4-13: Hierarchical view of the PPM team and Operations in PPM

Source: (Rajegopal et al., 2007) not cited

3.4 The Process of Portfolio Project Management

PPM as a process is executed many times in a year by matching it to business type, organisational size as well as culture followed by the management of an organisation (Heagney, 2016; LaBrosse, 2010). The aims are to translate strategy into initiative, identify programmes and projects, optimise portfolio followed by its approval and identifying of risks and suggestions given to remedial strategies for the same (Meredith &Mantel, 2011; Kerzner, 2013). It is suggested that PPM should be executed in five stages, to get effective results (Aubry &Hobbs, 2011; Too &Weaver, 2014). Each of the stages is explained in detail in figure 3-6.

Figure 4-14: Stages of Implementation for PPM
Source: (Aubry and Hobbs, 2011; Too and Weaver, 2014)

Strategic Alignment: This step lays emphasis on attaining alignment with strategy by confirming objectives and linking them to initiatives (Aubry &Hobbs, 2011; Heising, 2012). Strategic initiatives are a set of those collectible programmes and projects that aid a firm in attaining its target performance, as well as a means by which vision can be converted into practice (Martinsuo, 2013). They cannot be considered the same as strategic goals, rather they are the vehicle by which strategic objectives can be attained by focussing on *how* in comparison to *why* (Teller et al., 2012). They can also be considered as an attempt made by a corporation to activate competencies on a cross-functions level (Elonen & Karlos, 2003; Momčilović et al., 2014). For example, a company's strategic objective may be to grow in emerging markets while its initiative may be to ensure that account management and distribution channels in a particular geographical area are strong enough. Programme in this regard may be to roll-out an organisation that plans local supply chain management and supports ICT (Rajegopal et al., 2007; Møller et al., 2016).

Boosting economic value of new initiatives: the focus of this step is on those new initiatives whose economic value can be optimised (Kuster et al., 2015; Hyvari, 2014). The need here is to ensure that initiatives can be turned into concrete projects and programmes. Hence initiatives that have been defined at a high level are converted to project charters that include scope, action plans, case and a risk assessment strategy (Danesh, Ryan &Abbasi, 2015; Bakar &Yusof, 2016). The scope of projects and programmes in this case must not be defined in a broad manner. The setting of too wide parameters and missing objectives can increase the chance of project failure (Lerch & Spieth, 2013). Hence, the need is to undertake a phased approach by making small and easily managed programmes out of strategic initiatives so as to deliver business benefits that can be measured and are specific (Romano et al., 2017). Moreover, risk also plays a crucial role in this step.

Formulating decision-making framework: This is the step where the need is to formulate a decision framework and executive decision-making for the upcoming stage (Too &Weaver, 2014;

Winch, 2014). This can be done by making an optimised portfolio that includes a proposal on how to start, stop, speed up and slow down programmes. An organisation is required to make use of a decision framework that has a presence of organisation-specific factors so as to make optimised portfolio proposal (Biedenbach &Muller, 2012; Patanakul & Shenhar, 2012). Firms are required to use a framework in every case to optimise economic value creation and align the strategy whose specifics may differ based on the business sector and geographical region in which the firm is working (Aubry &Hobbs, 2011).

Management approval for portfolio optimisation: Firms have been found to invest some percentage of revenue in projects and programmes (Kaiser, Arbi & Ahlemann, 2015; Yaghootkar &Gil, 2012). Hence, a formal approval from management should be taken for the optimised portfolio. The previous step was how the optimised portfolio is prepared. It has a proposal for those projects that are required to be stopped on account of low economic value and strategic alignment; and the ones to be accelerated due to high value and alignment (Klingebiel & Rammer, 2014; Aubry &Hobbs, 2011). There is a further presence of projects that need to be monitored as they generate high economic value but are not so properly aligned with strategy. The projects that need to be evaluated fall under low value and having a medium level of strategic alignment with a risk/budget so as to provide executives with the intellect to make a proper decision (Aubry &Hobbs, 2011).

Execution of projects and programmes: The last step is about executing the projects and programmes that have been taken in hand (Aubry &Hobbs, 2011; Yaghootkar &Gil, 2012). This is achieved by reviewing the projects and programmes in terms of risk and probable issues so as to generate valuable insight and aid in decision-making. The programmes to be executed will be the ones that have a high-risk level and may generate the maximum economic value (Killen &Hunt, 2012; Silvius & Schipper, 2014). The risk review aids organisations to take corrective measures for the programmes. A key need on the part of an organisation is to manage risk in the best possible manner by putting efforts. This can be done by ensuring that management gives maximum attention to the projects that are complex, large and have a good amount of risk in them (Teller, Kock &Gemünden, 2014); also, by adopting a holistic approach to portfolio management where there is a centralised overview of initiatives. It will further give a chance for management to monitor risks and take decisions accordingly.

In the overall review of PPM implementation, the need is to differentiate between risk activities that are bottom-up driven and top-down driven (Martinsuo et al., 2014). In this regard,

top-down driven risk activities are inclusive of monitoring those projects that pose the largest level of risk for organisations. A similar approach is provided by portfolio management as done by enterprise risk management for managing operational, legal, financial and compliance-related risks (Costantino et al., 2015; Lappe & Spang, 2014). This activity can generate output in the form of creating an audit plan (internal/external) so as to monitor those programmes and projects that are in the portfolio. Bottom-up driven risk activities, on the other hand are the ones that emphasise taking the relevant risk information in decision-making (Eggers, 2012; Martinsuo, 2013). This kind of risk intelligence can be attained by classifying the risk, issues as well as interdependencies in projects and programmes that are of high importance. This should be followed by getting a consolidated overview from it. The executives can then use the knowledge to undertake a proper decision-making. This aids the executive members to find out how they can advance the project while taking care of the risk involved in optimising the portfolio (Kaiser et al., 2015). This helps the executives to take proactive steps in managing key risk in the best possible way.

3.4.1 Portfolio Project Management Success Factors

Pries-Heje et al (2017) recommend that PPM should focus on aligning projects in order to achieve value and cost-efficiency in them. In order to create a perfect project portfolio for management, the portfolio should have well-established objectives (Brook & Pagnanelli, 2014; Eggers, 2012). They include expanding on the value of the portfolio, having a balance of elements involved in the portfolio in order to cover the relevant issues and ensuring that the purpose of the portfolio falls well in line with the goals previously established, according to the reviewed literature (Cooper et al., 2001b; Kendall & Rollins, 2003; Brook & Pagnanelli, 2014). Some practitioners such as Jonas (2010), Meskendahl (2010) and Müller et al. (2008) highlight other factors that affect the success of PPM: the average success rate of the project, the average rate of success of the product, efficient use of synergies, strategic positioning, balance of portfolio, future proofing, along with economic success. In this section, some elements of PPM success are discussed.

Hadjinicolaou and Dumrak (2017) identified the main benefits of PPM: improved decision making, maximum use of resources, alignment with business strategy and reduction of organisational risk. Average PPM success can be attained through maintaining the budget of the project and programme, adhering to a strict schedule, building on the quality of the product and improving on customer service, along with complying with the specified specifics of the product listed in the projects of the portfolio (Beringer et al., 2013; Winch, 2014). Average project success dictates the success of the economics and also the market (which is the performance of the market share and volume of sales being higher than the competition). Apart from the economic and market success,

even the commercial success is brought forward in an average project's success status, such as the successful acquisition of return on investment, breakeven, or the profit achieved in comparison with initial goals (Biedenbach & Müller, 2012; Kaiser et al., 2015). The use of synergies explains the co-ordination of individual projects found in a portfolio (Kaiser et al., 2015; Costantino et al., 2015). A good example of this could be different projects utilising the same technology due to overlapping dependencies. This way, the projects share the information between each other. This reduces redundancies, makes the process efficient throughout, and provides opportunities for the growth of each project.

The level at which projects have corporate business strategy fall under the strategic positioning or the strategic fit of the project portfolio (Costantino et al., 2015; Teller & Kock, 2013). It has been suggested by Klingebiel and Rammer (2014) that the objectives of a project as well as the allocation of the strategy should be well in line with the corporate business strategy and should reflect the strategy that has been laid down by the project portfolio.

Portfolio balancing is a process that is carried out in multiple ways like balancing risks and benefits, distinguishing between short-term and long-term projects as well as utilising the need for the right technology or the right market (Yaghootkar &Gil, 2012; Sarbazhosseini et al., 2014). It has been suggested that a company should not involve in high-risk projects as they could be detrimental to its future prospects (Archer & Ghasemzadeh, 1999). A well-balanced portfolio shows how to minimise risk, indicates if a company is reliable or not and strengthens an organisation's image. Hansen and Svejvig (2018) noted that there is a need for organisations to adapt faster to the changing world. It is thus important for organisations to be well-prepared and equipped for the future, and they need to adjust to meet the challenges which will arise in the future (Jonas, Kock & Gemunden, 2013; Silvius & Schipper, 2014).

3.4.2 Portfolio Project Management Challenges

Shalbafan et al (2016) identified that there is a growing awareness of the complexity of PPM. There are a number of challenges facing organisations in terms of keeping portfolios under control. Challenges in PPM emerge due to the concurrent operations of multiple projects leading to failure or issues in delivery of the projects (Kerzner, 2013; Unger et al., 2012). Furthermore, issues such as failure of the strategic objectives to support the programme or project and its investment also lead to challenges in implementation (Martinsuo, 2013). In this section, the key challenges of PPM are classified into two aspects: (1) Challenges in a comprehensive view (table 3-3) and (2) Challenges in implementation (table 3-4).

Table 3-3 provides a comprehensive overview of the challenges of PPM. As observed in the table, the challenges of PPM are classified into four main comprehensive categories, which include strategy, governance, management capabilities and data/tools (Unger et al., 2012; Jonas et al., 2013). Challenges related to PPM strategy include misalignment with projects causing failure to meet the organisational goals, delayed benefits and additional costs (Jonas et al., 2013; Winch, 2014). Similarly, PPM governance challenges include poor governance of low performance projects, scrutiny and sequencing leading to delays and inconsistent results (Brook & Pagnanelli, 2014). Management related PPM challenges, as identified by Caniëls and Bakens (2012), relate to the expertise of the managers and leaders in effectively directing the PPM activities and functions to meet the strategic goals, while lowering delays and additional costs (Kerzner, 2013). Data and tools related to challenges in PPM include inconsistency in project data and reporting aspects leading to poor visibility, monitoring and reporting, as identified by Jonas et al., (2013) and Heising (2012). Each of these challenges in PPM relates to a broader aspect. In the next section, the challenges are broken down to the implementation stage and examined in detail.

	Challenges of PPM	Risks associated
Strategy	• Misalignment of the portfolio with the organisational strategy • Multiple overlapping projects to meet single strategic driver • Multiple projects marked as 'must have' • Poor prioritisation of projects	• Failure to meet corporate goals • Reduced (delayed) benefits • Associated cost from pursuing wrong projects
Governance	• Poor approach to stop low performing projects • Poor scrutiny of business cases leading to unrealistic benefits • Management of projects outside the portfolio • Poor sequencing of projects leading to issues in delivery	• Poor allocation of resources • Missing or extended deadlines • Ineffective strategy deployment • Inconsistent resolution / decision making
Management Capabilities	• Lower expertise in managing PPM functions • Lower priority towards PPM skills and experience • Poor organisation capacity for change absorption	• Poor delivery / execution • Inconsistency in PPM • Unnecessary delays • Increased costs • Poor quality
Data / Tools	• Data of portfolio inconsistent amongst projects/functions/units • Poor reporting to senior management • Poor aggregation tools • Reporting projected as additional burden on teams	• Poor programme/project visibility in the portfolio • Poor monitoring / reporting • Lower quality of data • Delayed issue identification

Table 3-3: PPM Challenges in Comprehensive View

Source: (Unger et al., 2012; Jonas et al., 2013)

Challenge in PPM Implementation

Interdepartmental Politics

It is only with the rise and function of a politically inclined environment that a change in hierarchy becomes apparent, as noticed by Teller, Kock and Gemünden (2014). This could be one of the primary factors that affect the PPM changes, politically (Patanakul and Shenhar, 2012). As such, it is then considered, that the structure that should be followed will be directed based on the strains incurred by the hierarchical structure internally. They will change and deviate, based on the pressures that have to be faced by the hierarchy in order (Kaiser et al., 2015; Klingebiel &Rammer, 2014). This is why it is important to take on the role and understand the political point of views which dictate the hierarchical change, thus greatly putting into effect the rigour of analysis undertaken when considering how PPMs are to be restructured. Just like other social agencies or associations, it is important to note that PPMs are also similarly affected by political agendas, based on the relationship among individuals (Kock et al., 2015). It is due to the slow progress, that internal strains are incurred, thus allowing for restructuring, in the form of making new substructures that change with the staff and the management of the PPMs (Ahola et al., 2014; Teller, Kock & Gemünden, 2014). Strain here is regarded as the level of challenges and obstacles faced that pose a risk to a project and can also result in its imminent deterioration (Kock et al., 2015). PPMs can fragment as a result of political challenges that occur, as they evolve. This particularly happens when an administration does not receive any favour, is criticised and moved aside in order to build a new framework and create a new administration altogether, thereby alienating the existing or previous supporters of the administration (Martinsuo et al., 2014). Even more substructures are created that function in silos as the level of disappointment increases upon an administration (Lappe & Spang, 2014). It is due to the lack of pragmatism by an administration and an overly uninterested approach towards actionable objectives that the PPMs create political pressures that will stand in the way of progress in order to execute and achieve the required goals (Eggers, 2012).

Management Resistance

When new management structures are introduced, sometimes it is deemed too difficult or unsavoury for the existing staff and managers to adapt or change towards the new protocols, and new sets of directives. This phenomenon is referred to as management resistance (Martinsuo, Korhonen &Laine, 2014). This particular change may either be conspicuous or inconspicuous. This is considered a great threat toward the existence of portfolio management since it requires

and necessitates different structural changes to occur in the PPM (Martinsuo, 2013). How to understand the challenges that occur with the prospect of change is to establish the departments where this will most likely happen, as the following figure will indicate. Figure 3-7 explains that due to the nature of the work being conducted, that resistance is most prone to these departments – sales, marketing and finance (Lappe &Spang, 2014; Kaiser et al., 2015). This is because the current systems in place have been adapted and successfully implemented over a series of progressive changes. While the new system will demand a complete restructure, it would mean a completely new way of operation and a completely new style in which the work is to be done (Brook & Pagnanelli, 2014). In the departments where there is continuous change and effect of innovation is seen, change is welcome. It is in departments like engineering and IT that change is embraced.

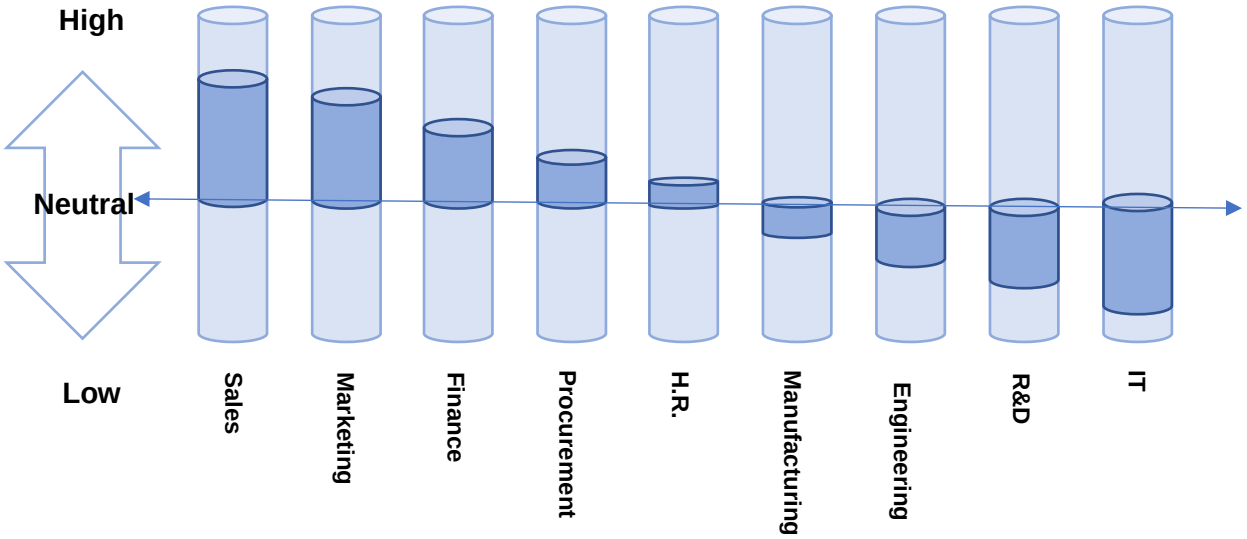

Figure 4-15: Departmental resistance to change
Source: (Kerzner, 2001)

As stated by Neckowicz et al. (2015), PPM imposes the reduction of self-rule that appeals to project managers. This is where it becomes difficult to effect change and thus makes managers to be ignorant of newer processes. This is because there is a certain level of prestige held by the managers who have been making their mark and are thus resistive towards the institutionalisation of their workflow (Neckowicz et al., 2015; Aiello & Gatti, 2017). This also means they will abstain from any formal training or be willing to adapt to new roles (Khameneh et al., 2016). PPMs can face further tensions arising out of resistance in cases where the need for enforcing certain methodologies and ideas is apparent. This will make existing staff and administrators to be

threatened and deem those actions wrong. A proper PPM structure cannot be upheld without the co-ordination and co-operation of the administration that would probably oppose the new rule (Teller & Kock, 2013). This will result instead, in the deterioration of the entire process even though it could pose incremental growth in terms of efficiency and provide many advantages to the group.

Organisational Alignment

The level of accuracy at which the structuring of activities is conducted towards the objectives of the research should be carefully implemented as its results are subject to the amount of its accuracy (Aiello & Gatti, 2017). If there is no alignment of the activities towards the goals, then there will be imminent clashes, both internally and externally. The objectives of the projects proposed by the PPM may not be accepted by the association, who sights discomfort and differences (Killer &Hunt, 2013; da Silva &Oliveira, 2016b). If both sides do not agree, then the result of the project will be unusable due to the lack of collaboration that is required to achieve success for the group (Neckowicz et al., 2015; Khameneh et al., 2016). A certain level of acceptance in this regard is required.

Lack of Training or Skills

Budgetary affinity, a lack of enthusiasm in understanding the portfolio and disaster management are key tests that determine if an association is capable of meeting the PPM's objectives (Teller &Kock, 2013; Sarbazhosseini et al., 2014; Sarbazhosseini et al., 2014). Relevant information is monumental in finding relevant advantage among the contemporaries. If there are no affinities for the above-mentioned features of the PPMs, then it will not be possible to reach the objectives set by the PPMs (Jonas, Kock & Gemünden, 2013). This may probably exist within the management and staff who will be the reason for the failure of the PPM. It can also be misconstrued that the staff in training for a particular project may not be applying themselves to the project relevant to them, making them redundant aspects of the transition (Romano et al., 2017; Eric-Kirkland, 2015). This is one point to be noted, since it affects efficiency and potential of the success rate of the PPM implementation.

Inadequate Resources

A continuing obstacle towards defining definite goals for the PPM is the lack of resources (Killen 2014; Kerzner, 2013). Past literature in the area of PPM makes it apparent that the collection of resources made, in order to fulfil the PPM may not always be viable options (Bhagat, 2012; Tricker

& Tricker, 2015). There are certain processes that need to be mixed and blended (see figure 8) in order to adapt and to recognise the 'project management proficiency' and the 'project benefits' that can arise out of the sufficient utilisation of the resources at hand (Lerch & Spieth, 2013).

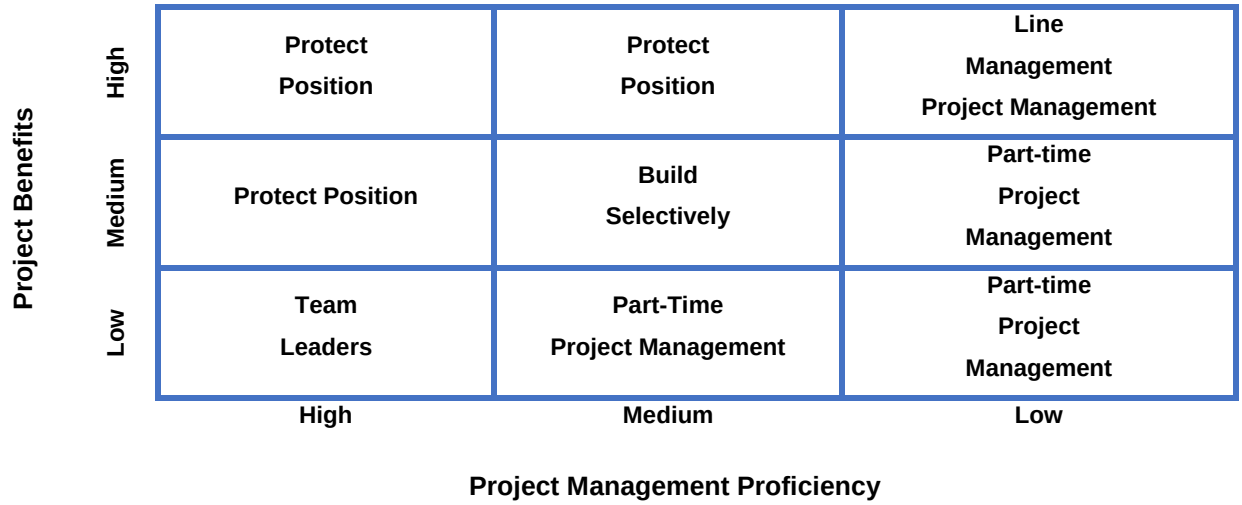

Figure 4-16: Quality of resources required in PPM
Source: Kerzner (2013)

Procurement of assets is a difficult task, which could pose as a threat towards the execution of PPM, according to Korhonen et al. (2014). In this case, 'assets' relates to human resources, money and capital, as well as other kinds of assets that are crucial to the gravity of this kind of a project. It is not easy to come up with the kind of assets that are required to fulfil the needs of the PPM (Curlee, 2014; Voss & Kock, 2013). This is because in establishing the various above-mentioned assets, there is a certain level of risk that is involved. Monetary assets may provide more than what the capital of the PPMs may be able to sustain (Castelli et al., 2014). Due to this, a project will lose its momentum in setting up and can lead to a pause its progress or complete failure altogether. It could eventually lead to late delivery and unsatisfactory performance in the long run (Alneyadi &Ali, 2014; Too &Weaver, 2014). This is because the money related assets will be over well before the estimated time of completion of the project. The need for a realistic goal to be set is established with the current assets at hand when faced with this particular scenario (Jonas et al., 2013). Planning the way money is spent should also be established so that the assets do not run out so fast. This can happen if the staff that is related to the project has sufficient capabilities to manage money (Danesh et al., 2015; Killen, 2014). This has to be verified and confirmed before the obligations are taken up and the work is proceeded

with (Teller, 2013). It also speaks greatly, of the level of expertise that is maintained by the administrators in this regard.

Lack of Accountability

Lack of accountability and lack of preparation could be the two factors that result in the absence of responsibility inside a PPM (Eik-Andresen et al., 2016; Lerch & Spieth, 2013). Improper appropriation of assets and inventory that arise out of this mismanagement are what affect the PPM's objectives and goals, as well as budgetary constraints (Table 4-3) (Voss & Kock, 2013). Not being financially responsible is the reason for misappropriation of money, as the monetary assets run out much before the project is even finished. Such factors that affect the outcomes of the PPM should be heavily vetted and verified before being put into practice. Through proper transparency measures and monitoring, such redundancies can be greatly diminished. Measures should be taken to maintain the stability of a project such as procurement of more finances to avoid rush or delay in the time of delivery of the project. However, this is only if the budget far exceeds that of the initial value. Getting rid of the human capital, deviating the task course and changing the objectives over time are things that can delay the progress of work (Castelli et al., 2014).

Inadequate PPM Staff

In case where there is a high rate of staff outpour or reassignments towards different tasks, this should be regarded as another testing phase in the progress of the PPM (Alneyadi &Ali, 2014; Bakar & Yusof, 2016). Under careful monitoring and guidance by a capable management and administrative team, this test can be overcome (Danesh, Ryan & Abbasi, 2015; Møller et al., 2016). There are quite a few reasons for staff turnover (including many existing and experienced staff) in any project; especially those who have been accustomed to and know the process of the project, its results and the general requirement and procedure to be taken up (Rajegopal et al., 2007; Momčilović et al., 2014). When reassigning positions, older staff with experience have to switch to newer obligations or procedures. This results in needing extra hands with experience, and also the factoring-in of accommodating various obstacles in front of the PPM (Jonas, 2010; Teller et al., 2012).

PPM Implementation Challenges	Description	Implication	Sources
Interdepartmental Politics	• A change in hierarchy is noticed only with the rise and function of a politically inclined environment. • Just like other social agencies or associations, PPMs are also similarly affected by political agendas, based on the relationship among individuals. • Internal strains are regarded as the level of challenges and obstacles faced posing a risk to the project and can result in its imminent deterioration.	Increase in pragmatism by the administration and keen approach towards actionable objectives can lower political pressures that stand in the way of progress	(Kock et al., 2015; Martinsuo et al., 2014; Patanakul & Shenhar, 2012)
Management Resistance	• Change in management to adapt or change towards the new protocols, and new sets of directives leads to resistance. • It can be conspicuous or inconspicuous, emerging as a threat to the PPM due to structural changes • It can result in deterioration of the entire process even though it could pose incremental growth in terms of efficiency and provide many advantages to the group.	Organisations should be open to change and innovation, thereby lowering the effect of change and indirectly resistance to change.	(Martinsuo, Korhonen & Laine, 2014; Lappe & Spang, 2014
Organisational Alignment	• Poor alignment of the activities towards the goals can lead to imminent clashes, both internally and externally. • The objectives of the projects proposed by the PPM may not find favour in the eyes of the association, sighting discomfort and differences	Collaboration should be established to achieve success and goals set, thereby achieving organisational alignment.	(Aiello and Gatti, 2017; Neckowicz et al., 2015; Khameneh et al., 2016)
Lack of Training or Skills	• Budgetary affinity, a lack of enthusiasm in understanding the portfolio and disaster management are key tests that determine if the association if capable of practicing the PPM's objectives.	PPM success relies on the way training and skills are used effectively to achieve PPM goals and indirectly, the firm goals and objectives.	(Sarbazhosseini et al., 2014; Sarbazhosseini et al., 2014; Teller and Kock, 2013)

	• Poor affinities to meet the needs of the PPMs make it difficult to reach the objectives set by the PPMs. • The staff in training for a particular project may not be applying themselves to the project relevant to them, making them redundant aspects of the transition		
Inadequate Resources	• It is noted as a continuing obstacle towards defining definite goals for the PPM. • PPM execution is dependent on resources, be it monetary, human or others, however, poor alignment and application of resources can also cause failure.	There is a requirement to mix and match processes as well as resources to achieve PPM goals and efficiency.	(Killen 2014; Lerch and Spieth, 2013)
Lack of Accountability	• PPM responsibilities are lost if there is lack of accountability and lack of preparation in the team. • Improper appropriation of assets and inventory that arise out of this mismanagement are what affect the PPM objectives and the goals, also citing budgetary constraints.	Measures should be taken to maintain the stability of the project, ensuring transparency and more importantly, delegating accountability	(Eik-Andresen et al., 2016; Lerch and Spieth, 2013; Castelli et al., 2014)
Inadequate PPM Staff	• A high rate of staff outpours or reassignments towards different tasks may affect PPM implementation.	Attention should be focussed on manpower management, training and development, thereby increasing retention and employee management efficiency.	(Alneyadi and Ali, 2014; Bakar and Yusof, 2016; Teller et al., 2012)

Table 3-4: Challenges in PPM Implementation

Challenges can be overcome only when project management is embraced by firms for achieving three key objectives (Danesh et al., 2015; Hyvari, 2014): 1. Firms should strengthen the alignment of projects/programmes to a strategy so as to avoid taking initiatives that do not support the strategy; 2. Attain the optimal return on investment by increasing the economic value of the portfolio; 3. Increase decision-making with respect to programmes and projects via criteria as set by the company. This may include finding out whether the initiatives fit in the enterprise's architecture and how risks and interdependencies may arise. Furthermore, it focuses on identifying how firms will deal with compliance related initiatives (Hyvari, 2014). This approach has been showcased in figure 3-9, to enable firms understand value creation after investing in programmes and projects.

Strategic	Economic	Decision
STRATEGIC FIT Are portfolios in line with the firm's objectives? **ALIGNMENT** How does a firm achieve top-down strategic alignment?	**GOVERNANCE** How does a firm achieve management of projects/programme advantages and risks to value creation in the portfolio? **AGILITY** How does a firm realign its portfolio with the change in strategic objectives?	**RESOURCES** How do firms achieve a balance in supply and demand? On what factors are decision of funding based and how excess budget for a programme is evaluated and correctively applied? **INTERDEPENDENCIES** How is it managed? **RISKS/ ISSUES** How does a firm control risks /issues in portfolios without affecting decision-making?

Figure 4-17: Enabling Value Creation through Investment in PPM
Source: (Hyvari, 2014; Danesh et al., 2015)

3.5 Governance, Risk and Compliance

Increasing business complexity, regulations and accountability have led organisations to focus on initiatives related to GRC (Vicente &da Silva, 2011; Bhagat, 2012). However, the present era is of interdependent risks and shared controls, which make the initiatives unmatched (Racz et al., 2011). Hence, the initiatives are required to be managed in silos, which increases the chance of business risk for firms (Vaswani, 2012). There is an issue of effort duplication due to risk initiatives and parallel compliance, which further leads to the creation of uncontrolled costs. In this regard,

the process of governance, risk as well as compliance has three elements (Samra, 2016; Vicente &da Silva, 2011).

Recently a lot of shareholders have been involved in governance issues including regulatory authorities, corporates and executive teams compared to previous times (Ettredge et al., 2011; Tricker & Tricker, 2015). Governance that exists within the firms includes elements such as defining and communicating business control, setting policies, managing risk in enterprise, regulations and compliance (Charan, 2011). There is also a need to comply with ethics, options compliance and have an oversight of the issues related to regulations (Jagolinzer, Larcker, &Taylor, 2011; Kim, Sung &Wei, 2011). It is also required to assess business performance with the help of balance and risk scorecards, as well as operational dashboards (Larcker & Tayan, 2015). The process of governance is thus able to incorporate the above-mentioned elements coherently by which corporate governance can be driven. Similarly, a surge has been observed in regulations followed by increased activist shareholders that have led firms to become sensitised towards identification and management of business risks (Information Technology, reputation, finance or operative) (Giroud &Mueller, 2011; Elshandidy & Neri, 2015). Risk management is not the only responsibility of specialists; rather there is a need to attain visibility towards risk exposure and its status so that it can be managed by making use of strategies set by firms on a long-term basis (Tricker & Tricker, 2015; Jagolinzer et al., 2011). Hence, firms have started identifying, measuring, prioritising as well as responding towards business risk in a systematic manner so that any kind of exposure can be managed (Elshandidy & Neir, 2015; Kim, Sung &Wei, 2011). This process thus aids in providing a strategic orientation for firms (of any size and geography) with a formal process for identifying, measuring and managing risk (Larcker & Tayan, 2015).

Initiatives to comply with a regulation can be considered as projects because firms are in a race with each other to meet the deadline for compliance (Vicente &Da Silva, 2011; Racz et al., 2011). Crucial resources are consumed in this project as meeting deadlines is a major objective (Vaswani, 2012; Tricker & Tricker, 2015). However, compliance cannot be regarded as a one-time event because firms are required to make it as a repeated activity so that they can comply with regulations set at a low cost than before (Ettredge et al., 2011; Bhagat, 2012). There is a need to adopt a streamlined way of compliance management when firms have to meet multiple regulations. This strategy is very crucial as the costs may grow out of control and a further increase may be seen in non-compliance risk (Jagolinzer et al., 2011; Samra, 2016). The process makes sure that compliance is followed by firms in a regular fashion and they are further able to withstand it at low cost on a regular basis (Giroud & Muellar, 2011). Given the three individual constructs of GRC, it can be defined as “a consolidated process that integrates the elements of

G[governance], R[risk] and C[compliance] into one holistic approach that leads to ethical correction of action within risk framework and regulations, while aligning people, technology, process and strategy."

3.5.1 Governance Concept

Muller (2009) noted that in "the context of organisation, governance provides a framework for ethical decision-making and managerial action within an organisation that is based on transparency, accountability and defined roles".

The word *governance* has been associated with phrases like governing, control and government (Tricker & Tricker, 2015). The research on corporate governance is supported by many studies and data that have identified that organisations tend to replicate and reapply their high-level corporate governance arrangements and processes in smaller business unit activities (Charan, 2011; Westphal & Zajac, 2013). This effectively lowers the corporate integration and coordination cost (Jo & Harjoto, 2011). In academic literature, there are two schools of thought about the concept of governance that carries different meanings. The first school of thought was developed by organisations like OECD[1] (OECD, 2004), agencies responsible for governing stock exchanges and various Institutes of directors (e.g., the Australian Institute of Company Directors, 2010; Institute of Directors of Southern Africa, 2009). These bodies developed a model in which governance is depicted as a single process with different facets (Too &Weaver, 2014). Figure 3-10 discusses this model in detail.

[1]Organisation for economic cooperation and development (OECD, 2004)

Figure 4-18: Governance Model

Source: Too and Weaver (2014)

This model, developed from several sources by Too and Weaver (2014), is represented in the form of 'petals' that highlight the various functions of governing an organisation under five themes - governing relationships, governing change, governing the organisations people, financial governance and visibility and sustainability. There are other aspects of governance as well, such as performance of the Board and of individual directors (Turner, 2014; Van Grembergen &De Haes, 2012). However, that is beyond the scope of discussion of this study and therefore not addressed here. To explain the model in figure 3-10 further, the centre of the petals features the core values of a well-governed organisation (Too &Weaver, 2014). These core values include an organisation's Vision, Values and Ethics commitment to corporate social responsibility (CSR) and the way the board of the organisation governs itself. The values that this petal enshrines are not absolute and should be the complete responsibility of the governing boards or its equivalent. Radiating out from the centre, each petal focuses on an area of governance requiring particular skills/knowledge, as identified by Allayannis et al. (2011) as an important part

of corporate governance. The way governance is applied in each of these specific areas is a function of the core principles that is expanded by knowledge, skill set and capabilities (Van den Berghe, 2012).

The model developed by Too and Weaver (2014) does not operate in isolation; rather it is dependent on many factors. For example, a governance failure (e.g., areas dealing with the organisation's staff, such as unfair dismissal or discrimination) in any of the section of the petals can affect other areas and the organisation as a whole. This can lead to litigation and affect an organisation's reputation and market value. This interdependence and interlinkage in this model highlights how governing any part of the overall structure of an organisation requires skills and a specialised set of knowledge; it also draws attention to how every aspect of an organisation is linked and any failure in any specialised area can affect other areas and the organisation as an entity (Acharya et al., 2013; Acharya &Bino, 2012). This model of governance is supported by various approaches taken by various governments in legislating liability for corporate and governance failure (Siebels & Zu Knyphausen-Aufseß, 2012; Chung &Zhang, 2011). Through legislations, heads of corporations are made aware of their personal responsibility for any governance and management failures, for which they need to owe up to the accountability and responsibility (Hilb, 2012; Muller, 2011). This model also brings alive the discussion about how the art of governance is to develop systems that can simultaneously provide the specialist skills and knowledge needed by each aspect of an organisation (Donaldson, 2012; Too &Weaver, 2014). Furthermore, it can at the same time remain an integrated part of the overall governance structure (Too &Weaver, 2014).

The other body of literature postulates that different kinds of governance are required in different subunits of any organisation and these include different types of governance, for example:

1) IT governance – that includes research by Marnewick and Labuschagne, 2011; Martin and Gregor 2006; Sharma et al., 2009; Willson and Pollard, 2012 among others.
2) Knowledge governance – research has been explicitly done by Ghosh et al., 2012; Pemsel and Müller, 2012
3) Network governance – research by Klijn, 2008; Sørensen, 2002
4) Public governance – Du and Yin, 2010; Klakegg et al., 2008; Williams et al., 2010
5) Project governance –Abednego and Ogunlana, 2006; Miller and Hobbs, 2005; Winch, 2001

Such views and research on the governance aspect seem to have been developed by managers, project managers, officials within government departments and academics who work

exclusively within these subjects (Jo &Harjoto, 2011; Westphal & Zajac, 2013). Most of the research in this respect view governance as a function of management or any entity responsible for making decisions and /or overseeing (controlling) the work of an organisation or its projects (Elshandidy & Neri, 2015; Giroud &Mueller, 2011). Thus, to conclude this section, it is vital that governance should cover all levels of organisations flowing from the top board level to the execution and implementation level all the way to the project level (Klakegg et al., 2008). In this aspect, accountability for the overall governance system is vested in the board, whereas the implementing aspects of the governance system is delegated to the top management levels together with necessary authority to undertake the work (Larcker & Tayan, 2000; Miler & Lessard, 2000). Some authors have correctly pointed out that it is important to draw attention to the rise to prominence of the idea of governance that stems from difficulties of hierarchical coordination by organisations or the nation/state (Kim, Sung &Wei, 2011).

3.5.2 Risk Concept

The concept of risk management is not just about identifying and responding to risk. Rather, it allows people to predict and avoid taking risks to reduce the occurrence of unforeseen events (Kerzner, 2013). In this context, risk management can be said to be well structured if it is able to align and link with governance and compliance information to obtain benefits (Kendrick, 2015). Risk management as per OCED can be defined as “a systematically applying process and structure for the identification, evaluation, improvement and transfer of risk followed by communicating the risk and its decisions to stakeholders”. Lam (2014) identifies risk management as a process used to identify, measure, monitor and control risks associated with projects / process in an organisation. On similar terms, risk management is noted by Edwards and Bowen (2013) as a process used to control risks to avoid negative effects on business operations. For enterprises, risk management is a process, as stated by Thamhain (2013); it entails various individuals from the board of directors to employees supporting in the identification of events that may affect business operations.

Risk management, in literature, is found to relate to three main procedures (Merna and Thani, 2011), i.e., assessment, mitigation and evaluation. The process of risk management can be narrowed down to establishing a context for risk, identification and analysis followed by evaluation and correction (Teller &Kock, 2013). As risk management cannot be fully advantageous in terms of its features, there is a requirement for structured governance and managing with compliance for aligning a business goal to risk in a better way (Meredith &Mantel Jr, 2011; Kendrick, 2015). It may further aid audit management to improve risk control thereby

assisting in its proper detection and prevention (Chapman, 2011; Lam, 2014). These capabilities to manage risk may benefit a company as a whole. There is also a need to detect and mitigate risk in a proper manner as it can negatively impact business goal attainment (Van Asselt & Renn, 2011). Hence, a holistic top-down strategy should be followed for identifying risks by aligning its management to objectives as set by governance. The process assists risk management to get instilled into business culture so that there can be a quick identification of gaps as well as maintenance of proactive approach (Drennan et al., 2014; Teller et al., 2014). Risk management should be regarded as a component of culture and strategies set by firms. There can further be an identification of several integration points through identification of mutual information or the one that influences governance and managing of risk.

In the process of risk management, there is a need to consider corporate objectives while identifying risks followed by undertaking a top-down approach so as to avoid bottom-up approach that is costly and not so effective (Vicente &Da Silva, 2011; Bhagat, 2012). Management further appreciates reporting and usage of dashboards so as to aid in consolidating real-time information (Racz et al., 2011). This also assists stakeholders in developing trust towards their firms as they have important and trustworthy data on risk exposure levels (Vaswani, 2012). There is also a need to define risk appetite level for decision makers to take cognisance of governance and organisational performance when making decisions on risks (Samra, 2016). A crucial area in risk identification has to do with the data about complaints and suggestions given about an incident that took place (Ettredge et al., 2011; Tricker & Tricker, 2015). This can be presented as an issue which is a non-routine stimulus that need a response. It can affect the organisation in a positive or negative manner or may have an internal or external presence. Issues can also be considered as those risks that have taken place or were not recognised beforehand (Charan, 2011).

On one hand, risk management works on the basis of predicting events; on the other hand, issue management focuses on identifying threats which then need to be addressed after categorising them (Jagolinzer et al., 2011; Kim et al., 2011). In this regard, firms should be interested in correcting wrongdoings and having a mechanism by which improvements can be made (with the help of client suggestions) (Larcker & Tayan, 2015). If this function is integrated into a GRC system then data generated from issue management can assist in finding out new risk sources and undertaking the improvement of organisational activities (Elshandidy & Neri, 2015). An important role is played by monitoring which makes risk management effective as it can identify potential risk and issues in an effective and efficient manner. Hence, an organisation gets an opportunity to lessen risk with respect to business performance and strategy (Giroud &Mueller, 2011). Internal control is one such tool that assists in risk prevention, detection, control

and tracking. In the same manner, reporting and dashboards assist in managing risk and issue as they can identify top ten risks, their impacts and status; risks that can be sustained by firms; the objectives that have been compromised and the percentage of issues that were recognised as risks (Ettredge et al., 2011; Samra, 2016).

3.5.3 Compliance Concept

A compliance management system is a process by which organisations are able to manage the overall process of compliance (Kerzner, 2013). Here, a compliance programme, its auditing and reporting can be considered as a compliance solution (Hilb, 2012; Ramezani et al., 2011). A compliance programme depicts the policy and processes of adhering to laws and regulatory norms. A compliance audit involves autonomously testing the level of compliance with laws and regulations that are applicable to it. In this context, complying with laws must be considered as an essential part of a corporate strategy where the managerial team and board of directors should identify laws that apply to the firm with respect to their scope and implication (Ramezani et al., 2011; Parker and Gilad, 2011). Compliance management system must further be set as a support to risk management so as to lessen the extent of compliance risk (Butler &McGovern, 2012).

Compliance can be effective only when there is involvement of senior officials in developing and maintaining the compliance programme (Martens & Teuteberg, 2011; Steinberg, 2011). A periodic review should also be carried out in order to make sure that any compliance management system is up-to-date and relevant with respect to the changes that have taken place in regulatory norms and overall business environment (Weber & Wasieleski, 2013; Parker &Nielsen, 2011). Corporate compliance management is further required to carry out research, investigation, analysis and evaluation for identifying issues and getting a realistic view as to what is the present performance and probable future performance of the business entity (Gander et al., 2011; El Kharbili, 2012). Other than this, an essential role is also played by the corporate governance and company secretary (CS) who should have the necessary capability in compliance and corporate governance (Parker &Nielsen, 2011; Ramezani et al., 2011).

Corporate accountability is highly relevant in the current era. There is a huge pressure on business executives to comply with complex regulations that have forced firms to adopt compliance plans by which they can address the emerging regulations (Steinberg, 2011; Vicente &da Silva, 2011). The firms that are not able to do so have to pay heavy fines; may lose business and restrictions can also be imposed on their activities (Bhagat, 2012). Due to these pressures, firms are moving towards a structured method of enterprise related compliance management (Racz et al., 2011; Vaswani, 2012). The key drivers for this are inclusive of present business

complexities, dependence on information technology and growing business partner relation (Ramezani et al., 2011; Samra, 2016). Risk has further been augmented due to regulatory oversight and increased liability, which has led to a demand for evaluating compliance management systems on a continual basis (Tricker & Tricker, 2015; Charan, 2011). Moreover, companies are also required to adhere to multiple compliance requirements that increase a risk of noncompliance thereby resulting in penalties of civil and criminal origin (Jagolinzer et al., 2011; Vaswani, 2012). This has increased the responsibility of companies 'secretaries where they are required to guide corporates for the adoption of compliance regimes so that shareholders, investors and stakeholders can be protected (Parker &Nielsen, 2011; Vicente &da Silva, 2011). They further have a role to provide complete information to companies in a timely manner.

In order to make sure that companies have a proper compliance management system, their secretaries should ensure that they are adhering to regulations as set by the industry and government and are able to alter their business process so as to match any changes in legislations (Samra, 2016; Vicente &da Silva, 2011). They also have proper resources that can be realigned for meeting compliance deadlines (Arcot et al., 2010). Similarly, they should ensure that a firm is able to quickly react in a cost-effective manner if any change in regulation takes place (Bhagat, 2012; Lama & Anderson, 2015). There are many risks when companies do not comply with the laws, which include closure of business activities, civil action being taken by officials followed by punitive action in some cases (in form of fines) and/or imprisonment of officials showing an errant behaviour (Racz et al., 2011; Ettredge et al., 2011) (Table 4-4). Other risks include public embarrassment causing further damage to the reputation of the firm as well as its employees, crash of corporate stock prices leading to delisting of shares in a severe case (Charan, 2011). On the other hand, there can be many favourable results for a company if it adheres to law by following a compliance management programme (Ramezani et al., 2011; Parker &Gilad, 2011). The steps should include adherence to compliance and being able to produce the basis of a controlled environment and avoiding monetary penalties as well as imprisonment (Martens & Teuteberg, 2011; Weber & Wasieleski, 2013). Firms also enjoy healthy returns if they instil ethics and compliance management within their culture. This is in form of consumer/employee loyalty, showing respect in public thereby leading to strong market capitalisation, protection of investors' wealth and shareholders' returns (El Kharbili, 2012; Lama & Anderson, 2015). This further aids in the successful running of a business where any risk can also be managed in an accurate and timely way (Racz et al., 2011). From the above points, it seems clear that the benefits of compliance and ethics are far greater than their costs.

One of the essential parts of an efficient compliance programme is that there can be real-time monitoring as well as auditing of compliance (Charan, 2011; Vaswani, 2012). However, it is also true that due to the cross geographical nature of firms followed by a presence of industrial boundaries, it is becoming difficult to adhere to compliance programmes in a traditional manner (El Kharbili, 2012). As a result of this, firms are searching for technological solutions in form of generating reports and compliance calendar, sending warning signals and compliance reminder on a real time basis among others (Parker &Gilad, 2011). There is also a presence of web-based compliance software through which there can be better coordination with offices, thereby generating continued compliance. This software is present on an industry basis and tailor-made software that can be continuously updated so as to match with a company's specification (Martens & Teuteberg, 2011; Weber & Wasieleski, 2013). However, firms have still got a preference towards a compliance management system that is able to comply with many laws at the same time (Ramezani et al., 2011; Butler &McGovern, 2012). Many important functions can be performed by a well-made compliance management programme, as shared below:

Compliance dashboard- The programmes should be able to offer single enterprise-wide dashboard where all users can keep a track of and move in the direction of compliance event (Martens & Teuteberg, 2011; Racz et al., 2011). It should also be able to provide a facility by which there can be an interactive viewing of compliance events (Ginena, 2014; Weber & Wasieleski, 2013). It should be easy for compliance officers, external or internal auditors to use the dashboard for making crucial decisions with respect to compliance status within the company (Mang'Unyi, 2011).

Policy and Procedure Management: Policies and procedures can be easily managed within an organisation if there is a presence of a well-developed document management system (Tricker & Tricker, 2015; Weber & Wasieleski, 2013). The requirement here is to make sure that the policies and procedures are in conformation with the changing rules and laws (Parker & Nielsen, 2011). There is the need to make use of collaborative tools for creating, reviewing, approving and releasing the documents and Standard Operating Procedures. These tools assist in the provision of complete functionality towards managing the documents (Martens & Teuteberg, 2011).

Event Management: The system should be such that it is able to capture and even keep a track of the incidents and events that happen within the extended organisation (Crowther &Aras, 2013). There should also be a system for logging in any adverse event that takes place across a firm so that corrective actions can be taken, and preventive measures can be initiated (El Kharbili, 2012; Parker & Nielsen, 2011). The logging can be done by compliance officers, call centre, information technology or quality analyst personnel.

Rules and Regulations: A compliance management system should be designed in such a manner that firms are able to stay in sync with ever-changing rules on a continual basis. The system should be such that proactive notice is sent through email in case there is any change in regulation (Tricker & Tricker, 2015; Racz et al., 2011). This will assist firms in changing policies and processes so that they can adhere to regulations. It is further known that tracking a single change in regulation can be done manually, however, errors may arise when there are regulations at local, state, central and across the globe level (Tallon, 2013; Vicente &da Silva, 2011).

Audit Management: Audits in the form of internal, external, financial have become a crucial part of organisational infrastructure that is required to be enabled on a real-time basis (Crowther &Aras, 2013; Parker &Gilad, 2011). They are not just an annual ritual, but rather require firms to be embedded with audit capabilities. There is a requirement of evidence related to internal audit so as to be able to defend compliance with respect to regulations (Ramezani et al., 2011).

Quality Management: Firms nowadays have got a presence of quality initiatives on plant level as well as on internal and operational basis. This is followed by industry mandates such as six sigma and ISO 9000 (Ettredge et al., 2011; Charan, 2011). This means a compliance system should be such that it is in tune with the quality initiative that is occurring within an organisation (Vicente &da Silva, 2011). It has been agreed by quality practitioners that compliance and quality are two sides of a coin hence compliance management system should be able to support the quality initiatives present in an organisation (Tricker & Tricker, 2015).

Training Management: Compliance programmes these days often require that firms are able to provide a proof of employees' training (Tricker & Tricker, 2015). This is because many regulations such as the Sarbanes-Oxley Act lay emphasis on employees' training and whose absence can lead to fines and penalties in the USA. Hence, compliance officers work in close coordination with human resource teams to enable employees' training (Crowther &Aras, 2013; Bhagat, 2012).

Compliance Task Management: There should be a presence of centralised solutions through which firms are able to carry out planning, managing and reporting activities with respect to compliance (Munch, 2012). The system should be able to provide updates from compliance modules automatically so as to ensure up-to-the-minute status reporting that can be viewed by officials across the board (Vicente &da Silva, 2011; Lama &Anderson, 2015).

Functions of Compliance	Description	Sources
Compliance dashboard	• It offers a single enterprise-wide dashboard where all users can keep a track of and move in direction of compliance event. • Facilitates interactive viewing for decision-making.	Ginena, 2014; Weber & Wasieleski, 2013; Martens & Teuteberg, 2011; Racz et al., 2011
Policy and Procedure Management	• Managed within the organisation if there is a presence of a well-developed document management system. • It is important to ensure that the policies and procedures are in conformation with the changing rules and laws. • Eases creating, reviewing, approving and releasing the documents and Standard Operating Procedures.	Tricker & Tricker, 2015; Weber & Wasieleski, 2013; Parker &Nielsen, 2011
Event Management	• Enables capturing and tracking of the incidents and events that happen within the extended organisation. • Controls through a system for logging in any adverse event that takes place across the firm so that corrective actions can be taken, and preventive measures can be initiated.	Crowther &Aras, 2013; El Kharbili, 2012; Parker &Nielsen, 2011
Rules and Regulations	• Designed to enable firms to stay in sync with ever-changing rules on a continual basis. • Allows firms in changing policies and processes so that it can adhere to regulations.	Tricker & Tricker, 2015; Tallon, 2013; Racz et al., 2011
Audit Management	• These are a crucial part of organisational infrastructure, embedding audit in the core structure.	Crowther &Aras, 2013; Parker &Gilad, 2011; Ramezani et al., 2011
Quality Management	• Quality initiatives on plant level and internal and operational basis through a compliance system to monitor operations and procedures with international /national standards	Tricker & Tricker, 2015; Ettredge et al., 2011; Charan, 2011
Training Management	• Absence of employee training can lead to fines and penalty in certain countries. Hence, firms can play close coordination with human resource team so as to enable employee training on a regular basis.	Tricker & Tricker, 2015; Crowther &Aras, 2013; Bhagat, 2012
Compliance Task Management	• A centralised solution through which firms are able to carry out planning, managing and reporting activities.	Lama &Anderson, 2015; Munch, 2012; Vicente &da Silva, 2011

Table 3-5: Functions of Compliance

3.5.4 An Integrated GRC Approach

Organisations have, until recently, handled features such as GRC initiatives by taking up action upon each feature separately (Racz et al., 2010; Lama &Anderson, 2015). There are certain cases where the delegated work which is being reported upon gets overlapped while being communicated to the higher-ups. Although each of the processes that compose an organisation is managed separately, it engages in its own set of GRC initiatives (Arcot, Bruno &Faure-Grimaud, 2010; Bhagat, 2012). However, when these initiatives were fed into software modules, the end result was the formation of an entirely new process that was made with practicality and reasoning, not having included certain criteria for the need of a set of requirements whatsoever (Samra, 2016; McClean et al., 2009). It is due to this factor that organisations face a certain amount of delay in process management, especially with each of the separate sectors forming different parameters for their specific initiatives (Frigo &Anderson, 2009; Asnar & Massacci, 2011).

Most companies that comprise the Fortune 1000 list face the above predicament even today (Samra, 2016). As a result of the numerous different processes being established under each division of the company, especially with the case of risk compliance initiatives, challenges arise when meeting both regulative and organisational points of view (Tricker & Tricker, 2015; Nissen &Marekfia, 2014). Due to the numerous processes set in place, the problem of duplication and conflicting actions take place. The processes become affected because many of the contradicting actions then take up time and are proven to be unnecessary to the workflow, making their contribution redundant but time effective (Spanaki & Papazafeiropoulou, 2013). These multiple systems of operation are expensive to maintain and when implemented across different divisions they cause them to slowly lose control and become a burden to the organisation's operations (McClean et al., 2009; Asnar & Massacci, 2011).

With the help of the integrated GRC process, a single system is all that is needed to handle the multiplicity of governances, risks and compliance initiatives, all at once (Hardy &Leonard, 2011; Lama & Anderson, 2015). The primary purpose of a GRC process is to make relevant changes to an organisation and provide a single solution that solves multiple facets of an organisation's structure (Arcot et al., 2010; Schafer et al., 2012). With GRC, an organisation doesn't need to change its framework, and it can adapt the framework to any of its department or division, which deals with compliance and risk management (Mitchell &Switzer, 2009). Some vendors endorse the GRC system and re-name it as a multi-level solutions provider; they also add the capabilities of multiple regulatory requirements, and name them as multi-regulatory (Kim et al., 2011; Larcker &Tayan, 2015). An integrated GRC framework can be developed, as shared in figure 3-11, to comprise its individual elements, i.e., G, R and C.

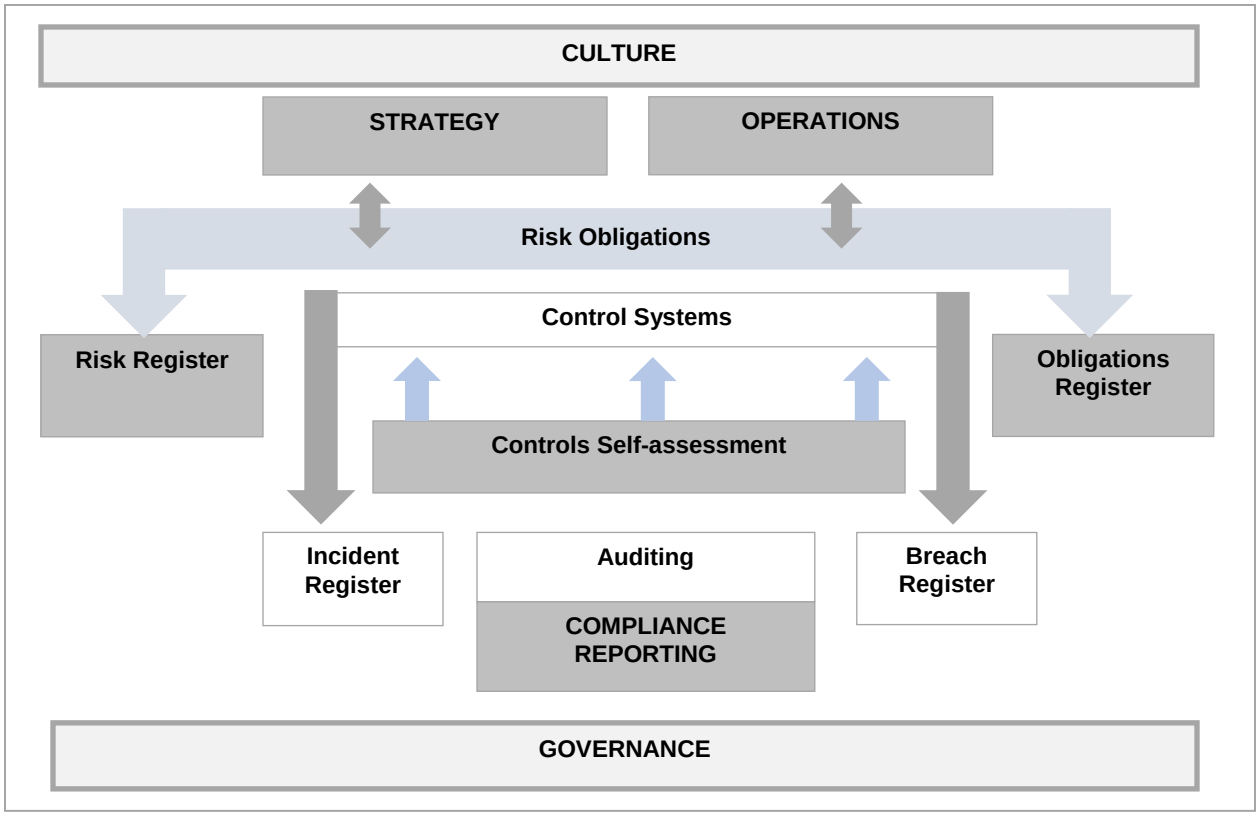

Figure 4-19: Integrated framework for GRC

Source: (Racz et al., 2010; Vicente &da Silva, 2011a)

As observed in the figure 3-11 above, the integrated approach to GRC considers the commercial, regulatory as well as philosophical elements that have an impact on a firm (Racz et al., 2010; Racz et al., 2011; Vicente &da Silva, 2011a). The governance function of the organisation oversees the above elements, in support through the compliance and risk functions (Nissen & Marekfia, 2013; Vicente &da Silva, 2011b). They include incident control management as well risk management failure. Within the underlying GRC framework is a robust management system used to control all documents related to the processes and procedures, with control tasks that collect information for the board for review and future action (Asnar & Massacci, 2011; Frigo &Anderson, 2009). The merit of an integrated GRC system for an organisation is primarily clarity on the processes and steps to be followed to achieve the desired result, without any complications (Hardy &Leonard, 2011; Schafer, Fettke &Loos, 2012). A single route is configured for the team to incorporate in their processes. The GRC processes eliminate unnecessary work that is being done and apply that concentration across other actions in order to improve efficiency (McClean et al., 2009; Arcot et al, 2010). Since only a single operative system is required to handle the multiple forms of governance, risk and compliance initiatives, a company will not need to run extra

costs for management of different individual systems, being able to avoid pirated software, questionable hardware quality and impractical training programmes (Mitchell &Switzer, 2009; Lama &Anderson, 2015; Bhagat, 2012). This process will be able to give out a “single version of the truth” that is accessible to all levels of management, external auditors, employees and even regulatory authorities (Tricker &Tricker, 2015; Charan, 2011; Samra, 2016).

Core GRC components and their platforms are provided by vendors that configure them to fit in diverse GRC solutions of individual firms (Vaswani, 2012). Due to different brand and origin points, the solutions are often different with respect to capability depth and content present in its core component (Ettredge, et al., 2011; Jagolinzer et al., 2011). For example, a product release that took place during the Sarbanes-Oxley Act will have a strong and purpose-specific functionality for auditing and financial control (Nissen & Marekfia, 2013). On the other hand, vendors having an origin from the GRC perspective will have precise integration followed by a set of tools for monitoring the technology in order to run continuous business, protect information and discover technology-related threats (Kim et al., 2011; Elshandidy & Neri, 2015). The sections below share the basic functions of standard GRC platforms. The procedure by which companies will assess these functionalities will depend on whether or not they wish to enable single/ synergistic sets of GRC domains or integrated/cross-domain approach (Kerzner, 2013; Pritchard & Pmp, 2014). The firms who wish to apply GRC technology will be required to assess the cost and functionality of solutions with respect to the specific need to be fulfilled (Arcot et al., 2010; Schäfer et al., 2012). Similarly, companies that aim to have an integrated GRC solution will be required to assess the main functional components on the basis of technical competencies and hence should expect a higher cost (Hardy &Leonard, 2011; Mitchell &Switzer, 2009; Nissen &Marekfia, 2013). In table 3-6, the core functional components of a standard GRC platform are reviewed.

Core GRC Functions	Description	Sources
Data modelling	Aids in the setting of consolidated GRC framework and entity hierarchy where records like aims, control, risk, action plan etc. that are specific to a business can be managed. The architecture of data modelling has been considered to be flexible and configurable thereby assisting in integrated GRC deployments.	Racz, Weippl &Seufert, 2010; Vicente &da Silva, 2011a; Nissen & Marekfia, 2013
Content management	Utilised for individual business records and is utilised to render support for cross references, tags, archiving, text editing, authoring among others. Content management is majorly found in solution areas related to audit and compliance management.	McClean et al., 2009; Asnar & Massacci, 2011; Schäfer et al., 2012
Project management	Skills related to project management are used for scheduling and work papers related to various GRC efforts like audit and case management. It plays an important role in portfolio management of technology-based projects and considered as an essential tool for managing regulatory projects that arise on account of regulatory change management.	Racz et al, 2011; Asnar & Massacci, 2011; Samra, 2016
Reporting and analysis	Reporting capabilities of GRC platform should be inclusive of varied reporting formats that aid in query analysis in a flexible manner and further assist in downloading, summarising information, heavy-text and editable reporting through MS word. There is a variation in the platform with respect to accessing data model and expertise level that is needed for creating data view and performing queries on basis of configured data elements and dashboards.	Heiser et al., 2008; Asnar & Massacci, 2011; Lama & Anderson, 2015.
Advanced analytics and modelling	There is a presence of diverse platforms that provide a different degree of analysis by usage of analytical and operational tools for the purpose of consolidated analysis in GRC taxonomy and for driving action plan within the enterprise. It includes: **Continuous controls monitoring:** segregation of duties, duplicate payments, unmatched invoices **IT monitoring:** vulnerabilities, patch requirements **Transaction and third-party monitoring/matching:** anti-fraud, vendor matching against banned entity lists	McClean et al., 2009; Asnar & Massacci, 2011; Schäfer et al., 2012
Workflow management	Aids in business communication, automating business logic, collaboration among others and is used across all GRC. Sub elements include: **Business rules engine:**	Charan, 2011; Jagolinzer et al., 2011; Schäfer et al., 2012;

	• Support rendered by the system for automatically calculating business rules based on criteria specified by the clients such as total risk score on basis of impact and likelihood value. • The system should assist in multi-record calculations as well as custom developed and complicated business logic that has been maintained by future upgradation. **Tasking and notification:** • Multidirectional routing should be permitted by system followed by making sure that work is routed to many persons at the same time so that comments for review can be sent to individuals. • Configurable notifications should also be offered so that messages can be tailored, and email can be accessed for the content directly. **Distributed communication:** • There should be a preference within the system through which surveys can be dispersed and responses can be collected followed by carrying out evaluations so that direct update can be done in GRC register. • The system should also have provision for performance review activities via which professionals can carry out site, location, branch and plant evaluation remotely. • Checklist driven audit should also be supported followed by maintaining a provision for wizard driven techniques for communication and information collection. This aids in driving specific value and return on investment around risk, promoting awareness, driving certificate and distributing electronic training. • There should also be a presence of precise features to support conditional logic thereby ensuring that review and routing can be done in a complex manner. An option of branded communication also exists that will support communication of strategy and policy.	Spanaki & Papazafeiropoulou, 2013; Elshandidy and Neri, 2015

Table 3-6: Core Functions of a Standard GRC Model

3.6 Portfolio Governance, Risk and Compliance

Today's organisations are under constant pressure to be innovative and wish to excel through the successful implementation of business strategies in spite of an unpredictable business scenario (Mitchell &Switzer, 2009; Lama & Anderson, 2015). It is further expected that they should be operationally efficient and cost-friendly, which is very difficult, especially in times of recession which forces firms to remove project managers and other such resources (Bhagat, 2012; Samra, 2016; Charan, 2011). Even if the businesses are able to grow at a fast pace they are not entirely efficient in terms of practices and resources related to portfolio management (Giroud &Mueller, 2011; Elshandidy & Neri, 2015). A big mistake often made in business is not being able to align its programmes and portfolios with existing corporate objectives thereby wasting its capital (Chapman, 2011; Kerzner, 2013). It may also be difficult in business to keep a balance between risk and opportunities, which is a key requirement for the attainment of business objectives (Unger et al., 2012; Killen et al., 2012; Beringer et al., 2012; Winch, 2014). Some of business managers cannot judge the performance of their portfolio while they are expected to justify funding requests for projects (new and existing ones) (Biedenbach &Müller, 2012; Yaghootkar &Gil, 2012; Teller et al., 2014).

In the absence of any single solution, firms understand that adopting proper portfolio management is a means by which there can be an overall performance improvement, cost cutting, risk reduction and increased return on investment (Costantino et al., 2015; Eggers, 2012). A successful strategy towards portfolio management should be the one that can direct the businesses from the very first step of project selection up to its execution (Neckowicz et al., 2015; Khameneh, Sobhiyah &Hosseini, 2016). The necessity, however, is having robust project management, although being above strategy is good for a start (Killen &Hunt, 2013). There is also a need for a GRC model that can play a crucial role in imposing accountability, aiding in cross-functional alignment as well as making sure that issues are worked upon by the decision-makers (Killen et al., 2015; Sarbazhosseini, McDonald & Saifullah, 2014). Other than governance, there is need to be financially disciplined and being able to carry out reviews of portfolio performance on a regular basis to ensure making informed decisions (Jonas, Kock & Gemünden, 2013; Teller, 2013). This level of discipline can only be attained when there is standard KPIs and high-level analytics through which decisions can be made after gaining objective insight (Eik-Andresen et al., 2016; Castelli et al., 2014). There is need to have a benefit realisation process to generate the expected benefits from present projects and stopping underperforming ones in a timely manner (Too &Weaver, 2014; Danesh et al., 2015).

3.6.1 Portfolio Governance

The need to have robust governance always exists in order to achieve successful and efficient portfolio management (Too &Weaver, 2014; Mosavi, 2014). As a matter of fact, the reason why firms fail in being the best in the class portfolio is that they lack effectiveness in implementing effective governance (Moysey & Finch, 2012; Gozman &Currie, 2015). The existence of proper governance will assist the corporate performance management office (PMO) to attain a better alignment with goals and business strategy followed by an increasing success rate of the project and return on investment in a portfolio (Racz et al., 2011; Ginena, 2014; Tallon, 2012). Other benefits will be in the form of optimal portfolio management from start to end.

Issue escalation: This can be considered as one of the most crucial and difficult processes in portfolio governance (Crowther &Aras, 2013; Chapman, 2011). In order to resolve issues timely and efficiently, an easy to follow issue escalation procedure should be made by portfolio managers (Mang'Unyi, 2011; Munch, 2012; Racz, Weippl &Seufert, 2010). It should first identify stakeholders who are the decision-makers in the company, communicate the escalation path for every single issue to them and take their consent for the same (Racz et al., 2010; Vicente &da Silva, 2011a). There is also a need to recognise escalation dependencies like tools, process and human resources followed by incorporation of predictability and repeatability in order to resolve issues within a given time frame (Nissen & Marekfia, 2013; Vicente &da Silva, 2011b).

Culture of accountability: Portfolio leaders are responsible for creating an accountability culture (Spanaki & Papazafeiropoulou, 2013; Crowther &Aras, 2013). The objectives of a company must be aligned with annual/quarterly performance goals followed by ensuring that business value forms the basis of portfolio success criteria (Nissen & Marekfia, 2014; Racz, Weippl & Seufert, 2010). The governance steering committee must be authorised to make decisions and they should also be able to hold people answerable (Arcot et al., 2010). Personal accountability can be encouraged by providing position-based roles and responsibilities to individuals. Other than this, incentives structures must also be in alignment with portfolio goals (Lama &Anderson, 2015; Bhagat, 2012).

The role of communications: Enterprise-wide communication plans must be developed by portfolio leaders for ensuring accountability within a company's culture (Racz, Weippl & Bonazzi, 2011; Tricker & Tricker, 2015). This will lead to the promotion of business values and overall performance of portfolio management (Ettredge et al., 2011; Vaswani, 2012). Communication is

of critical importance as there is a distribution of portfolio scope within the firm and across the globe. Hence, due emphasis should be given to communication during portfolio governance planning (Bhagat, 2012; Spanaki & Papazafeiropoulou, 2013). A communication strategy should clearly present goals, vision and mission related to portfolio management (Giroud &Mueller, 2011; Elshandidy & Neri, 2015). Centralised Communication plans must be customised so as to meet the needs of different stakeholders that can then be communicated by making use of the most suitable channel (Charan, 2011; Jagolinzer et al., 2011; Larcker & Tayan, 2015) (Table 4-5).

Cross-functional coordination: Universal nature of portfolio demands for complete alignment and coordination of the PMO across organisational functions and divisions (Vicente &Da silva, 2011a, Spanaki & Papazafeiropoulou, 2013). This is cross-functional coordination that can be attained by the establishment of strong portfolio regulations and a charter for portfolio management (Asnar &Massacci, 2011). The very first step in this regard can be to carry out an assessment of maturity level of EPMO process throughout the firm (Mosavi, 2014; Ginena, 2014). This forms the baseline state after which gap assessments should be performed by portfolio leaders followed by comprehending the future state to be achieved. This is essential for standardisation of portfolio management processes throughout an organisation (Tallon, 2013; Crowther &Aras, 2013). The practice of cross-functional coordination is full of challenges, such as organisational difficulties in managing varied maturity levels with respect to portfolio management processes (Munch, 2012; Racz et al., 2010). In the same manner, it is quite challenging to merge varied programmes into an EPMO, as resources are required to be coordinated and managed on a central level. This issue needs to be resolved; otherwise it may result in duplicate spending on system, process and human resources (Ahola et al., 2014; Too &Weaver, 2014).

Calendar alignment: Difficulty also arises in management of time with respect to portfolio projects that are separated in many units (Ettredge et al., 2011; Bhagat, 2012; Samra, 2016). The programmes get delayed due to non-alignment of the business calendar which is a complicated task and requires extensive planning (Schäfer et al., 2012; Lama &Anderson, 2015). Hence portfolio leaders are required to recognise and apply cross-functional principles that provide guidance on working with groups on questions like when, why and how (McClean, McNabb &Dill, 2009; Asnar &Massacci, 2011; Nissen & Marekfia, 2014). It is thus recommended that calendar alignment exercises should be practised by the PMO across the business units followed by ensuring that project leaders are in tune with IT related business requirements (Van Asselt

&Renn, 2011). This will need cross-functional service-level agreements (SLAs) that will require multiple hand-off points and dependencies (Hilb, 2012; Steinberg, 2011; Westphal & Zajac, 2013).

Process automation: Effective governance is only possible when there is an automation of the process (Donaldson, 2012; Chung &Zhang, 2011). Efforts are made to develop and settle on a process of governance, but it is just on paper; it is not put into practice (Kaufmann et al., 2011; Mosavi, 2014; Zwikael & Smyrk, 2015). The need here is to convey the policies automatically by making use of standardised communication tools that are updated on a regular basis (for example: FAQ policy portal) (Allayannis et al., 2013; Too &Weaver, 2014). These may not require IT investment as automation of the processes can be done through usage of Microsoft SharePoint (Allayannis, Lel &Miller, 2011; Van den Berghe, 2012; Acharya et al., 2013).

Elements of Portfolio Governance	Description of the element	Sources
Issue escalation	One of the most crucial and difficult processes in portfolio governance. It is essential to recognise escalation dependencies like tools, process and human resources followed by incorporation of predictability and repeatability in order to resolve the issue within a given time frame	Crowther &Aras, 2013; Munch, 2012; Vicente &da Silva, 2011a; Chapman, 2011
Culture of accountability	• The objectives of the company must be aligned with annual/quarterly performance goals followed by ensuring that business value forms the basis of portfolio success criteria. • The governance steering committee must be authorised to make decisions and they should also be able to hold people answerable.	Lama &Anderson, 2015; Spanaki & Papazafeiropoulou, 2013; Bhagat, 2012; Arcot et al., 2010
The role of communications	• Communication plans must be developed by portfolio leaders for ensuring accountability within the company culture. • Communications assist in the promotion of business value and overall performance of portfolio management. • Emphasis should be given on communication with customisation during portfolio governance planning	Tricker & Tricker, 2015; Elshandidy & Neri, 2015; Giroud & Mueller, 2011; Charan, 2011
Cross-functional coordination	• PPM demands cross-functional coordination with PMO across organisational functions and divisions. • Cross-functional coordination is attained by the establishment of strong portfolio regulations and a charter for portfolio management.	Ahola et al., 2014; Spanaki & Papazafeiropoulou, 2013; Tallon, 2013; Mosavi, 2014; Munch, 2012; Vicente & Da silva, 2011a

	• It is required to carry out an assessment of maturity level of EPMO process throughout the firm, forming a baseline state after which gap assessments should be performed by portfolio leaders for future action.	
Calendar alignment	• Alignment of management aspects in PPM leads to issues in achievement of individual and corporate goals. • Portfolio leaders are required to recognise and apply cross-functional principles that provide guidance on working with groups on questions like when, why and how. • Cross-functional service-level agreements (SLAs) are required to hold multiple hand-off points and dependencies to manage alignments.	Lama &Anderson, 2015; Nissen & Marekfia, 2014; Westphal & Zajac, 2013; Schäfer et al., 2012; Ettredge et al., 2011
Process automation	• Effect governance in PPM is enabled with process automation. • It is important to convey the policies automatically by making use of standardised communication tools that are updated on a regular basis.	Zwikael & Smyrk, 2015; Mosavi, 2014; Donaldson, 2012; Chung &Zhang, 2011

Table 3-7: Elements of Portfolio Governance

3.6.2 Portfolio Risk Management

In order to meet the ever-changing market demands and to keep competition at bay, many organisations have to employ a dynamic focus in order to meet requirements of continuously evolving markets and face challenges that are on offer (Raz, Shenhar, & Dvir, 2002; Nissen & Marekfia, 2013; Teller & Kock, 2013). Complying with the factors of time, cost and the level of quality as the main objectives are the aims of a single risk project (Racz, Weippl & Seufert, 2010; Batenburg et al., 2014). Handling a project within a portfolio involves adherence to other projects and implementing them with the same objective, to ensure that the right projects are picked (Ele & Oko, 2016; Gozman &Currie, 2015). In addition, the projects should be balanced in the portfolio (Elonen & Artto, 2003). While the interrelation qualities of projects between portfolios are favourable, they also pose certain risks, apart from single project risks (Hilson, 2016; Mayer et al., 2015; Olsson, 2008). If risk management is not implemented in the right way, it may cause some unfavourable events to take place that could jeopardise the advancement of an organisation's portfolio (Racz et al., 2010; Kutsch & Hall, 2009). This can result in excessive costs and also incur major delays in the delivery of a project (Sanaei et al., 2015; de Bakker, Boonstra, & Wortmann, 2011; Kwak & Smith, 2009). This greatly affects the compliance with the objectives of the portfolio and could result in imminent failure of projects (Sanaei et al., 2015; Tarantino, 2008; de Bakker, Boonstra, & Wortmann, 2010; Sanchez & Robert, 2010). Whatever risk

management that is being adapted to the process will not be sufficient enough, as the structure of the hierarchy in the corporate level is not on the same plane as the portfolio level; thus, the verification of the identity and the management of a portfolio need to be carried out to prevent any risk of losing any information while the project portfolio is currently being managed.

In order to significantly reduce the risks in a project portfolio, it is suggested that a portfolio-wide approach is taken up (Aritua, Smith, & Bower, 2009; Kendrick, 2015). This is so that resources can be allocated and adjusted to accommodate projects. It also puts into consideration the other risks that may arise for additional projects throughout the portfolio, due to the interdependence between the projects (Kerzner, 2013; Thamhain, 2013; Martens & Teuteberg, 2011). When considering the risk management of the portfolio, there are two levels undertaken – one is the risk management that happens at the project level, and the risk management that happens at the portfolio level (Gander et al., 2011; Zwikael & Smyrk, 2015). As this particular study focuses on the risk management that happens at the portfolio level, known as *portfolio risk management,* it takes into consideration the various interfaces that are required to undertake risk management (Teller &Kock, 2013). It is through the risk management of a single project that is linked to the portfolio risk management network where all the risks contained within the portfolio are pooled. This considerably increases the level of efficiency and accuracy of the risk management setup, reducing the level of duplication. Thus, it can be concluded that portfolio risk management can improve transparency, as well as identifies the key transferences that have failed (Sanchez, Robert, Bourgault, & Pellerin, 2009) between each of the interconnected projects. Apart from this, the ability to recover from risks (Lee et al., 2009) allows for making better informed decisions, which are focused on the right objectives and can lead to better decision-making procedures (Edwards &Bowen, 2013; Teller, Kock & Gemünden, 2014). Essentially, this will greatly reduce the risk of failure and increase the success rate significantly with regard to the performance of the project portfolio (Lam, 2014; Hopkin, 2017). There are various contingent operations that are considered, as the project portfolio will rely on these operations to negate the risk factor. The contingencies include a level of uncertainty, the level of complexity for the portfolio, as well as the type of portfolio being constructed (Merna & Al Thani, 2011; Pritchard, 2014; Teller, 2013).

In contrast to project risk management, portfolio risk management is adopted by putting into focus the entire project portfolio (Merna & Al-Thani, 2011; Thamhain, 2013; Drennan et al., 2014). It considers the strategy being utilised, the ability of the projects in achieving their prescribed objectives and other aspects, as opposed to the project level risk management which is more focused on finding risks within individual projects (Kerzner, 2013; Olsson, 2008; Edwards

&Bowen, 2013). In portfolio risk management, strict adherence is made for adopting required guidelines and establishing means that will help in identifying risks, analysing them and being responsive to them, as well as monitoring existing projects in the portfolio in case they happen again (Van Asselt & Renn, 2011). The definition of a portfolio risk can be taken as “an uncertain event, set of events or conditions that, if they occur, have one or more effects, either positive or negative, on at least one strategic business objective of the portfolio” (Project Management Institute, 2008a, p. 85). However, portfolio risk management is not widely utilised (Hilson, 2016; Merna & Al-Thani, 2011). This is due to the primary challenge it faces of not being widely advertised, as awareness of the existence of portfolio risk management is quite low (Racz et al., 2011). Another factor owing to its unpopularity is the need for a more holistic view (Hardy &Leonard, 2011; Bhagat, 2012). Identifying the level of risk at the portfolio level may become a tiresome task for most who take up this form of management (Vaswani, 2012; Kim et al., 2011).

There is also little information provided and conducted with regard to how the risk management process is being integrated with project portfolios in the form of the existence of any theoretical research (Torode, 2013; Vicente & da Silva, 2011; Sanchez et al., 2009). Although organisations do understand that it is important to implement portfolio risk management for strategic objectives and other business objectives, this form of management has not yet been involved in project portfolio management (Racz et al., 2011; Crowther & Ara, 2013; Sanchez, Robert, & Pellerin, 2008). There is little matter in relation to portfolio risk management and its influential qualities, by way of case studies and anecdotes. It is, however, a factor that plays into the success of an organisation (Olsson, 2008; Sanchez et al., 2008). Organisations are yet to establish any existing framework or structure in order to examine the cycle of risk management which results in success in the case of a project portfolio (Chapman, 2011; Nissen & Marekfia, 2013; Frigo &Anderson, 2009).

It is better to manage risks in a more efficient manner by adapting the portfolio risk management process rather than the individual project risk management (Aritua et al., 2009; Mayer et al., 2015). According to the Project Management Institute (2008a), three categories of risk are involved in a project portfolio: structural risk, component risks, as well as overall risks. Structural risks are those which arise out of the dependencies from projects with each other (Mayer et al., 2015; Ele & Oko, 2016). Component risks refer to the risk that is escalated to the portfolio risk manager from the project risk manager in order to provide more information or take some kind of action to omit the risk (Hilson, 2016; Batenburg et al., 2014; Geishecker, 2007). Overall risk refers to the entire sum of risks taken when they arise out of the interdependencies of each project (Aritua et al., 2009). Evaluating these risks provides for a more fluid and

aggregated take on the risks (Racz et al., 2011; Nissen & Marekfia, 2013), along with diversifying the level of risk that is established throughout the project portfolio (Ele & Oko, 2016; Batenburg et al., 2014). It is even important to establish knowledge exchange (Olsson, 2008), as well as the strategic point of view that is seen at the portfolio level (Teller & Kock, 2013; Henschen, 2011; Sanchez et al., 2008).

When talking about risks at the portfolio level, limited research has provided fruitful investigation regarding the application and integration of a risk management process while embarking upon project portfolio management (Sanaei et al., 2015; Torode, 2013; Racz et al., 2010; Sanchez et al., 2008). While there are studies about risk at the portfolio level, they only focus on single management factors (Lam, 2014; Drennan et al., 2014; Thamhain, 2013). They do not consider the core components of portfolio risk management to their fullest. There has not been any research conducted on the effects of portfolio risk management on project portfolio success rate (Merna &Al-Thani, 2011; Martens & Teuteberg, 2011). It is because of the lack of direction towards this cause that there are no contingencies established to allow for the portfolio managers to decide when to use a particular management approach while taking on a project portfolio (Gander et al., 2011; Zwikael & Smyrk, 2015). It is then the need of the hour to call upon more research work to be done theoretically, as well as practically, towards portfolio risk management. This is also owing to the fact that portfolio risk management, although effective, is also still in its early stages and need continuous assessment, analysis and practice (Hopkin, 2017; Ginena, 2014; Sanchez et al., 2009).

3.6.3 Portfolio Compliance

Managing compliance in PPPs is a challenging task, given the multiple laws to comply with (locally and internationally), diverse lines of business and multi-national business operations (El Kharbili, 2012; Frigo &Anderson, 2009). It is highly essential that business owners undertaking PPM should understand the intensity of ‘what aspects the business needs to comply with.’ More importantly, it is about ‘how to make people take accountability’ (Mitchel and Switzer, 2009; Bhagat, 2012). Basically, the process of compliance in PPPs is a four-step approach that initiates with the identification of the legal, statutory, contractual and regulatory obligations that the business may face (Abdullah et al., 2016; Vicente &da Silva, 2011b). The four steps include requirement analysis, deviation analysis leading to deficiency management and reporting on documentation (Tricker &Tricker, 2015; Ramezani et al., 2015). This four-step approach to compliance management is a standard compliance framework that allows firms to build a control

system internally, as seen in figure 3-12 (Parker &Nielson, 2011; Mayer et al., 2015; Sanaei et al, 2015).

Post-identification of the requirements, compliance in the PPM is undertaken through different channels, such as audit (internal and external), security checks and self-assessments. While the frequency of the examination may differ from one channel to other, the requirement or the end goal of the channels may be the same (Mayer et al., 2015; Batenburg et al., 2014). In the deviation analysis, the results of the assessment from each channel are identified, leading to the next stage – deficiency analysis. In this stage, the improvements/actions needed to overcome the deficiencies in the PPPs are developed, along with focus on creating new controls or modifying/updating existing controls for better compliance management (Batenburg et al., 2014). The actions identified and undertaken in steps 1, 2 and 3 are channelled to the final stage, i.e., documentation and reporting (Sanaei et al, 2015; Tarantino, 2008). This allows reporting the compliance in the PPPs to key stakeholders for decision-making (Mayer et al., 2015; Racz et al., 2010).

In PPM, assurance to achieve the set of objectives on reporting and compliance reliability is achieved through an effective integrated GRC model (Ele &Ola, 2016; Gozman &Currie, 2015). Compliance is hence considered a vital aspect of the GRC model in PPPs, which allows compliance with laws and regulations externally and integrates various categories of the system for compliance and reporting reviews (Abdullah et al., 2016; Batenburg et al., 2014). A weak point in a standard compliance management framework is its poor integration with risk management as there are no risks identified for non-compliance (Nissen &Marekfia, 2013; Sadiq & Governatori, 2010). An integrated GRC model should consider the alignment of compliance with risk management in order to strategise a compliance approach which is based on risk of non-compliance (Parker &Nielson, 2011; El Kharbili, 2012).

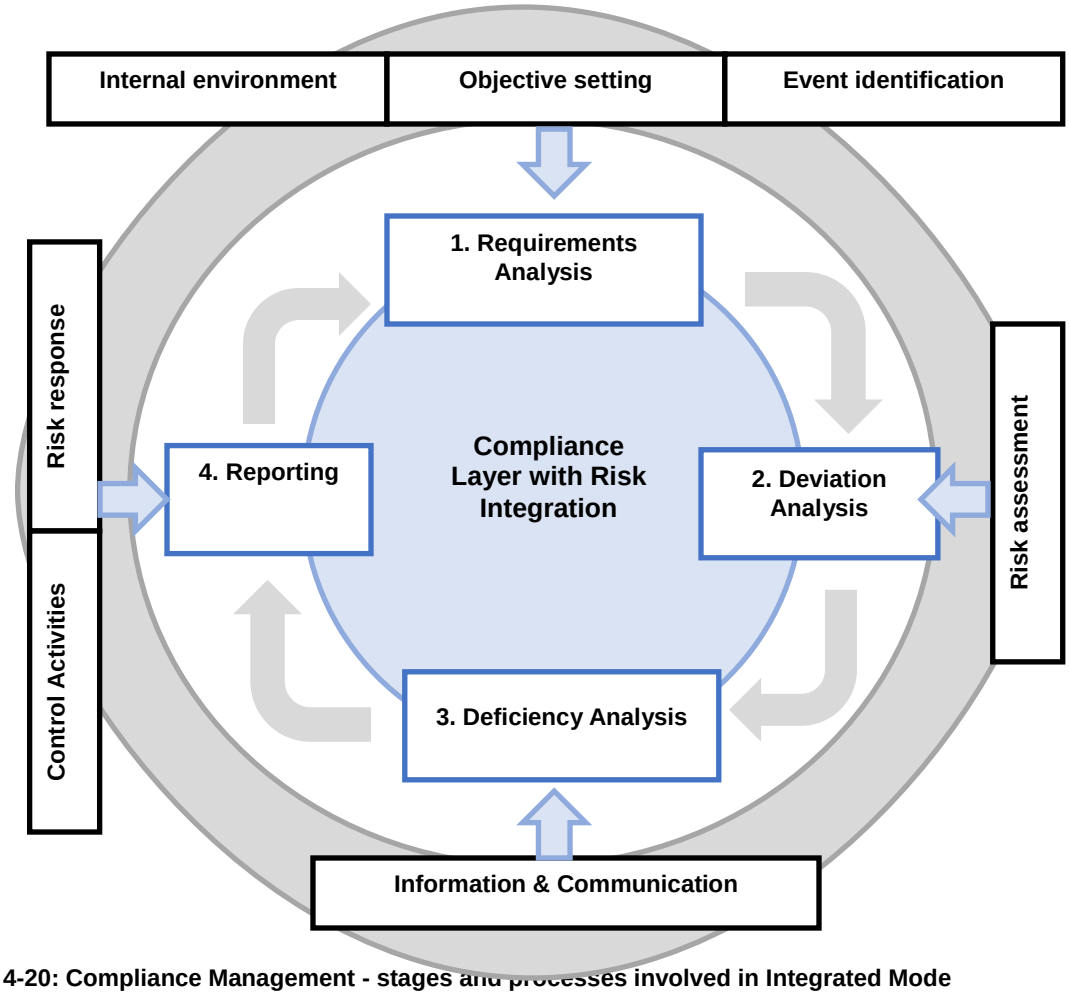

Figure 4-20: Compliance Management - stages and processes involved in Integrated Mode
Source: Developed by Author with reference to (Mayer et al., 2015; El Kharbili, 2012)

To achieve a successful compliance model while in integration with the other elements of GRC, companies are required to focus on delineating policies and framework for compliance, and checking compliance health (Charan, 2011; Ramezani et al., 2011; Weber et al., 2013). Along with the above, they should also focus on preparing checklists, enabling automation of the tool, and ensuring provision of regular updates on the compliance process (Bhagat, 2012; Ettredge et al., 2011). Enabling compliance process in companies with elements of governance and risk is a complex process. As identified by Mitchell and Switzer (2009) and Lama and Anderson (2015), there are two main procedures that need to be adhered to; the first procedure being setting up of the conditions for the procedures, work, infrastructure along with statutory records (Frigo and Anderson, 2009; Schäfer et al., 2012), which is later classified into policies and process (Asnar & Massacci, 2011). On the other hand, the second procedure covers licensing, returns, payments, registration amongst others (Vicente &da Silva, 2011b; Spanaki & Papazafeiropoulou, 2013). The

later stages, as identified in figure 3-13, consist of uploading of compliance documents, schedule development, allocation, task setting and reminder customisation. Furthermore, companies need to focus on enforcing compliance at the employee level, with a team delegated to monitor, review and manage compliance status and report (Racz et al., 2010; Vicente &da Silva, 2011a).

3.7 Theories in PGRC

The present section focuses on discussing some models and theories that are relevant to the study: four-stage GRC maturity model, GRC capability model 3.0, integrated conceptual GRC model, PPM model, PPM maturity model. A few theories have also been discussed, including Modern Portfolio Theory (MPT), Stakeholder Theory on governance and Evolutionary Governance Theory. An attempt will then be made to prepare a conceptual framework for a suitable model.

3.7.1 Four-stage GRC maturity model

The model has been given by AMR research after conducting interviews with several companies on the concept of GRC. This resulted in the formulation of a four-stage progression that is required to be passed by any company in order to attain different levels of organisational maturity (Geishecker, 2007). Every firm has got its own GRC capabilities and it attains the varying degree of proficiency in the same. According to Geishecker (2007), the first two stages in the model are of a tactical nature while the other two are proactive. With the existence of any maturity process, there exists two major elements that come into play; first being the time for assessing the needs, developing the plan, reducing the impact of risk and fulfilling baseline requirement; second is the experience the company gets while passing through a process so that it is well prepared in advance when such a similar procedure happens.

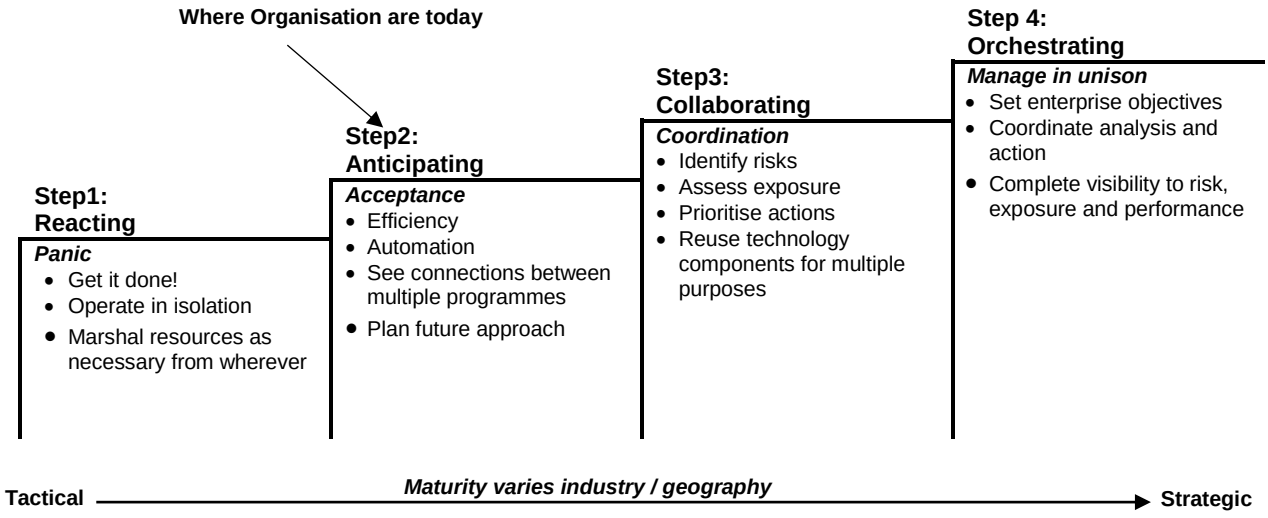

Figure 4-21: GRC maturity model
(Source: Geishecker, 2007)

The four steps of this model (Reacting, Anticipating, Collaborating and Orchestrating stage) have got their own features and with the increase in maturity level, a firm is able to become more strategic towards GRC, as seen in figure 3-13 (Torode, 2013). The reacting stage is when organisations often panic as to how they can implement GRC within and hence sometimes start to work in isolation. This can be regarded as the longest stage as the firm is new to compliance requirements. However, once the members experience it the subsequent activities start occurring at a faster pace, such as trying to arrange resources from wherever possible (Racz, Weippl & Seufert, 2010).

In the anticipating stage, an organisation starts accepting the situation and works with efficiency and automation (Gozman &Currie, 2015). It further anticipates the connection between multiple programmes and start planning for the future approach to be taken for implementation of GRC (Waziri and Yonah, 2014). Work is done in a united manner by the clear articulation of strategies and mapping them to operational models. Tough calls are further made by management to address risks and accept the ones that cannot be handled. The collaborating stage is the one in which the need on the part of firms is to identify risks and assess exposure towards them. Actions can then be prioritised on the basis of risk level and technology can be implemented for multiple purposes (Batenburg, Neppelenbroek & Shahim, 2014). Orchestrating is the stage of harmonisation where a firm sets its objective for GRC followed by coordinating the

overall analysis and coming into action. The managers also make sure that they attain complete visibility in terms of risk, exposure and the overall business performance.

Its evaluation

To Geishecker (2007), the model has outlined the four stages that are required to be passed by firms to attain maturity in a very well-defined manner. However, according to Gozman and Currie (2015), the model has failed to take the fact into consideration that maturity has a variance with respect to industry and geographical boundaries. Moreover, firms usually lack a desire to reach the highest maturity level as most get satisfied just by adhering to a strategic and holistic approach to GRC. The model has further failed to address the cultural concerns that may block a firm from reaching the highest maturity level of GRC (Torode, 2013).

3.7.2 GRC capability model 3.0

According to O'Neill (2014), GRC Capability Model 3.0 also known as the red book has been given by OCEG for a clear representation of integral nature of GRC capabilities (Figure 4-22) (O' Neil, 2014). According to Ahmadalinejad and Hashemi (2015), one of the key reasons for developing the 3rd version of this model was to bring an improvement in the overall depiction of integrated GRC in terms of its continuous nature (Ahmadalinejad and Hashemi, 2015). It can thus be better applied to a division/project or an area of concern such as business continuity. It also highlights the risk and compliance management to strategic planning (O'Neill, 2014). It can be used easily on account of its structure and language updates. The four components of this model are explored below.

Learn element deals with learning about a firm, its culture and key stakeholders so as to understand its overall objectives and strategies. There is also an evaluation of the opportunities, threats and resources that can act as support or barrier for the attainment of objectives (Abdullah, Indulska & Sadiq, 2016). Methods can then be established for projection of future changes so as to make a shift in strategies and objectives quickly. The align component is about aligning strategies with objectives by using an appropriate decision-making to address opportunities, risk and requirements. Other than this, mission, vision, values and high-level goals also need to be defined for the managerial team to use them to set strategies. Perform component aids in promoting as well as rewarding the desirable areas followed by taking remedial actions against the undesirable ones. The focus is further given on timely detection of any discrepancy. The review involves designing as well as assessing the efficiency of operating strategies and the effectiveness of objectives (ELE and OKO, 2016). This can be done by providing timely report to

concerned persons who can identify issues, manage uncertainties and, if possible, work on the reformulation of objectives and strategies.

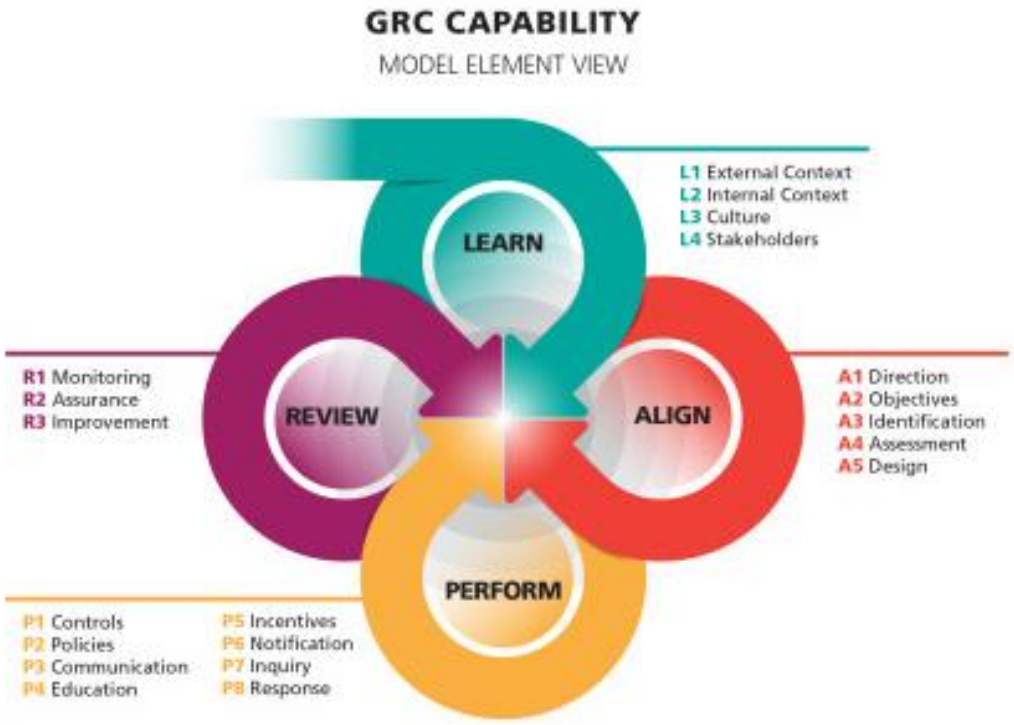

Figure 4-23: GRC capability model

(Source: GRC Capability Model 3.0, 2017).

Its evaluation

According to the views of Hilson (2016), this model has been able to showcase the integrated nature of risk management with respect to objectives, business operations and requirements that impact the working of a company (Hilson, 2016). Due to continued updating, the model has been simplified to a great extent thereby making it easy in terms of usage. It further tries to showcase continuous movement of the elements (ELE &OKO, 2016).

3.7.3 Integrated Conceptual GRC model

The model integrates three basic components, governance, risk and compliance, into one. The orange rectangles represent the minimal functionalities of GRC being audit, risk, policy and issue management; grey coloured rectangles represent the main sub domains, being governance, risk and compliance; blue circles represent the information to be managed by GRC (Figure 4-24). It is further depicted from the figure that at some places there is an overlapping of GRC areas while some are managed by different areas simultaneously (Silva &Vicente, 2011). Controls further

form a crucial component of these models as they are essential for carrying out the above-mentioned activities and act as a common thread between them (Silva, 2011). On one hand, the controls play an essential role in effective risk management; on the other hand, compliance is controlled through audit management. Risk and related processes further have a central role in this model as they are present in both compliance and governance. The subsequent management of GRC activities can only occur when they are linked to risks that are further linked with controls (Mitchell, 2007). This assists with organising the entire information thereby making it easier to manage. Policies were further included in this model as they aid in developing proper culture and accountability, risk, governance and compliance level thereby impacting the entire organisation.

Its evaluation

According to Mayer etal. (2015), the model seems to be quite valid and complete as it has tried to integrate the concepts of GRC with other processes (Mayer etal., 2015). It has tried to showcase the practices that can be used for the management and subsequent implementation of GRC within organisations. It has also allowed firms to present the concepts of GRC in a practical manner that can be understood both by GRC and non-GRC practitioners (Sanaei, Sobhani &Qatari, 2015). However, to Ragan (2013), the model has made use of many processes thereby making it difficult to comprehend. It has failed to present a complete evaluation of all the parameters and the overall quality is required to be assessed by future research studies (Ragan, 2013). Overall, firms should give due attention to this model compared to the others and use it to provide the routine assessment of GRC capabilities.

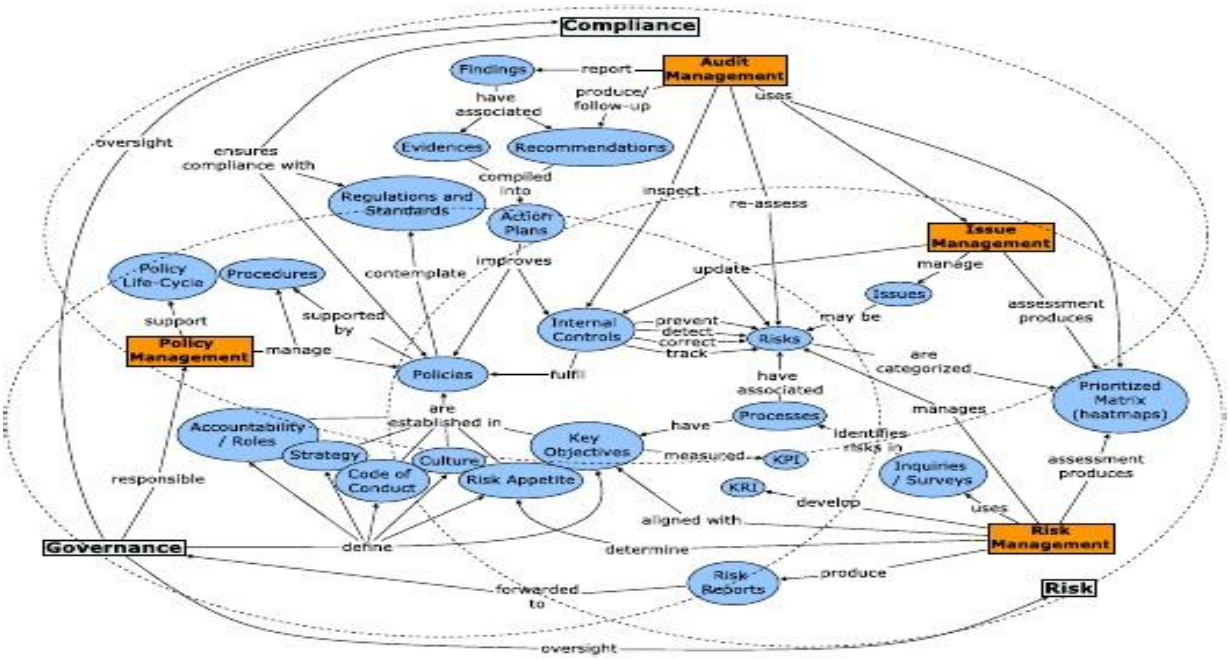

Figure 4-25: Integrated conceptual GRC model
(Source: Silva, 2011)

3.7.4 Portfolio Project Management model

According to Srivannaboon and Munkongsujarit (2016), there can be a successful implementation of a portfolio management model only when there has been a proper choice of project section criteria (Figure 4-6). Every firm should thus define the importance of the criteria to the present business (Srivannaboon & Munkongsujarit, 2016). This ideology has thus led to the creation of the PPM model by Lacerda et al., (2016) where PPM activities can be defined as seven dimensions. The first six dimensions have already been taken from the work done by previous research scholars. The present model just tries to add the seventh dimension as being fundraising. The strategic alignment dimension aligns the strategies with project portfolio so as to attain goals and objectives (Lehnert et al., 2016). The resources definition dimension tries to select project after assessing the available resources and use analysis methods to obtain a balance between organisational resource capacity and demand of a project (Anantatmula &Webb, 2016). The aim here is to reduce the error in the project on account of limited supply of human, physical and monetary resources.

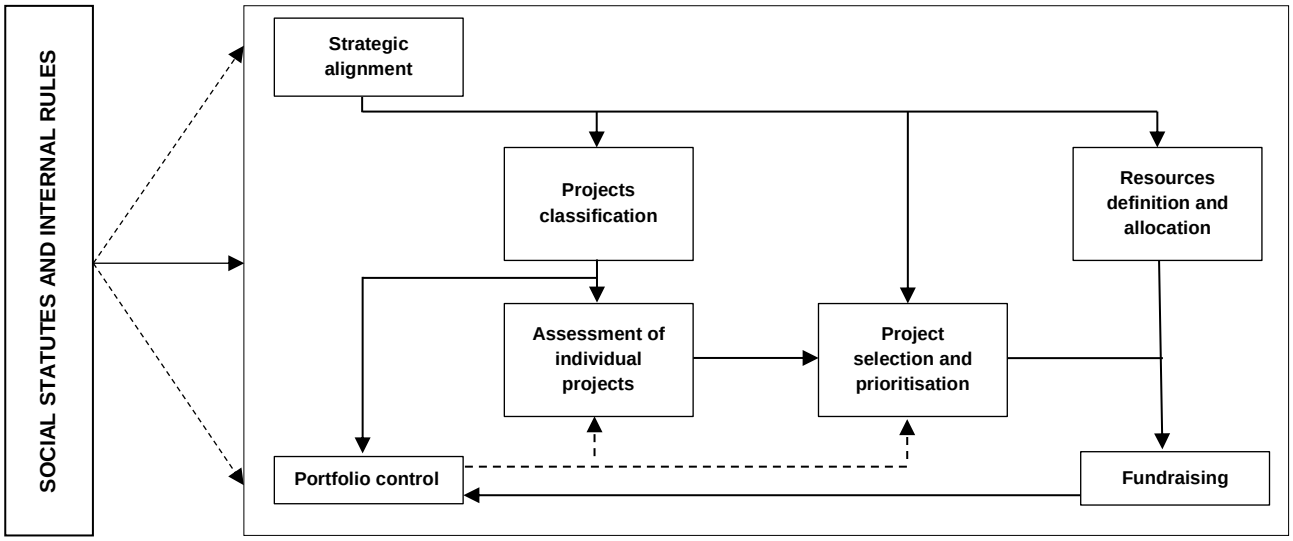

Figure 4-26 PPM model
(Source: Lacerda et al., 2016)

The project classification dimension deals with categorising projects on the basis of their business relevance so as to set filters that can then be applied for subsequent evaluation, selection and prioritisation of portfolio. The project evaluation dimension makes use of many assessment techniques based on an organisation's needs and attributes to be evaluated. A list of projects are also established on the priority basis that is to be assessed (da Silva &Oliveira, 2016). The project selection and prioritisation dimension balance a project portfolio after emphasising on the strategies, vision and mission of a firm. Projects are prioritised in the strategic or financial group so as to set organisational focus. They are then compared by involving senior managers. The portfolio control dimension carries out monitoring and review activities to make sure that projects are in alignment with business strategy and available resources (Lehnert et al., 2016). The resources allocation dimension assists in creating a portfolio management plan that has rules to add and delete projects based on the resources available to a firm (Gutiérrez &Magnusson, 2014). The fund-raising is the last dimension that begins after finally defining the projects so as to make sure that no portfolio changes arise during negotiations with sponsors (Lacerda et al., 2016).

Its evaluation

The present model has offered several elements for the management and advisors to drive PPM practices in an organisation that may further aid in deploying strategic actions, goals etc. The model stands quite close to reality as it has brought the features of different models into one. However, the research has left scope for adding and deleting some elements. The model cannot verify how it may contribute to the practices of PPM. It is required to be tested in varied professional organisations for its validity and reliability.

3.7.5 Project Portfolio Management Maturity model

This model has been proposed by the Lee Merkhofer Consulting firm, which describes the maturity levels of PPM. Every level specifies the motives behind selecting failed projects by the firm (Hanninen, 2016). The model thus aids in the detection of the performance gap, setting of realistic target and provision of practical advice for improvement. Level one is the foundation where the firm takes some project work and has an idea of its benefits on a general level. There is an absence of case analysis, selection criteria for project decisions, portfolio management, roles and responsibilities, resource coordination etc. The organisation is unable to make decisions; funding, review and management occurs separately; there is a presence of shared resources with other projects and termination usually occur due to cost or duration overrun. Level 2 is about PPM maturity where projects are collected into a portfolio followed by case analysis. However, there is the absence of any value creation, management of resources and no performance forecasting. Although there is risk identification at the early stage, its management is not evident (Enoch, 2014). The third level is of value management where a firm is able to make proactive decisions on the basis of available project data. It assists in creating the right project mixture for value creation and generation of return on investment. There is a clear definition of responsibilities, performance monitoring, and risk management thereby assisting logically in aligning business initiatives with projects that add value. The optimisation level has matured and systematic business process where project portfolio is managed in a proactive and analytical manner (Langston & Ghanbaripour, 2016). There is a clear ownership, monitoring and control of risks followed by an advanced level of value management. There exists proper stakeholders' communication and commitment of senior executives to PPM. The last but not the least level is of Core Competency where firms obtain the best PPM in terms of value followed by an existence of processes related to continuous improvement. An organisation is also able to carry out proactive future planning due to future capacity and resource awareness at the executive level.

The value is then measured and tracked for making crucial decisions to reduce risk, identify future business areas and ensure long-term sustainability of the processes.

Its evaluation

The current model has served as a crucial instrument for criticising the project portfolio management in an organisation. However, it has failed to discuss the usage of project management maturity for increasing an organisation's competitiveness with respect to human resource competence that is crucial in solving issues related to PPM maturity. It has no tool to measure the competency of a company and how well it performs in terms of selecting the right projects.

3.7.6 Modern Portfolio Theory (MPT)

This theory was introduced by Harry Markowitz in the early-1950s for which he was awarded a Nobel Prize in the year 1990 and is now referred to as the father of MPT (Markowitz, 1952). The theorist depicted that maximum return for a given risk level can only occur if there is an optimisation of diversified portfolio of financial assets. He differentiated between efficient and inefficient portfolios and proposed that there can be estimation of variance and co-variance of securities by usage of statistical analysis and judgment of a security analyst. This can thus result in formulation of efficient mean-variance combinations from which the investor can choose the desired combination of risk and return. Geometrical analysis has been used by the author to demonstrate the features of efficient sets based on a supposition that non-negative investments are subjected to budgetary constraint.

Its evaluation

Overall, the work presented by Markowitz has provided a foundation for carrying out future studies in non-financial fields as well. Vernhoef (2002), however, suggests that MPT cannot be applied to IT, as investments here are non-liquid and cannot be easily converted into cash. This is a drawback in the theory, as liquidity is the major assumption of MPT (Vernhoef, 2002). Nevertheless, Ross (2005) tried to manage IT process by using a financial investment portfolio that attracted the attention of the CIOs from fortune 1000 firms (Ross, 2005). Rad and Levin (2006) referred to a Meta Group survey which depicted that more than half of the IT professionals surveyed have implemented some part of modern portfolio theory by the end of 2004 (Rad &Levin, 2006). Kersten and Ozdemir (2004) applied MPT on the product portfolio of an information technology firm. It was concluded that there can be an application of mean variance theory along

with MPT to improve the management of a product portfolio (Kersten & Ozdemir, 2004). Another drawback of the model is that it cannot foresee the occurrence of any future event; rather it diversifies a portfolio on the basis of past results (Enoch, 2014). Overall, it can be concluded that MPT as given by Markowitz is quite relevant for PPM due to its provision of financial metaphor. The need is further to balance the project portfolio mix with respect to risk exposure and return on investment. A due consideration should further be given on aggregate of individual portfolio components for understanding the full impact of decisions.

3.7.7 Stakeholder theory on governance

This theory was developed by Freeman (1984) in order to induce corporate accountability to stakeholders. It incorporates research in the area of law, economics and ethics, and suggests that managers have a network in their organisation that is to be served by them (suppliers, employees and business partners). This group is very essential and requires managerial attention as they get affected by success and failures of the firm (Abdullah &Valentine, 2009). Hence managers are obligated to ensure that stakeholders get their fair of return. The interest of all the stakeholders should also be taken into consideration by ensuring that organisational practices are based on the principal of sustainability (Tarantino, 2008). It can also be regarded as a corporate social responsibility by which firms are required to operate in an ethical manner even if there is profit reduction on a long-term basis.

Its evaluation

It has been argued by Freeman (1984), that the network of relations as per stakeholder theory can affect the decision-making procedure due to the immediate concerns of a firm towards these relationships. Donaldson and Preston (1995) further argued that theory lays emphasis on decision-making that is in the interest of all the stakeholders as compared to one particular group.

3.7.8 Evolutionary Governance Theory

Evolutionary Governance Theory (EGT) was introduced by Van Assche et al. (2014) and it can be regarded as a framework for carrying out analysis of governance in terms of its evolution. It showcases that governance is often complex or nonlinear and its elements constantly change by being in interplay with each other. The theory has placed emphasis on how markets, societies and organisations evolve. It provides a framework for understanding continuous co-evolution that exists between actors, subjects and institutions which leads to the creation of different pathways that influence each other (Van Assche etal. 2014).

Its evaluation

According to Ostrum (2014), the theory has a link with socio-ecological systems that aid in giving emphasis on those procedures and efforts that drive the process of social evolution (Ostrum, 2014). To Beunen (2013), the theory has led to the opening of entirely new grounds related to policy experimentation with respect to governance. It has thus offered a middle ground between the concept of libertarianism and social engineering (Beunen, 2013).

Theory/ Model Name	Author name	Unique Point	Selection
Four-Stage GRC Maturity Model	AMR research	The model is unique as it outlines the stages that are to be passed by firms while attaining maturity with respect to GRC. With an increase in the stages of maturity, the firms tend to become risk aware and can incorporate new requirements in there system easily and efficiently.	Selected
GRC Capability Model 3.0	OCEG	The model is unique as it is an excellent means by which communications about GRC capabilities can be carried out with board members and senior management.	Rejected
Integrated Conceptual GRC Model	Pedro Vicente and Miguel Mira da Silva	The model is unique as it has tried to present a domain level concept followed by an integration between sub domains such as risk, compliance and governance (Frank, 1999).	Rejected
Portfolio Project Management Model	Fabrício Martins Lacerda, Cristina Dai Prá Martens, Henrique Mello Rodrigues de Freitas	The model has been developed after reviewing several literature studies and now comprises of seven dimensions, six of which were present in previous literature while the seventh was incorporated from organisational practices identified by the study.	Rejected
Project Portfolio Management Maturity Model	Lee Merkhofer Consulting firm	This model aids firms in improving their overall project portfolio management processes by emphasising on improvement processes. This then assist them to leverage resources in the best possible manner while being around an organisation's specific goal.	Rejected
Stakeholder Theory on Governance	Freeman	The theory showcases the fact that stakeholders play a crucial role in shaping the basic conditions of corporate governance in any firm or industry.	Rejected
Modern Portfolio Theory	Harry Markowitz	Modern portfolio theory has a huge impact on the manner by which investors recognise risk, return and portfolio management. It has further demonstrated that risk can be reduced to a great extent if there is a presence of portfolio diversification.	Rejected
Evolutionary Governance Theory	Raoul Beunen, Kristof Van Assche and Martijn Duineveld	The theory is unique as it aids to find out how communities develop an understanding towards each other as well as the existing environment. They further create complex processes for analysing the paths of corporate governance.	Rejected

Table 3-8: Comparison between various Models and Theories on PGRC

There is limited research and a conceptual framework on PGRC as most of the related studies have discussed the above elements on an individual basis or as a group of GRC (see table 3-8). Hence, the present study tries to combine the above models. That means there can be usage of the four-stage GRC maturity model that will help the Abu Dhabi Government in attaining maturity by passing through the respective levels as suggested by the theory. The government officials will become more aware about the risk and can then incorporate new requirements into the system accordingly. There can be a furtherto usage of the PPM model so as to manage the portfolio in the best possible manner. This can be done by strategically aligning the operational and financial goals with strategies as set by the government.

3.8 Gaps in Literature

The concept of PPM has existed for some decades and it is becoming a crucial tool and a process framework for management of projects in the public sector (Martinsuo, 2013; Unger et al., 2012; Heagney, 2016). There has been a drastic increase in the programmes launched by the public sector or federal government with respect to number and complexity, hence agencies have started moving towards PPM for overall cost management and delivering positive outcomes in a timely manner (Teller, Kock &Gemünden, 2014; Costantino et al., 2015). However, the issue surrounds proper implementation and optimisation of PPM in a federal government, which is very big and multidimensional (Lappe & Spang, 2014; Brook & Pagnanelli, 2014). Governmental organisations all over the globe are facing challenges at every level in the form of rendering good services to citizens; dealing with financial pressures as well as fulfilling the commitments which is only possible by having transparent and effective governance (Young et al., 2012; Drennan et al., 2014; Eggers, 2012). It is known that prioritising and managing good portfolio in government is a difficult task but is very essential to deliver best-valued services to the people (Neckowicz et al., 2015; Costantino et al., 2015).

Public sector firms are lagging behind in grasping the strategic nature of portfolio management versus concerns of individual projects on a day-to-day basis (Neckowicz et al., 2015; Khameneh et al., 2016). The need here is to have a skilled portfolio management process so as to align projects with the strategic vision of government (Teller & Kock, 2013; Killen et al., 2015). With a slight addition, achievement or failure in the process changes the delicate balance that exists between risk and opportunity (Sarbazhosseini et al., 2014; Eric-Kirkland, 2015). Control and success are only possible when a firm is able to systematise the projects and align strategies with policies and requirement of stakeholders (investors, owners, government etc.) (Teller, 2013; Voss & Kock, 2013; Bakar & Yusof, 2016). This is indeed a very complex task that requires

portfolio management to be effective even during hard times in order to provide the critical advantage and also allows for improvisation, identification and delivery of increased benefits from investments made in projects (Hyväri, 2014; Møller et al., 2016). PGRC has a very dynamic and focused presence and requires important benefits from current assets so as to reach the end goal of attaining business targets (Momčilović et al., 2014; Martinsuo, 2013). To Paguin et al. (2016), in the absence of such a dream, portfolio, GRC may not be able to boost business in a satisfactory manner and may not allow businesses to benefit from portfolio improvements.

3.9 Conclusion

The current research study has been done on portfolio project management practices. The focus has been on the challenges that firms face while applying PGRC. However, there exists a huge research gap with respect to PPM and GRC. Past studies have focused on discussing GRC and PPM as individual concepts but little has been done on PGRC as a joint concept. The current literature review has emphasised on discussing portfolio management as a theory so as to integrate it with the UAE Governmental framework in order to oversee, govern and standardise the process of project management for different projects. Moreover, the literature review was contextualised for PPM as there is a requirement for integrating GRC framework, especially with regard to the Abu Dhabi Government given the huge number of projects and programmes enveloped under each portfolio. In line with the present aim of the study to support the government in GRC, the literature has been found to be vital for project management and has led to the selection of the most appropriate framework for PGRC. In the next chapter, the conceptual framework for PGRC is developed.

4. CONCEPTUAL FRAMEWORK

4.1 Introduction

In this chapter, the conceptual framework where the two elements of PPP and GRC are integrated into PGRC is presented. The chapter presents a detailed review and examination of the strategic framework for the elements' GRC, leading to the formation of the strategic GRC and narrowing it down to the PGRC framework. Within the chapter, a discussion is built on past research focusing on the areas of gaps and narrowing down the discussion to the research questions.

4.2 Strategic Framework for GRC

Over the past few years, several changes and issues have emerged in the business environment, leading to a focus on the inability of firms globally in GRC activities (O'Neill, 2014). While some of the events may have been triggered by fluctuations in the manpower staffing or budgeting within the compliance aspect, they may have been affected by an increase in internal risk and auditing activities (Racz, Weippl & Seufert, 2010; Vicente&da Silva, 2011). However, the key point is the investments made at tactical levels within various functions of the GRC without much regard of one function to another (Moeller, 2011; Abdullah, Sadiq & Indulska, 2010). The increase in the activities of risk and control and the associated costs for governance has led to the development of an integrated model of GRC (as discussed in the literature review). Such a model revolves around improving the effectiveness, as well as the efficiency, of the risk and control functions of a firm.

The Sarbanes-Oxley Act (or SOX) is noted as the main driver behind the emergence and development of the risk and control aspects, facilitating firms with apt control based on compliance (Moeller, 2011; Manab, Kassim & Hussin, 2010). With an increase in control aspects, audit budgets were found to rise to accommodate testing activities (McClean, 2011). This occurred primarily when firms started to globalise leading to the need for adherence for international standards (Racz, Weippl & Seufert, 2010; Kaplan &Mikes, 2012). Furthermore, some firms leaned towards developing their risk management aspects given their international practice and business scope (Viscelli, 2013; Wieczorek-Kosmala, 2014). Given the scope of the expansion and the need for increases in investments to cater to specific issues, the need to manage them tactically yet individually emerged (Frigo & Anderson, 2011).

The integration of risk and control elements in business units may have led to the issue of duplications, wherein functions overlapped leading to poor coordination across elements of risk and control (Cormican, 2014; Ojiako, 2012). From the standpoint of a firm, an unsustainable rise

is found in the elements of risk and control, causing firms to rethink on the costs involved and value driven out of it (Frigo & Anderson, 2011; Demidenko & McNutt, 2010). Also, the mismatch between a firm's strategic level and tactical level of risk and control aspects has been a cause of concern for senior management, especially when it involves portfolio project management (Kaplan &Mikes, 2012; Viscelli, 2013).

Addressing the strategic gap that firms of today face, various initiatives of GRC (or integrated GRC) were developed, with each taking a closer look at risk and control aspects (O'Neill, 2014; Vicente &da Silva, 2011). An integrated GRC brings the benefits of effectiveness in sharing (data, knowledge and technologies) (Abdullah, Sadiq & Indulska, 2010; McClean, 2011). It allows each element to recognise its importance and role, while sharing common aims and objectives and working together for the achievement of those goals (Demidenko & McNutt, 2010; Malik &Holt, 2013). However, when there exist multiple lines of business (such as in a government entity), the burden of coordination and role clarity changes and may significantly affect the GRC model (Ceyhun, 2017; Ismail, Ahmad & Shaffee, 2016). In this section, the elements of the GRC framework are evaluated in detail leading to the development of a framework for an effective strategic GRC model.

4.2.1 Risk Framework

Different frameworks for risk management in organisations (both public and private) have been developed and implemented (Frigo &Anderson, 2009; Frigo &Anderson, 2011; Ceyhun, 2017). Some of the widely known and applied risk frameworks are discussed and reviewed here.

4.2.1.1 COSO Risk and COSO ERM Framework

Founded by 'The Committee of Sponsoring Organisations (COSO)', it was a framework that focused essentially less on risk factors and largely on internal control factors (Moeller, 2011). The framework was developed on account of the failing financial situation in the 1970s-80s, outlining activities such as code of conduct, internal audit, and a control environment (Hayne &Free, 2014; Gates, Nicolas& Walker, 2012). The framework on 'internal control' focused on ensuring the achievement of a firm's goals and objectives with efficiency, and was affected by the board of management, and directors in general of the firm (Gjerdrum &Peter, 2011; Daud, Yazid & Hussin, 2010; Hayne &Free, 2014). It also aimed at achieving financial reporting reliability while maintaining compliance with the regulations (Moeller, 2011; Gjerdrum &Peter, 2011). For the COSO framework, an internal control is noted as "a process which is not documented by forms

or policies, but rather achieved through the integration of manpower at all levels with a reasonable assurance to the board" (Moeller, 2011).

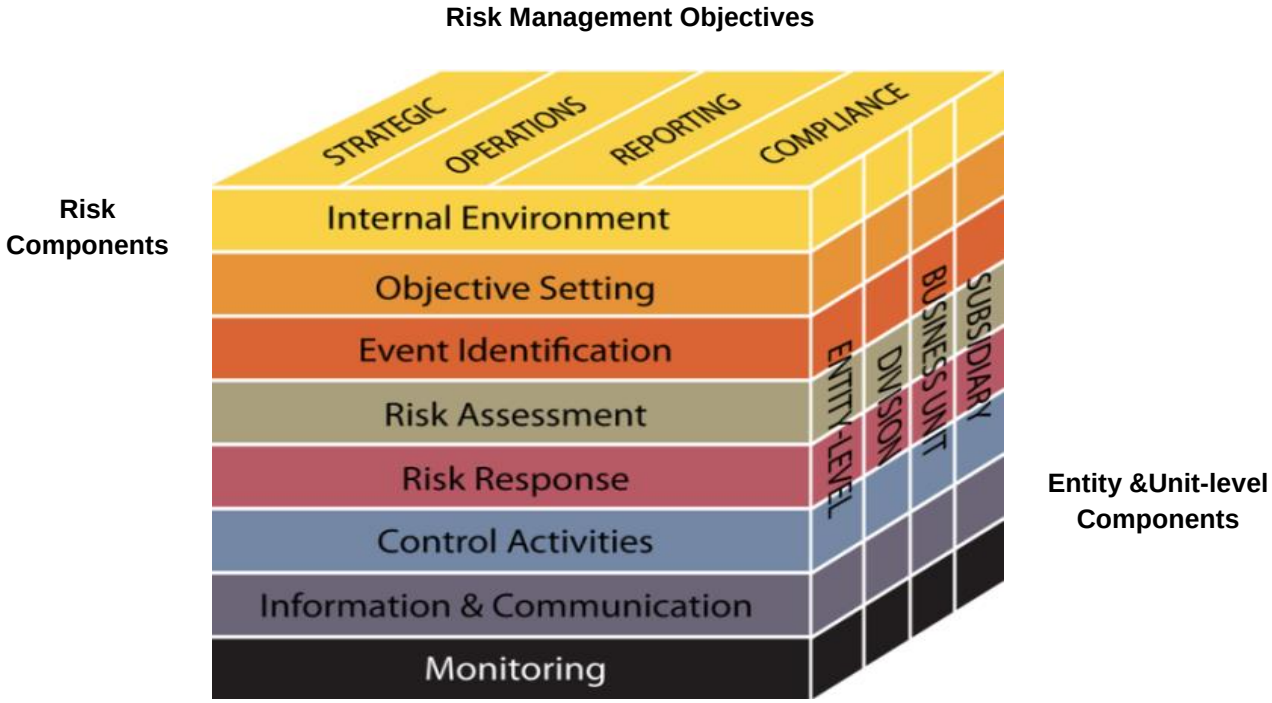

Figure 4-1: COSO ERM model
Source: Moeller (2011)

Aversion of the COSO framework that evolved was the COSO ERM, which focused on a comprehensive risk management framework at the enterprise level, developed by PricewaterhouseCoopers (PwC) [see figure 4-1] (Moeller, 2011). The framework aimed at aligning eight principles: internal environment, information and communication, setting objectives, event identification, risk assessment, risk response, control aspects, and monitoring (Gjerdrum &Peter, 2011; Daud, Yazid & Hussin, 2010). Giving the ability to monitor and review each aspect of the framework and the way they interact to managers, the COSO ERM also provides detailed guidelines on implementation (Hayne &Free, 2014). A point to note is the relation of control with risk, with the addition of the control aspects as policies and procedures (Brown &Osborne, 2013; Moeller, 2011). Given the similarities in the risk management framework of COSO ERM and SOX (in 2002), the internal control and risk elements will be taken and applied for the development of the new GRC framework (Gjerdrum &Peter, 2011). Furthermore, the COSO ERM stresses on the importance of the strategic element, which has led to its selection within this research (Gates et al., 2012; Gjerdrum &Peter, 2011).

4.2.1.2 AS/NZS 4360 Risk Framework

One widely known framework for risk management is the Australian Standard (4360), given its convenient execution capability for businesses (Leitch, 2010; Knight, 2010). Based on eight core factors, the framework outlines the process of effective risk management, as seen in figure 4-2 (Sadgrove; 2008) (Figure 4-2). The framework emphasises a process (similar to the COSO ERM) that initiates with communication and consultation, leading to establishing the context (internally and externally) to understand the risk factors (Leitch, 2010; Racz, Weippl & Seufert, 2010). Its risk assessment stages entail identification, analysis and evaluation followed by risk treatment, which links back to communication and consultation leading to a compliance cycle (Sadgrove; 2008; Racz, Weippl & Seufert, 2010). During the risk treatment stage, controls are added, and decisions are taken to either avoid, retain, share or change the risk.

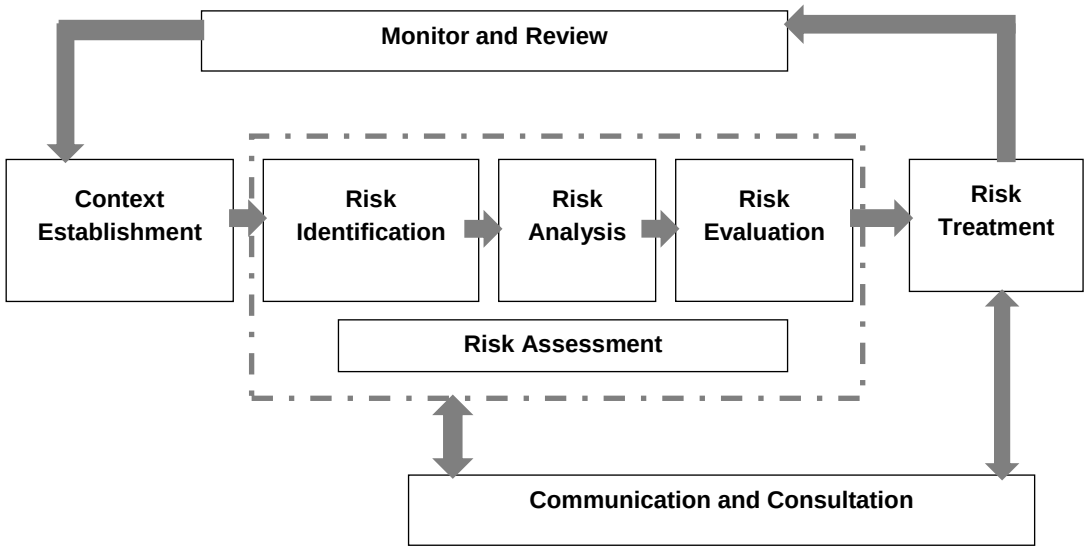

Figure 4-2: Risk Framework by AS/NZS 4360
Source: Sadgrove (2008) [Reproduced]

4.2.1.3 ISO Risk Framework

An international standard for risk management, the ISO framework, was released in 2009, with a clear outlook on principles and guidelines, developed by professionals from over 30 countries (Baker, 2011; Leitch, 2010). Noted for its state-of-the-art execution, the ISO framework encompasses the elements of risk and compliance as found in the COSO ERM and AS/NZS 4360 framework discussed above [see figure 4-3] (Leitch, 2010; Racz et al., 2010).

With its generic design, the framework of ISO allows firms to tailor the framework based on their unique requirements for some elements (Knight, 2010; Gjerdrum &Peter, 2011). It allows firms to achieve complete risk integration and improve strategic decision-making (Aven, 2011). As observed in figure 4-3, the COSE ERM and AS/NZS 4360 framework elements are an exclusive part of the ISO framework. However, the ISO framework also includes four additional stages in the form of commitment and mandate, communication and training, structuring and accountability and review and development (Purdy, 2010; Baker, 2011; Knight, 2010)). Apart from this, the management information system is an element found to be connecting the core risk management elements with the improvement cycle (Aven, 2011).

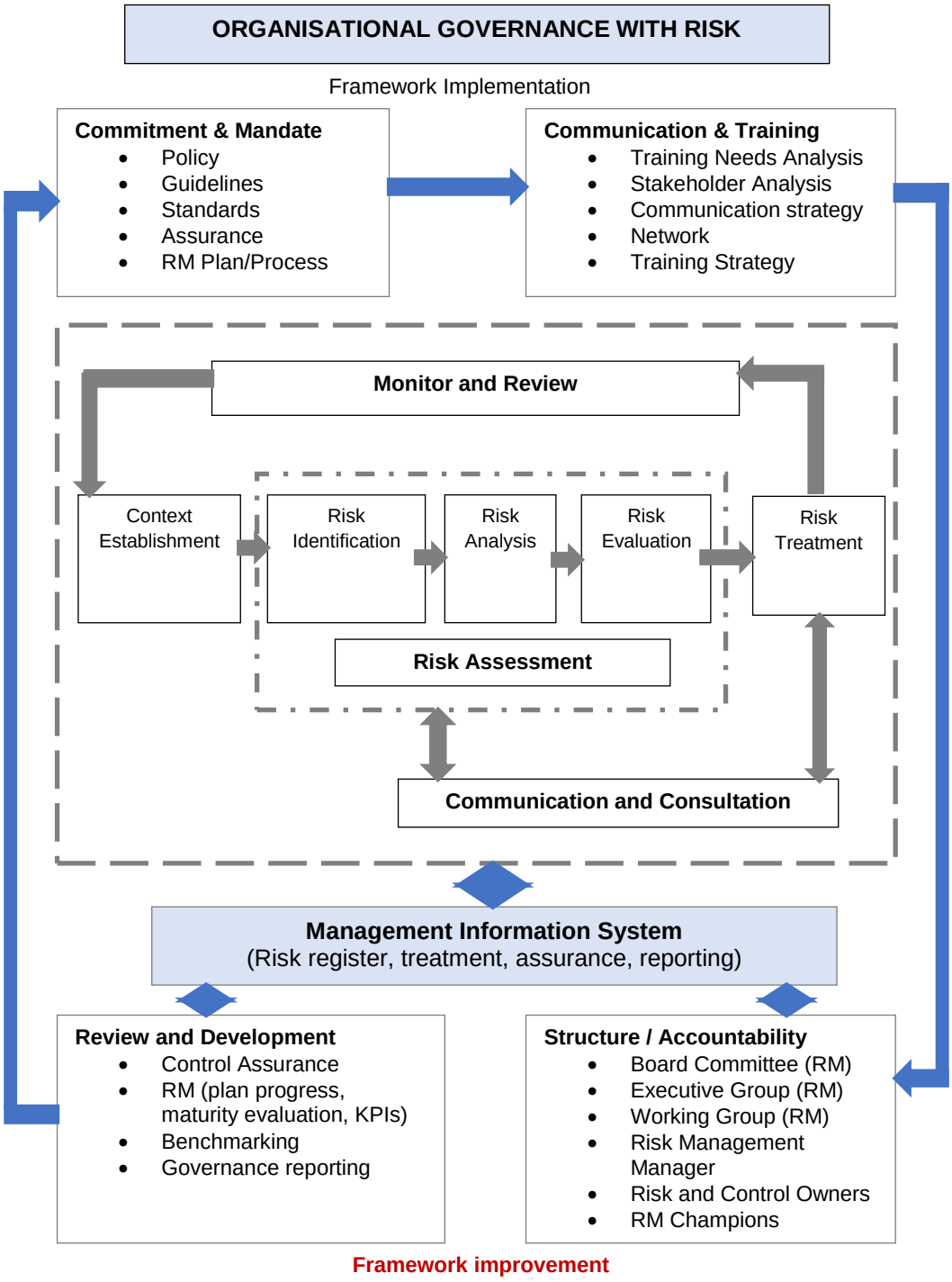

Figure 4-3: ISO 3100 Framework

Source: Leitch (2010) [Reproduced]

4.2.1.4 Risk Management: Benefits, Barriers, and Implications

The risk management framework is based on four essential phases of implementation, which are planning and development, implementation and benchmarking, measuring and monitoring, and learning and reporting (Brown & Osborne, 2013; Cormican, 2014; Frigo &Anderson, 2011).

Planning and Development: Within the first stage, planning and development, the risk management initiative is governed by various factors, which describe the essentials of a risk policy as seen in table 4-1 below (Frigo &Anderson, 2011; Soltanizadeh et al., 2016). Each of the elements within the planning and development phase guides the policy-makers to ensure that the risk management framework comprises all essential elements for effective and efficient risk management (Ismail, Ahmad & Shaffee, 2016; Frigo &Anderson, 2009). One essential element within the planning and development phase is risk architecture which ensures an effective coordination between the business units, the board and the audit, risk and disclosure committees (Ceyhun, 2017; Martin &Power, 2007; Sadiq & Governatori, 2010). Risk architecture ensures embedding the risk management framework within all activities and processes (managed by the board), and formulating strategy based on risk appetite, exposure and attitudes (by risk committees) (Brown &Osborne, 2013; Daud, Yazid & Hussin, 2010). The business units hold the role of directing and monitoring the risk architecture activities, wherein they produce policy statements, prepare risk registers, set risk priorities and monitor projects, prepare documentation and control risk management (Viscelli, 2013; Cormican, 2014).

Planning & Development	Description	Sources
Governance	The governance elements depict the objectives for risk management policy along with Internal control	Viscelli, 2013; Frigo & Anderson, 2011; Daud, Yazid & Hussin, 2010
Risk Strategy	It describes the attitude of the firm towards risk	Frigo & Anderson, 2011
Risk Culture	It includes policy initiatives outlining the risk awareness culture, also known as the control environment	Soltanizadeh et al., 2016; Frigo & Anderson, 2011
Risk Appetite	It includes the level as well as the nature of the risk which is accepted by the firm	Viscelli, 2013; Frigo & Anderson, 2011; Martin and Power, 2007
Risk Architecture	It involves the mode of communication and operations across various segments such as the board, audit committee, group committee for RM, disclosure committee and business units. The aim of the risk architecture is to coordinate risk management activities and feed risk data to future planning and development.	Ismail, Ahmad & Shaffee, 2016; Frigo & Anderson, 2011
Risk Assessment	It is a process of evaluating any potential risks involved in a business activity or during undertaking	Brown & Osborne, 2013; Ojiako, 2012
Risk Protocols	These are risk guidelines that outline the rules and procedures, along with the methodology for risk-management, followed by the tools and techniques to be utilised.	Soltanizadeh et al., 2016; Frigo & Anderson, 2011
Risk Response	It includes requirements for risk mitigation as well as control mechanisms	Ismail, Ahmad & Shaffee, 2016; Viscelli, 2013
Risk Roles	Allocation of roles and responsibilities to manage risk in the management.	Martin & Power, 2007
Risk Training	Development of risk management topics as well as priorities in training	Frigo & Anderson, 2011; Daud, Yazid & Hussin, 2010
Risk Benchmarking	Creating a set of criteria to monitor and review risks	Brown & Osborne, 2013; Wieczorek-Kosmala, 2014
Risk Resource allocation	Identification of appropriate resources for allocation during risk management processes	Ismail, Ahmad & Shaffee, 2016; Malik & Holt, 2013
Risk Priorities	Setting up of risk activities and priorities based on the past performance for the upcoming year.	Frigo & Anderson, 2011; Frigo & Anderson, 2009

Table 4-1: Elements of Risk Planning and Development Phase

Implementation and Benchmarking: A vital phase within risk management is implementation and benchmarking which reflects primarily in the form of risk assessment (Saleh & Alfantookh, 2011; Frigo & Anderson, 2011). A part of the strategic decision-making process, risk assessment allows a firm to undertake comprehensive risk assessments by establishing procedures (Alhawari et al., 2012). It supports exploitation of business opportunities and, hence, is shared with the board as part of the strategy. It is crucial that assessment be taken throughout the project life cycle, with focus on methods to record assessments, level of detail and risk classification (Lam, 2014; Sadgrove, 2016). Risk assessments are governed by benchmarks that set the risk type. The various techniques applied for risk assessment range from questionnaires, checklists, flowcharts, audits, inspections, workshops, SWOT, PESTLE to hazard and operational studies (Dafikpaku et al., 2011; Farrell &Gallagher, 2015). Benchmarking allows the identification of risk appetite and risk attitude. A board has the right to set the policies governing risk appetite based on the type of risks and its risk attitude (Frigo &Anderson, 2011; Segal, 2011). Hence, it can be said that risk appetite drives strategic decision-making at the board level, whereas at the executive level, it is found as part of the risk procedures (Frigo &Anderson, 2011).

Measurement and Monitoring: Playing a crucial role in risk assessment (as part of the implementation and benchmarking phase) is the risk measurement and monitoring phase (Hopkin, 2017; Sadgrove, 2016). While there are no standards exist on how to record risk assessments, risk registers are typically very valuable for any organisation. It is noted as an action plan that outlines the current controls and future actions based on the risks of the past (Segal, 2011; Merna & Al-Thani, 2011). The action plan dictates the time plan for audits required and enables monitoring of the existing controls. When it comes to monitoring of controls, the cost factor arises (Frigo &Anderson, 2011; Merna & Al-Thani, 2011). Furthermore, other factors, such as risk awareness culture and risk management are found to be a part of measurement and monitoring phase in risk framework (Pritchard &PMP, 2014). Embedding the risk awareness culture within the firm is crucial to achieving the appropriate changes made to the risk protocols and should be implemented internally and externally (Jones &Preston, 2011; Hopkin, 2017). It is driven by demonstrative senior management leadership, manpower involvement, sound communication and most importantly, nurturing a learning culture (Sadgrove, 2016).

Learning and Reporting: The last phase within the risk management framework is learning and reporting, wherein learning experience based on past risks is reviewed to enhance the risk controls and phases involved (Gregory et al., 2012; Lam, 2014). One important stage within

learning and reporting is risk performance monitor, which reviews the opinion of key stakeholders within a firm based on the risk management evaluation and audit reports (Jones and Preston, 2011; Hopkin, 2017). Reporting is supportive to review and learning, in which internal and external communication is evaluated in comparison with standards set by international frameworks such as the SOX or COSO ERP (Frigo & Anderson, 2011; Eiser et al., 2012). It is essentially conducted to validate the actions taken against risks and whether or not strategic goals are achieved (Paape & Speklè, 2012) (Table 4-2).

Risk Element	Benefits	Barriers	Implications	Sources
Planning & designing	- Allows organisations to design and plan a strategic risk management framework - Contains detailed risk architecture, protocols and strategy as part of the policy	- Lack of revision in risk management policy - Poor attention to emerging risks - Lack of clarity on risk architecture - Lack of commitment from board	- Risk management policy should be updated every year reflecting best practices - Integrating the involvement of board and higher management in keeping the risk management policy dynamic with clear mandates	Ismail, Ahmad & Shaffee, 2016; Soltanizadeh et al., 2016; Brown &Osborne, 2013; Frigo & Anderson, 2011; Sadiq & Governatori, 2010; Daud, Yazid & Hussin, 2010
Implementation & Benchmarking	- Allows setting up of risk assessment procedures, leading to identification of risk appetite and risk attitude of the firm. - Provides comprehensive benchmarking on risk assessment, based on risk types and how risk assessment procedures differ from strategy level to executive level.	- Poor standard for risk assessment affects the overall risk assessment and risk appetite identification - Non-dynamic risk appetite affects strategic decision making	- Differences in risk appetite at board and executive level may bring significant changes in procedures at operational level and strategy level.	Sadgrove, 2016; Lam, 2014; Farrell & Gallagher, 2015; Alhawari et al., 2012; Saleh & Alfantookh, 2011; Frigo & Anderson, 2011; Dafikpaku et al., 2011
Measuring & Monitoring	- Allows record and measurement of risks through risk registers. - Supports in embedding risk awareness culture across the firm at all levels. - Drives evaluation of existing risk controls and suggests risk improvement strategies.	- Static risk records affect strategic decision making - Restricted to operate within defined time lines - Needs coordinated action across all levels to improve risk management efficiency	- Risk framework is dependent on measuring and monitoring risks, and is highly dependent on embedding risk awareness culture	Hopkin, 2017; Sadgrove, 2016; Pritchard & PMP, 2014; Merna & Al-Thani, 2011; Frigo & Anderson, 2011

Learning & Reporting	- Allows firms to apply learning from risk management and improve their internal and external controls. - Allows review of the risk performance indicators based on which strategic decisions and future actions are taken.	- Poor evaluation of the risk performance indicators affects future risk actions. - Is required to be conducted on a regular basis to avoid static development.	- Presents a forward-looking perspective on risk management and is affected by the quality of reporting (internally and externally) on past risks.	Hopkin, 2017; Lam, 2014; Eiser et al., 2012; Gregory et al., 2012; Frigo & Anderson, 2011

Table 4-2: Risk element – Benefits, Barriers and Implications

4.2.2 Governance Framework

It is said that corporate governance drives companies in controlling their business activities as well as the relationships that exist, both internally and externally (Loorbach, 2010). Governing strategic risk management for a firm is a challenging task for the board, wherein they are required to build, approve and review the framework on a regular basis (Muller, 2011; Too &Weaver, 2014). They are also required to determine a firm's risk appetite and tolerance (as found in the earlier section from a crucial part of the risk framework) and develop a suitable organisational structure (Emerson, Nabatchi & Balogh, 2012; Lockwood, 2010). This is achieved in coordination with the senior management who are in charge of building and implementing policies, and processes for the individual business units (be it at project level or portfolio level) (Kirkpatrick, 2009; Beasley &Frigo, 2010; Steyn & Niemann, 2014). It is found that during a financial crisis, the first and foremost thing found ineffective is corporate governance (as found in the survey on banking firms in Europe which reflected a poorly embedded corporate governance in its risk structure) (Kirkpatrick, 2009; Yarbrough &Yarbrough, 2014). In the literature review, the various elements of corporate governance are discussed and reviewed in detail; however, the integration of those elements in line with the risk framework determines its success.

In this section, a new corporate governance framework is developed, linking the elements of governance with risk management. In consideration, the SSIK model presented by Hilb (2011) is considered as the base as it closely relates the governance elements with risk management element, reflecting a streamlined approach. A redeveloped corporate governance framework is shared in figure 4-4. As observed in the figure, there are four phases of effective corporate governance: Situational (phase 1), Strategic (phase 2), Integrated (phase 3) and Keeping it controlled (phase 4). The governance framework highlights the coordination between the four phases, leading to effective internal and external control at situational level, which are also identified in the researches presented by Too and Weaver (2014), Emerson, Nabatchi, and Balogh, (2012) and Brunet and Aubry (2016). As observed in the risk management framework in section 3.2.1, the success of a risk management framework lies within the planning and designing phase, implementation and benchmarking, measuring and monitoring and learning and reporting. These elements are found to be an integrated part of the corporate governance framework, emphasising the role of the board in phases 2 and 3 (Hilb, 2011). While the integration of the risk and governance framework may be found to be complicated at this stage, they reflect a harmony that leads to holistic yet strategic management of the firm internally and externally.

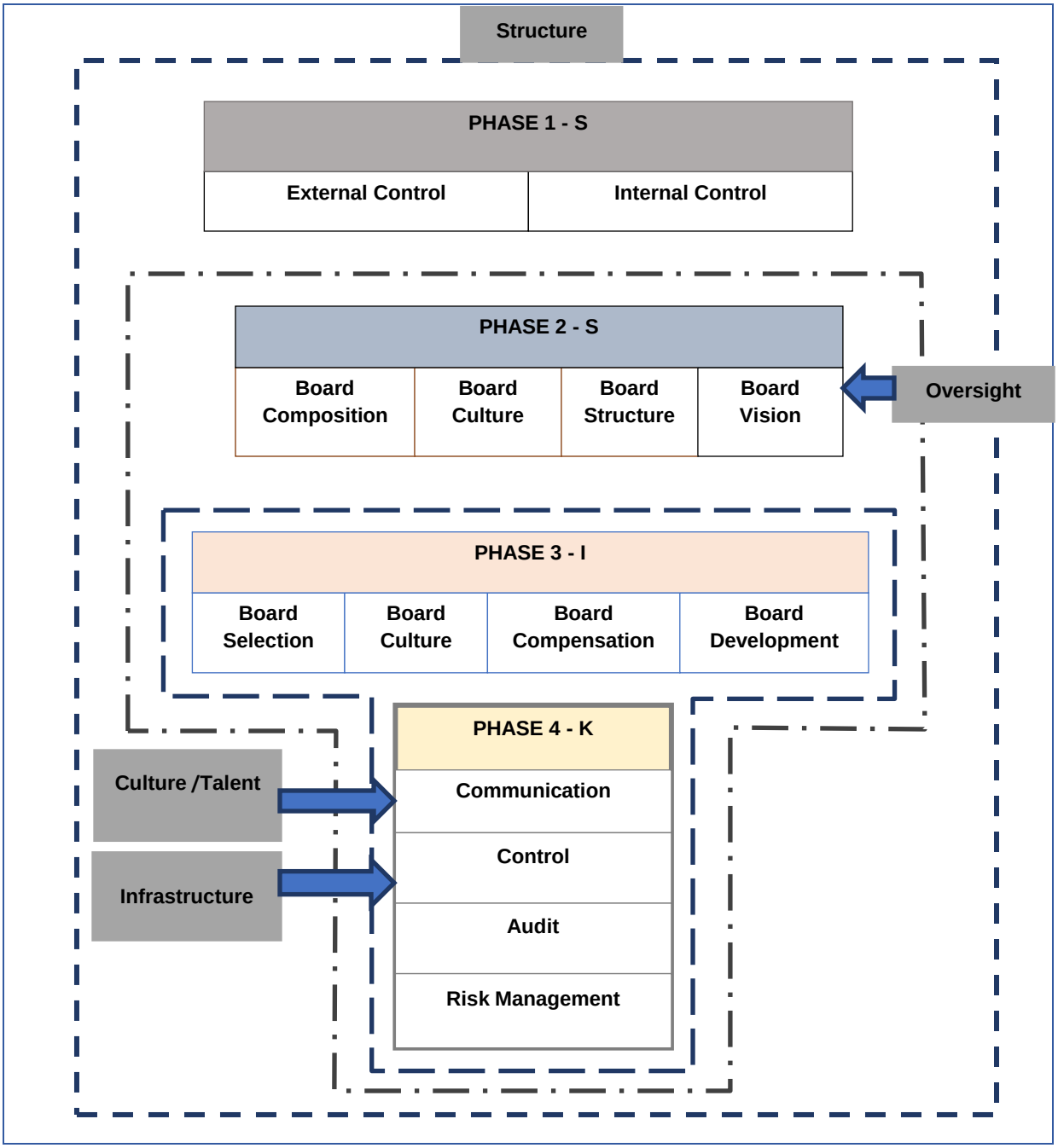

Figure 4-4: Corporate governance framework

Source: Hilb (2005) [Redeveloped]

Corporate governance impetus has been primarily globalisation as well as internationalisation in trade and finance, and this is applied to both public and private sector firms (Crona & Parker, 2012; Brunet & Aubry, 2016). Past research identified that a strong strategic governance model works in line with the risk framework and supports the board members in

fulfilling their respective roles within the framework (Eberlein et al., 2014; Wu et al., 2015; Nikoloski et al., 2016). This is achieved through a well-developed governance structure and supportive mechanisms that overcome inconsistencies, gaps and overlaps, especially when there exists projects, programmes and portfolios (Filatotchev & Allcock, 2010; Crona &Parker, 2012). In the public sector, inadequacies in the strategic governance framework and its poor linkage with the risk framework during enactment of the policies and procedures may even lead to failure (Nikoloski et al., 2016; Musacchio, Lazzarin i& Aguilera, 2015). However, a point to note is the sheer complexity that exists within the governance framework given the large-scale operational models and complex structures.

As observed in figure 4-4, the key drivers of a strategic governance framework can be divided into structure, oversight, culture and talent, and lastly, infrastructure (Hilb, 2011; Nikoloski et al., 2016). Each of these drivers are elaborated and discussed in table 4-3. With the organisational design and structure for reporting, the governance framework should focus on developing a comprehensive organisational structure with clear lines for risk management, decision-making, crisis responsiveness, regulatory or financial reporting, and public disclosures (Delport, Von Solms &Gerber, 2015; de Silva & Sujeewa, 2016). Within the drivers specified, one noted element is the board oversight in business activities, risk strategy, regulatory compliance, and financial cum organisational stability (Kirkpatrick, 2009; Hilb, 2011; Eberlein et al., 2014). Similar models have been developed in the past focusing on governance of projects within firms at technical, strategic and institutional level for the public sector (Morris, 2013; Ahola et al., 2014). Similarly, Winch (2014) developed a public sector governance model that highlights the interfacing between the projects and the project owners, while in Narayanan and DeFillippi's (2012) model, board roles and accountability, stakeholder representation and approval processes are highlighted. For successful board oversight, it is essential that the governance framework for operations articulates the knowledge and skills required for board oversight and engages management and board in sharing of information relevant to risk management and strategy (Crona & Parker, 2012; Brunet & Aubry, 2016). It should also focus on advising management on understanding the various aspects of the governance activities to enhance efficiency (Filatotchev & Allcock, 2010). Similarly, the board committee authority and responsibilities should be well defined within the governance framework, especially in terms of number, qualification, terms, responsibilities, reporting procedures, and mechanisms (Yarbrough &Yarbrough, 2014; Steyn & Niemann, 2014; Nikoloski et al., 2016).

A strategic governance framework becomes operational only when it enables the execution of the strategic responsibilities of various governance aspects at multiple levels within

the firm (Ahola et al., 2014; Winch, 2014). Bringing clarity on the reporting structure (and linkages), risks and decision-making along with various other matters to the attention of the board committee for approval or review can boost governance efficiency (Beasley & Frigo, 2010; Morris, 2013; Narayanan & DeFillippi, 2012). For the public sector, the strategic governance framework should focus on regulatory regimes and institutional arrangements or frameworks that narrow the role of the board and its role in governance execution (Klakegg et al., 2016; Ahola et al., 2014). It has been seen that public sector firms in certain countries (Norway and the UK) have adopted strategic governance frameworks as recently as the last decade (Klakegg et al., 2016; Morris, 2013; Williams et al., 2010). The aim behind the move was to secure investments from the private sector by aiming to streamline decision gates and milestones for various public sector projects, and securing political control leading to effective decision-making (Williams et al., 2010; Klakegg et al., 2016). It also focused on structuring the framework to reflect clear goals, responsibilities and levels, and lastly, improving focus on all elements of the governance with high attention towards time planning and estimation of costs (Williams et al., 2010; Klakegg et al., 2016).

Drivers	Explanation	Barriers	Sources
Structure	The structure incorporates the elements of organisational design along the reporting structure, as well as the committee structure.	• Dependency of the governance function in terms of control on risk and compliance. • Poor definition of risk spectrum on various business functions affecting operational review. • Complex governance structure leading to poor understanding within internal and external stakeholders.	Nikoloski et al., 2016; Eberlein et al., 2014; Crona & Parker, 2012; Hilb, 2011
Oversight	Oversight is implied towards the board, overseeing the governance operations, taking management accountability as well authority, and dictating the responsibilities of the committee personnel.	• Appoint of board without due consideration to knowledge and skills thereby affecting decision-making and oversight. • Lack of provision to encourage engagement between board and management. • Poor segregation of governance activities at various levels of the business functions. • Defining clear methods to escalate and report governance matters	Brunet & Aubry, 2016; Eberlein et al., 2014; Hilb, 2011; Filatotchev & Allcock, 2010
Culture / talent	This driver considers the performance management aspect with incentives, while also covering talent programmes, leadership development, and principles for business and accountability.	• Poor balance between risk taking and asset presentation affecting performance. • Misalignment of incentives causing imbalance between risk taking and asset preservation.	Nikoloski et al., 2016; Yarbrough &Yarbrough, 2014; Jewer & McKay, 2012; Hilb, 2011
Infrastructure	Within this driver are factors such as technology, policies and procedures, and reporting.	• Poor direction on control aspects given to non-disclosure of limits on business functions management. • Misalignment in reporting structures across various business units leading to poor authority and accountability and causing disagreements.	Badewi, 2016; Wu, Straub & Liang, 2015; Steyn & Niemann, 2014; Hilb, 2011

Table 4-3: Key Drivers of Governance Framework with Barriers

4.2.3 Compliance Framework

The risk management framework discussed in section 3.2.1 emphasised the importance of compliance in its success. In practice, the compliance framework is a part of the risk framework, thereby playing a significant role in the business strategy development and decision-making. Compliance management frameworks, such as the COSO framework emphasise the role of compliance in risk management and its ability to provide an assurance in meeting a business objective (Moeller, 2011; Manab et al., 2010; Bamberger, 2009; O'Neill, 2014). It links the compliance elements with the internal factors (i.e., business objectives, local policies and procedures and reporting) and external factors (such as regulations and laws) (Racz, Weippl & Seufert, 2010; Moeller, 2011). It is found that the compliance framework is not fully integrated within the risk framework, thereby reflecting a gap. The gap is found in areas such as risk assessment, risk control and response wherein the absence or linkage of process descriptions affects decision-making (Abdullah et al., 2010; Manab et al., 2010; Ceyhun, 2017). This is a scenario wherein the risk of non-compliance emerges at individual business activity level and can affect the overall process and operational performance (Bamberger, 2009; O'Neill, 2014).

In the past research conducted in the area of compliance management, there are five core elements that drive the compliance framework (Governatori, 2013; Shamsaei, 2012; Hardy &Leonard, 2011), as seen in table 4-4. In the strategy element, firms are required to develop a clear strategy and link it to the compliance objective, whereas the governance elements comprise the lines of accountability and action, strengthening the governance with three lines of defence (discussed in the next section) (Governatori, 2013; Shamsaei, 2012). In the governance element of compliance management, the accountability is allocated to the committee(s) and linked to the risk framework (El Kharbili, 2012; Ghanavati, 2013). However, it needs to be supported by building a strong compliance culture wherein employees (at various levels) are required to understand and comply with the obligations set up and defined as part of the compliance framework (Butler &McGovern. 2012; Bamberger, 2009; Manab et al., 2010). This covers activities such as employee development, documentation, compliance level assessment, monitoring and resolving compliance issues and promoting adherence to compliance through whistle-blower programmes (Racz et al., 2010; Governatori, 2013; Shamsaei, 2012). The framework elements should be based on strengthening the lines of accountability (governance) through policy development, supported by documentation to ensure efficacy.

Elements	Description	Barriers and Implications	Sources
Strategy	It includes the business strategy, and objectives of compliance outlining the scope of the compliance management framework.	The compliance functions of an organisation are restricted by its core compliance strategy and vision. Allocating a high degree of tolerance within the strategy and vision can affect compliance management.	Governatori, 2013; Shamsaei, 2012; Racz et al., 2010; Bamberger, 2009
Governance	Comprises the roles and responsibilities, culture of compliance, governance, training and competence of the management for accountability on actions.	Poor development standards can hinder the compliance management process, especially when it comes to training of the staff to get to know the compliance standards and to follow them effectiveness. Furthermore, the cost factor involved may limit the scope of compliance.	Ghanavati, 2013; El Kharbili, 2012; Butler & McGovern. 2012
Framework	The framework provides the operational map of the compliance process, describing the policies and documentations required to support the compliance system.	Complex strategy development and policy making can affect the understanding capability of the actors within the firm, thereby leading to poor compliance.	Manab et al., 2010; Hardy & Leonard, 2011; Racz et al., 2010; Bamberger, 2009
Planning	The planning element governs the management of the risks, obligations, controls, incidents and issues, while also controlling the reporting and monitoring of the compliance stages.	Financial constraints restrict the development of the compliance function of a firm, affecting review, control and monitoring activities.	Butler &McGovern. 2012; Racz et al., 2010
Review / Improvement	Within this element, the framework sets out clear guidelines on the measures of compliance performance, along with escalations of issues and continuous development.	Poor review and improvement, in cases that overlook compliance activity distribution across business units leading to overlap, can lead to delayed response and action.	Ghanavati, 2013; Manab et al., 2010; Bamberger, 2009

Table 4-4: Elements of Compliance with barriers and implication

Within the compliance planning element, the compliance obligations and risk assessments are identified, followed by implementation, review and management of controls and assessments for future action. In the last element, review and development, there is need to embed the compliance framework within the culture of an organisation, and improving oversight through escalation and continuous improvement.

Type of Non-compliance	Risks	Actions required
Compliance organisation	Visible gaps within the design and effectiveness of the compliance systems, model and resources. Poor internal controls Noncompliance with local regulations	• Building a compliance maturity model with assessment • Strengthening compliance policies • Improving /building reporting lines • Integrating controls of compliance and internal risk.
Compliance investigation	Poor or absent investigations	• Building programmes for internal investigation training • Integrating forensic investigation
Corporate ethics	Risk of non-compliance from employees in the form of misbehaviour or the lack of ethical culture.	• Building a code of conduct • Compliance training • Compliance Seminars
Human Resource	Risk of non-compliance based on regulations, from factors such as employee mobility, bonuses, overtime, amongst others.	• Liabilities assessment • Risk evaluation in existing business unit and programmes. • Competitive law development • Improving technology solutions
Corruption / Fraud	Risk of non-compliance to local anti-corruption regulations Risk of fraud	• Engaging in risk assessment, policy and training development, monitoring • Improving employee training and communications • Building fraud prevention and management programmes

Table 4-5: Overview of various types of non-compliance

Sources: (Racz et al., 2010; Gjerdrum &Peter, 2011; Bonazzi et al., 2009)

Non-compliance may arise in any organisation, should it have weak policies on compliance management and accountability. In the public sector, wherein the business units are based on customer-based service and involve a large employee base, the risks of non-compliance are large. Table 4.5 outlines some of the common elements of non-compliance with the risks and actions that can be taken as part of the compliance management framework.

4.2.4 Integrating GRC as a Model of Success

GRC is a critical business idea that assimilates a proactive and efficient risk-based approach to management, which can then be utilised within an entire firm (Moeller, 2011; Hardy &Leonard, 2011). It provides a company with an even view of information so that there can be alignment of risk with objectives in order to bring reduction in complexity and discrepancies followed by generation of a scenario where technology can be harnessed to create desired outcomes (Anders, 2016; Papazafeiropoulou & Spanaki, 2016). GRC is not a replacement for internal control or compliance testing, rather it moves beyond testing so as to construct a framework by which risk can be managed and performance can be improved (Kewell & Linsley, 2017; Recor &Xu, 2017). The risk management efforts can thus be organised instead of replicating them. This will help to reduce operating cost and create a firm that is risk-intelligent (Manab et al., 2010; Williams et al., 2010; Hopkin, 2017).

The professionals working in the area of risk management are aware that firms on a global level have been facing a lot of pressure to bring a control in fraud and abuse as well as to match needs related to security compliance (Potter & Toburen, 2016; Governatori, 2013; Bamberger, 2009). With the presence of constant or decreased budgets and changes in accountability focus the need of firms is to focus on maintaining increased effectiveness (Agarwal & Virine, 2016; Ismail et al., 2016). Firms have started to focus on broader views and have been following a uniform approach on how technology and business procedures can be aligned with risk, compliance and governance (Spanaki & Papazafeiropoulou, 2016; Frigo &Anderson, 2009).

Figure 4-5 showcases GRC in a high-level format so as to discuss how various components of firm interact within the GRC framework and it is based on assessing the elements of every factor (Frigo & Anderson, 2011; Hardy &Leonard, 2011). The figure depicts GRC activities as being managing risks, internal control and compliance testing, which may undergo direct or indirect interaction and also impact important areas that are present within strategic planning, operation parts and the technological makeup of the firm (Frigo & Anderson, 2011).

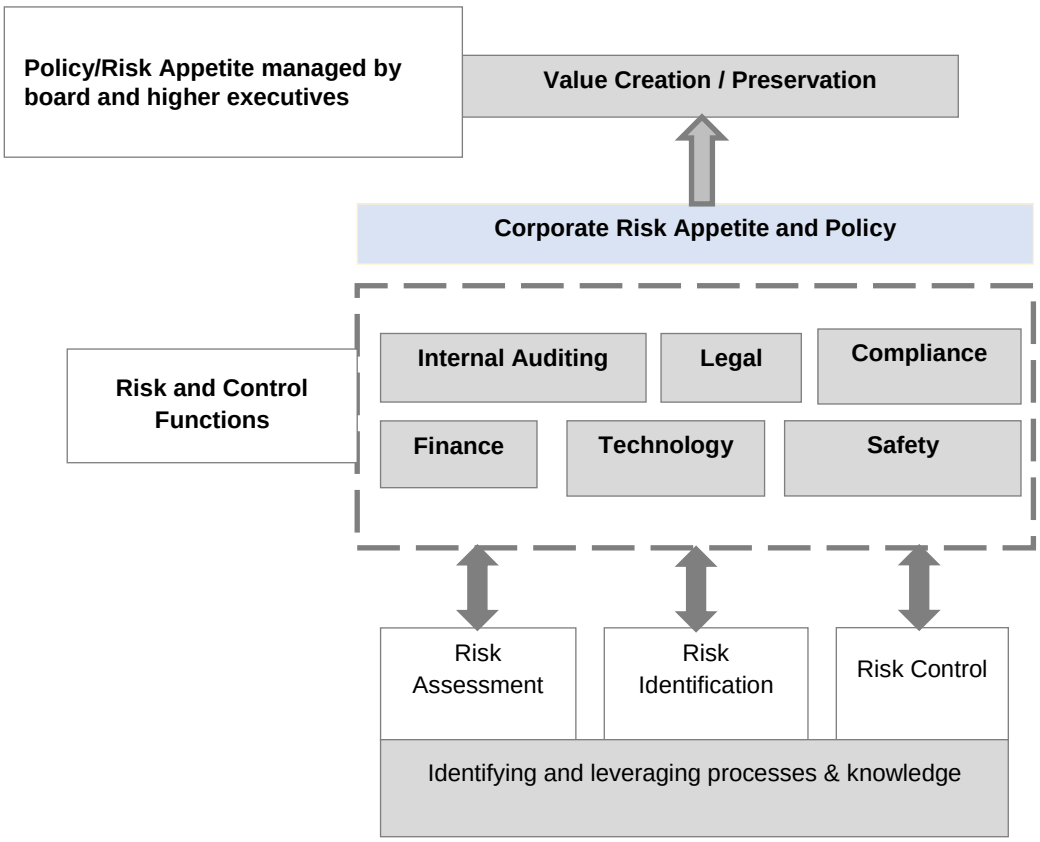

Figure 4-5: Integrated Model of GRC
Source: (Frigo &Anderson, 2011)

Common results are viewed by experts when a firm integrates GRC (Papazafeiropoulou & Spanaki, 2016; Moeller, 2011). Given below are a few outcomes that are commonly expected according to the three lines of defence, which support GRC integration in diverse business sectors as well as industries (Arwinge & Olve, 2017; Cormican, 2014; Ceyhun, 2017). These include building a common framework with elements of GRC in a simpler and understandable language, sharing of information and knowledge, and building focus on risks of strategic and tactical nature to stakeholders' value (Frigo &Anderson, 2009; Brown &Osborne, 2013). Other benefits include maintenance of a firm-wide viewpoint on GRC, development and investment in tools and technologies for GRC and assimilation of activities related to GRC (Agarwal & Virine, 2016; Mikes &Kaplan, 2013).

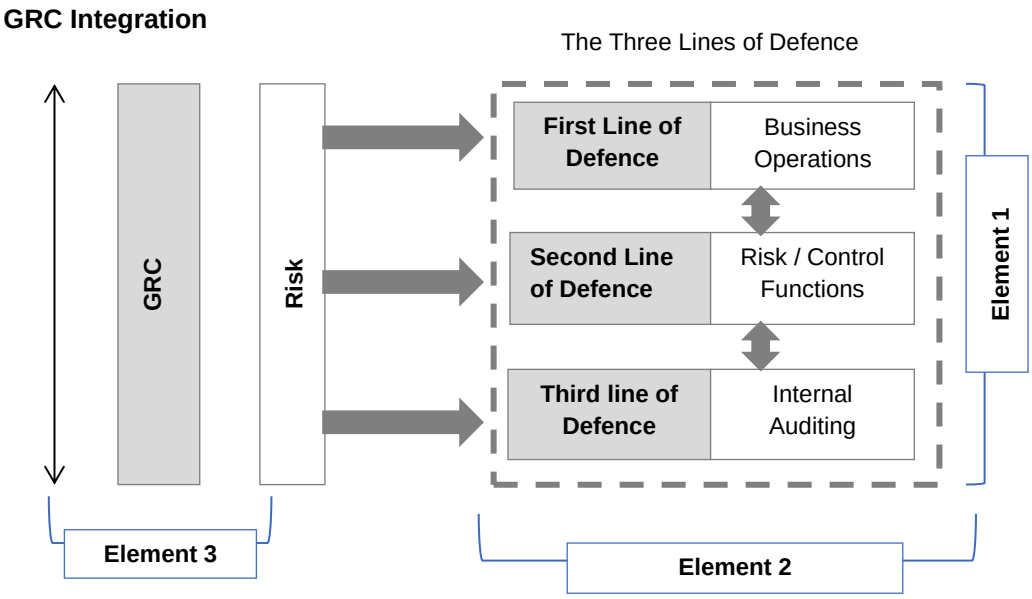

Figure 4-6: Lines of Defence in an Integrated GRC Conceptual Model

GRC provides a systematic procedure usage in which governance, risk, and compliance can be aligned effectively; however, it is challenging to present this framework to stakeholders and non-practitioners in a simple format (Gates et al., 2011; Baker, 2011; Alhawari et al., 2012) as they perceive GRC as an idealistic goal in comparison to a separate operational framework. Firms in both public and private sector have been focusing on recognising the possible benefits of an integrated GRC; however, they often get confused as to how it fits within the structure of firm and where it can reside so as to attain full efficiency (Papazafeiropoulou & Spanaki, 2016; Farrell &Gallagher, 2015). The GRC Conceptual Model at a foundation level with the lines of defence (as seen in figure 4-6) is designed to overcome the issue by presenting GRC in a practical and firm centric manner. The model further showcases GRC in a concrete way so as to allow the employees and main stakeholders to get a better grasp of GRC. The GRC Conceptual Model is thus built on three key elements of a firm being:

- Analysing the interrelation that exists between three lines of defence in risk management
- Mapping of main departments along a range across three lines of defence
- Assessment of GRC platforms or application integration (Brighenti &da Silva, 2016).

The execution of the GRC initiative by an organisation brings with it the need for every component to unite and provide a comprehensive view, snapshot and present condition of the GRC (Tadewal, 2014; Hopkin, 2017). The initial traits of the individual elements go along with an equivalent weighting and there is no precise obligation to evaluate the individual elements in any

order (Sadgrove, 2016; Gregory et al., 2012). Additionally, in case of certain institutions, the three lines of defence need not be new. The development of the GRC and assimilation of the lines of defence varies a lot between the various organisations (Lam, 2014; Loorbach, 2010).

Element 1: Interrelationships

The three lines of defence, as seen in figure 4-6, aid various organisations by their willingness to achieve their management, risk and acquiescence goals (Tadewal, 2014; Steyn & Niemann, 2014). Each of the three lines of defence offers some amount of risk management, which in turn provides an increased cover of security in the organisation (Paape & Speklè, 2012; Hopkin, 2017). It is the interrelationship among the various layers of defence which forms the foundation to a better understanding of GRC and the maturity level in the institution as seen in figure 6, which demonstrates the role of Element 1 – interrelationships (Tadewal, 2014). Here are the individual lines of defence, which constitute Element 1 (Trudell, 2014):

First line of defence (layer 1): It is the duty of the managers to handle the operational risks in the day-to-day running of the organisation such that there is increased efficiency, which goes a long way in meeting the long- and short-term strategic goals of the organisation (Tadewal, 2014; Trudell, 2014). The various risk and control functions, especially the enterprise risk management (ERM) can be consulted by them for support, risk evaluation and other projects.

Second line of defence (layer 2): The function of this line is to perform ERM services with an emphasis on independence and a central strategic management (Paape & Speklè, 2012; Tadewal, 2014). It also performs autonomous risk estimation and offers support towards the actions of the management that have a material influence on the working of the organisation (Lyons, 2011). It also accounts for the output from the audit and compliance of the organisation (Seago, 2015; Tadewal, 2014). It aids and assists the management of a firm in the face of the adequate risk reactions from consultants and is accountable to the board of directors and the executive risk committee.

Third line of defence (layer 3): Internal audit services highlight finishing of the endorsed annual internal audit plan. The internal audit acts as a self-regulating guarantee and influences the work from ERM and the compliance division to finish the audits (Seago, 2015; Tadewal, 2014). Organisations can testify to the parts which need to be emphasised to the executive audit committee and board of directors.

As seen above, by virtue of the first element of the model, an organisation records the services that are carried out within the lines of defence. This is done by taking account of the strategies and practices that define the interrelationships, functions and liabilities of the individual layers; and by widening the scope of a value chain examination, which enumerates the principle values in each line of defence with process function maps. It includes the actions and results from the individual layer of defence as the information shifts from one layer to another and to the board of directors and executive committees (Tadewal, 2014). Practically, the maturity and efficiency of the organisation depends on the increased interrelationships and the reduced less repetition of input (Potter & Toburen, 2016; Lyons, 2011). An increased level of repetition and reduplication in the procedures and reduced harmonisation result in an immature and inefficient GRC framework.

Element 2: Mapping Departments along a Continuum

There are a number of committees and departments that comprise the three lines of defence of an organisation as highlighted in figure 4-6, which shows the Element 2 on the model. The organisational structure of an institution is dependent on its particular culture and drives the various avenues of the business sector like communication and logistics (Potter & Toburen, 2016; Tadewal, 2014). There is the tendency for the departments that comprise the first layer of defence to be more important to the organisational and administrative efficiency; for example: finance, accounting and marketing and are mapped by reviewing organisational charts, taking surveys and the opinion of leaders (Westbrooks, 2016). The other departments which comprise the other two lines often lack clarity and examples of them are internal audit, information security and legal (Potter &Toburen, 2016; Tadewal, 2014).

The various departments are numbered with the line of defence along with the accompanying details and the position is a result of the GRC and the factors, which regulate the lines of defence (Westbrooks, 2016; Potter &Toburen, 2016). This results in an improved understanding of the organisational culture and the GRC. The level of maturity of the GRC is determined by the increased representative organisational structure along the layers of defence (Arwinge & Olve, 2017; Seago, 2015). A reduced representation along the three lines of defence alludes to a reduced efficiency and hence a weaker and less mature GRC (Tadewal, 2014; Westbrooks, 2016).

Element 3: Integration Assessment

The third element comprises the evaluation of the various tools of the GRC information technology application and the amount of assimilation of the said tools in the organisation as seen in figure

4-6. The equivalence for data and the coalescing information within the three lines of defence are an indicator of the amount of GRC information technology integration in an organisation (Recor & Xu, 2017; Seago, 2015). These comprise the set of devices, which aid in developing an understanding about the ways an organisation interrelates among information collection and distribution among the three layers of defence and the various committees and departments that comprise the organisation (Lyons, 2011; Westbrooks, 2016). The various projects and solutions that are of emphasis to the GRC are accumulated and recorded by this element, which aids in the accumulation, dissemination and maintaining records of the organisational GRC information (Arwinge & Olve, 2017). It is imperative for an organisation to have a current idea about the amount of integration among the three lines of defence by the evaluation of the various systems which work towards input and output of data in them (Westbrooks, 2016; Potter & Toburen, 2016). For example, an organisation that only makes use of the various tools in the Microsoft Suite for handling data and GRC information indicates an immature element. As opposed to this, if it uses pan-organisation GRC tools, it suggests a mature system.

4.3 Framework for PGRC

For effective management of portfolios, there is a requirement for firms to maintain control and achieve balance over requirements of conflict even during limited resources (Arwinge & Olve, 2017; Governatori, 2013). This requires coordination in the project portfolio leading to an optimum outcome for the firm (Artto et al., 2008; Trudell, 2014; Potter & Toburen, 2016). Past researchers in the area of PPM and GRC have done various investigations on building an effective model for multiple projects (Racz et al., 2010; Pellegrinelli & Garagna, 2009). This led to the creation of interfaces, management of resources and information, sharing knowledge and common deliverables across various levels within a firm (Sense, 2013; Too &Weaver, 2013; Schectman, 2015). However, the focus of the models was on the project level or risk management as the primary elements. Lack of coordination in the GRC elements within PPPs create inconsistencies in the control functions, leading to increased costs (Bamberger, 2009; Butler &McGovern, 2013; Klakegg et al., 2016). While it is found true that the GRC framework is interdependent, it needs a unified solution that leads to effect PGRC management across all levels of a firm (El Kharbili, 2012; Winch, 2014).

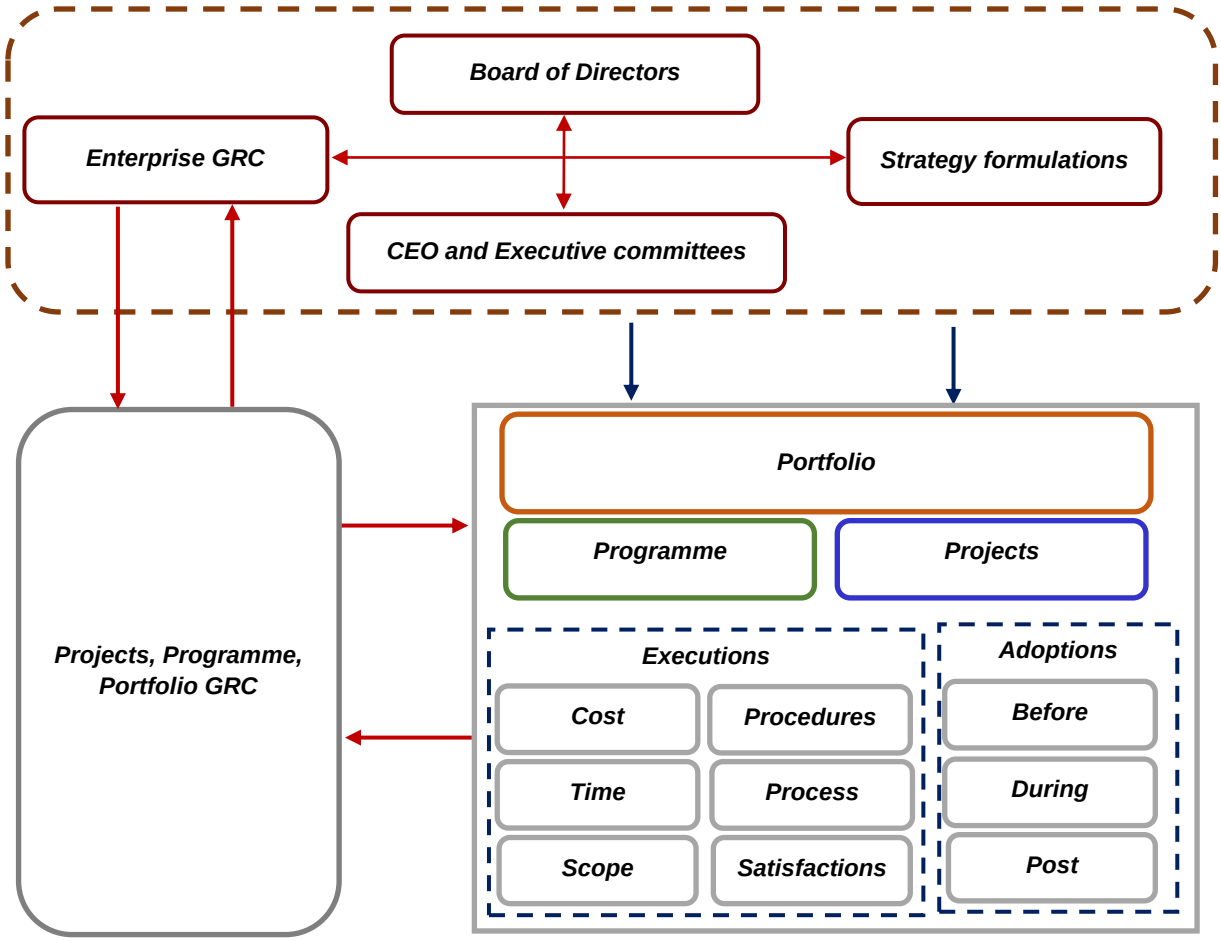

Figure 4-7: Conceptual Framework for PGRC

Figure 4-7 presents an integrated GRC conceptual framework, which is an amalgamation of PPP and GRC. The new integrated PGRC framework is an approach that is based on the elements of GRC identified in Chapter 3 and of PPP as reviewed in Chapter 3. As observed in the figure 4-7, portfolio management encompasses execution and adoption phases, which also correlate with the individual elements of the GRC function, yet are distinct in nature (Williams et al., 2010; Beasley et al., 2010; Badewi, 2016). Similarly, the GRC framework relies on the board and committee overlooking the GRC operations, especially defining the risk architecture and appetite, and strategy formulation based on risk assessments (Crona & Parker, 2012; Jewer &McKay, 2012; Steyn & Niemann, 2014). While there exists a direct link between the GRC and PPP elements, there is no dedicated body managing the overall functions of the PPP through a strategic GRC approach.

4.3.1 Importance of PGRC

RQ1: What are the factors influencing Portfolio Governance, Risk and Compliance (PGRC) in government entities and how do they influence the adoption and participation phases?

As discussed in the previous literature review, PPM and GRC were amalgamated to formulate the PGRC framework, which will help in the overall successful management of multiple projects undertaken by Abu Dhabi Government. PGRC integrates the important aspects of PPM and GRC hence it can help to cut cost, reduce risk and increase return on investment (Costantino et al., 2015; Eggers, 2012); it can also impose accountability, aid in cross-functional alignment and ensure that issues are worked upon by decision-makers (Killen et al., 2015; Sarbazhosseini, McDonald & Saifullah, 2014). The projects undertaken by the Abu Dhabi Government are subjected to a number of laws in order to avoid any future disaster. Thus, these laws and regulations need to be followed stringently. In order to execute these projects successfully, the project participants are required to work as a team. Therefore, the success of a project is dependent on following of the rules and laws by the workforce working as a team (Emerson et al., 2012; Loorbach, 2010). In order to bring all projects in line with current practices, techniques, standards and regulations, implementation of PGRC, allowing the government to oversee PPM, is necessary.

This therefore answers the first research question:

The local authority is under the scrutiny of the public and media along with corporate and performance management teams for the projects undertaken and executed (Emerson et al., 2012). The projects and services provided by the government are assessed against Key Performance Indicators (KPI's) such as quality, performance, economy, effectiveness and efficiency (Paape & Speklè, 2012; Muller, 2011; Too &Weaver, 2014). Such assessments have a great impact on how the government is viewed not just by itself but also by the public at large. Achieving portfolio management goals can be difficult for any corporation, however government can face further issues due to a number of reasons such as shifting priorities, within the departments as well as cross-authorities; resource pressure in front line as well as back office; balance of needs of the authorities with that of the strategic planners and skills mix (Hopkin, 2017; Sadgrove, 2016; Alhawari et al., 2012; Segal, 2011). In such an environment, it can become difficult to maintain the direction of the project and to assess the risks within the projects. In such a case, the PGRC framework can be extremely beneficial for the government, as it not just helps in the accurate management of multiple portfolios but also ensures that there are minimum risks and that the risks are mitigated in order to minimise any losses (Aven, 2011; Knight, 2010; Gates et al., 2012). It is due to these reasons the PGRC framework is highly recommended for Abu

Dhabi Government, which has undertaken multiple projects to provide better infrastructure for its city. This answers our second research question in Chapter 1.

4.3.2 Factors contributing to the effective adoption of PGRC

RQ2: What are the factors contributing to the effective adoption of PGRC in government entities in Abu Dhabi?

Businesses and organisations from nearly all the different sectors of Abu Dhabi are readily pursuing the project management disciplines to get numerous tasks and projects done more efficiently and effectively. They work on many projects concomitantly to save time and to be responsive to the ever-rising market needs. This phenomenon adds to the complexity of the management of these projects and programmes for businesses; yet, it is essential for the accomplishment of business objectives, growth, development of new products and improvement of existing processes and products (Hobbs, & Aubry, 2011). The successful and timely completion of projects by project managers demand a closer inspection and integration into well-organised portfolios in alignment with the overall organisational strategy (Pemsel & Müller, 2012; Moeller, 2011). These portfolios and projects collectively bring the change that is crucial to attain the long-term goals of the business (Kaplan & Mikes, 2012; Frigo & Anderson, 2011). However, having distinct and unambiguous objectives and goals is inevitable that should be tailored to the specific requirements of an organisation. The prospects of completing a project rely heavily on the extent to which it receives support from the management of the organisation doing it.

Project managers should follow not only the policies and practices of an organisation but also its work ethics (Wieczorek-Kosmala, 2014; Cormican, 2014; Fraser &Henry, 2007). They should work to their full potentials to execute the tasks within the constraints of time and budget (Sadgrove, 2016; Hopkin, 2017; Pellegrinelli & Garagna, 2009). It is their responsibility to be vigilant while planning a difficult or lengthy project, as well as to initiate and supervise it after it is being put into practice. The external environment of organisations also plays a vital role in determining whether their project will succeed or not (Merna and Al-Thani, 2011; Loorbach, 2010). They should try to alleviate the impact of any uncertainties and risk factors as much as possible (Sargeant, 2010).

To commence a project the organisation in charge has to be officially documented and it should possess the right to implement it. It should delegate the different project responsibilities to people to establish their accountabilities (Yarbrough &Yarbrough, 2014; Eberlein et al., 2014; Filatotchev & Allcock, 2010). There should be people who oversee and administer the project and make sure that it is being carried out in conformity with the organisational goals and objectives.

In case of any problem, they should be sentient and try to rectify it well as soon as possible to avoid time wastage. The people who will perform the assigned duties of the project should also be delineated. These practices will augment the aptness of the outcomes (Musacchio et al., 2015; Too & Weaver, 2013).

Role of Stakeholders in PGRC Success

GRC and PPP were usually viewed as two entirely different concepts and are treated as two different activities (Governatori, 2013). Organisations instead of carrying them out jointly segregated them among different departments and levels of the business. This leads to the creation of mystification and vagueness (Arwinge & Olve, 2017; Agarwal & Virine, 2016). Due to this the communication process gets affected and sometimes the same tasks are repeated unnecessarily which not only wastes time but also leads to the loss of important resources (Spanaki & Papazafeiropoulou, 2016; Sanderson, 2012). The lines of authority also become muddled and people do not know who they are supposed to report to.

Along with advancement of technology and competition in the markets, the business environment is becoming more and more unpredictable and challenging (Recor&Xu, 2017; Turner, 2009). Stakeholders like customers, suppliers, employees, investors, etc., demand more reliability to choose a certain organisation over others. They have many options available, as the number of organisations competing in the same industry is surging rapidly and if they do not find an organisation that is dependable they simply switch to others (Tadewald, 2014; Racz, Weippl & Sewfert, 2010). Therefore, organisations need to integrate PPP and GRC activities to cope with these predicaments. However, this is not as easy as it sounds. The most noteworthy stumbling block is posed by the change in the organisation that it demands to devise and effectually implement a PGRC programme (Artto et al., 2008; Potter & Toburen, 2016). This change requires plenty of effort and time. Managing this change is not an easy task and calls for proper planning and close supervision. The lack of a proper framework that could serve as a guiding tool is also a difficulty (Arwinge & Olve, 2016; Vicente & da Silva, 2011). The costs of bringing and managing this change are another challenge, especially when the management is not sure whether it will reap the sought-after results or not.

To prevail over these impediments, the first step should be to establish a PGRC committee. The members of this committee should be competent enough to develop a risk framework and resolve the accountability gaps within the organisation (Governatori, 2013; Young et al., 2012). This framework would also help the management to make better decisions and to incorporate the information needs of all the stakeholders. It can gain a better understanding of

making its business operations and products or services more effective. The performance management and risk management of the organisation would become aligned and add value to the business.

Challenges of PGRC Implementation

In a successful PGRC model, all the employees working within an organisation endeavour to work to their full potential and support the management in the realisation of the set objectives (Shamsaei, 2012; Butler &McGovern, 2012). They work within the limits of their ethical duties to fulfil the tasks assigned to them. They make informed decisions in their routine work because they have access to the required information (Zuiderwijk & Janssen, 2014; Willson &Pollard, 2012). They also show organisational citizenship behaviour and coordinate with the other employees. They are given the autonomy by their supervisors, who are more like leaders than managers, to choose the best way of getting a task done (Schectman, 2015). Hence, they feel empowered and know that they will be held accountable for doing anything wrong. While the employees and management are the internal drivers, poor focus rendered by concurrent projects in portfolios may bring in a change in the objectives (Governatori, 2013; El Kharbili, 2012). In the public sector, wherein there exists multiple projects and portfolios, it is often seen that there is a slight difference between the strategic objectives of the firms and their portfolio projects. This leads to issues such as a drop in the overall economic value of the firms and lower returns on the investment made as benefits turn intangible (Delport et al., 2015; Williams et al., 2010). Furthermore, decision-making affects projects, programmes and portfolios resulting in poor strategic alignment and compliance issues.

4.3.3 Strategic steps for PGRC maturity

RQ3: What strategic steps should be taken by governments to have maturity on the PGRC?

The main aim of all the different forms of organisations is to flourish and to achieve the monetary or non-monetary targets, for which they are established (Eberlein et al., 2014). They hold their own particular rationales, vision and missions. To reach to those targets they formulate strategies (Delport et al., 2015; Williams et al., 2010). As mentioned earlier, an organisation is subject to numerous external forces that have the power to influence its smooth functioning and processes in numerous ways (de Silva & Sujeewa, 2016). An organisation therefore, assesses its internal strengths and weaknesses, the resources it owns, the current and future opportunities in the external environment that it can avail and the threats that can impede the attainment of its tactical and long-term objectives and tries to liken with its ultimate vision to form strategies (Beasley &

Frigo, 2010; Williams et al., 2010; Artto et al., 2008). These strategies serve as a guideline to an organisation to take steps for maintaining its survival and expanding its business. To devise the strategies, an organisation needs to integrate its different functions and units to acquire the goals as a whole and to avoid any sort of errors (Klakegg et al., 2016; Sense, 2013). It needs to link all of its levels of hierarchy because all of these levels contribute their own individual parts and sometimes a minor mistake in the day to day operations can lead to serious consequences (Morris, 2013; Narayanan & DeFillippi, 2012).

Although a strategy is formulated usually at the top management level, to make the realisation of desired outcomes possible all the different levels should be kept in view (Manab et al., 2010; Shamsaei, 2012). This strategy should also be delivered to them lucidly, so that they know what they are expected to do and in what way. The specific needs and interests of all of them should be tactically dealt with. This technique of incorporating the interests of all the personnel makes them feel motivated. They feel valued and put their efforts to make it happen (Anders, 2016; Hardy & Leonard, 2011; Du &Yin, 2010). The vision of GRC along with the GRS activities directs and further endorses these strategies of the organisation. The measure of the PGRC maturity level of a project determines its current situation, the scope of any improvement in it and its strategies in alignment with this measure (APM, 2011).

4.4 Conclusion

In this chapter, the researcher was able to develop a conceptual framework that consider the various factors of Portfolio, Governance, Compliance and Risk. The frameworks for each factor were presented and then these frameworks were integrated together with their essential elements intact to develop a working conceptual framework. This framework was narrowed down on the elements in order to develop a framework that can be adopted successfully by governmental organisations.

In the next chapter, the basics of the research methodology that has been adopted for the present thesis is explained along with the justification for utilising it. The research design, including the data analysis methods are explained in detail.

5. METHODOLOGY

5.1 Introduction

This section is concerned with the research philosophy of this thesis. It portrays, chooses and legitimises the proper research approach for the work displayed here. Likewise, the setting of regular research strategies utilised in the management zone is considered by focusing on the PPM. The main segment of this section manages research methods of insight, for example, positivism and interpretivism. As an after effect of Section 5.1, the interpretivist methodology was advocated as a proper research approach for this theory. After that, a method of reasoning for the qualitative and contextual (case study) analysis research system is introduced. At that point, the structure for directing the exact work is displayed as empirical research methodology. Finally, the case study (case study) convention is displayed as a change of the observational research procedure. This convention acts as an activity arrangement for data accumulation from case study associations.

5.2 Research Philosophy

Saunders et al (2015) described research as a means of augmenting the quality and context of learning. Similarly, research relies heavily on consistency in associations. For research to be credible, it is a requirement to ensure that appropriate data gathering methods are used to extract and interpret data so as to find answers to the line of research inquiry or questioning (Saunders et al. 2015). The authors also assert that researches in the business and administration domain must be the outcome of hypotheses and empirical evidence. Saunders et al (2015) underline that essential research follows a logic-oriented and scientific approach; and connected research, in comparison, has a down-to-earth perspective. Saunders et al (2015) deem researches to be onion-like having four primary layers: research reasoning, research approach, research strategy, and time skyline. With regard to research theories, there are: Positivism, Critical and Interpretivism. Table 5-1 presents a clarification of these distinctive rationalities of research.

Research philosophy	Explanation
Positivism	There are five standards in positivism (Bryman and Bell 2015): phenomenalism, deductivism, inductivism, objective and logical articulation. Positivism can apply in management through a few structures, for example, suggestions, quantitative variables, theory and concentrating on marvels inside of a particular specimen (Orlikowski & Baroudi 1991)
Critical	Individuals produce social reality in verifiable structure as the basic theory assumes (Myers & Avison 2002). Numerous types of social, social and political forces can affect the capacity of individuals to act against social and financial changes (Myers & Avison 2002). Social evaluation has been seen as the principle assignment for basic research (Myers & Avison 2002).
Interpretivism	Social developments, for example, awareness, shared implications, dialect, reports, devices and different ancient rarities can prompt data of reality as interpretivism. The unpredictability of human sense as the circumstance rises can be exhibited and led through interpretivist research(Creswell & Clark, 2011)

Table 5-1: Different research philosophies

5.2.1 Justification for Research Philosophy Applied

The aim of this work is to propose a conceptual framework for Abu Dhabi government entities to implement Portfolio Governance, Risk and Compliance (PGRC) in their projects, programmes and portfolio. To achieve the aim, detailed exploration of the underlying concepts is required, which forms the basis of interpretivist philosophy and allows the exploration of complex phenomena through the application of qualitative methods.

5.3 Research Design

It is a plan of action that allows a researcher to achieve the research aim. As defined by Saunders et al (2012), a research design plan is based on the development of clear goals that are linked to the research questions, with clarity on the data collection channels, data analysis methods and ethical requirements. In this research study, the research plan is categorised into three stages: research design stage, data collection stage and lastly, data analysis stage. In stage 1, a critical review of literature is conducted in order to identify the underlying factors affecting the development of the PGRC framework in public sector organisations. Based on the factors identified, a proposed model or framework is developed wherein the relationships between the

key areas are presented. In this study, the strategy of research is identified as interview and its justification is stated in section 5.2.1 with the selection of the interpretivist philosophy. In stage 2, which is the data collection stage, the data are collected in two attempts. Firstly, a pilot stage is executed to collect initial responses and test the validity of the interview questions; secondly, based on the inputs received, the questionnaire is corrected/enhanced for data collection from the identified samples. In stage 3, which is the data collection stage, the data are collected through semi-structured interviews which are analysed using thematic analysis. An overview of the research design for this research study is presented in figure 5-1 below.

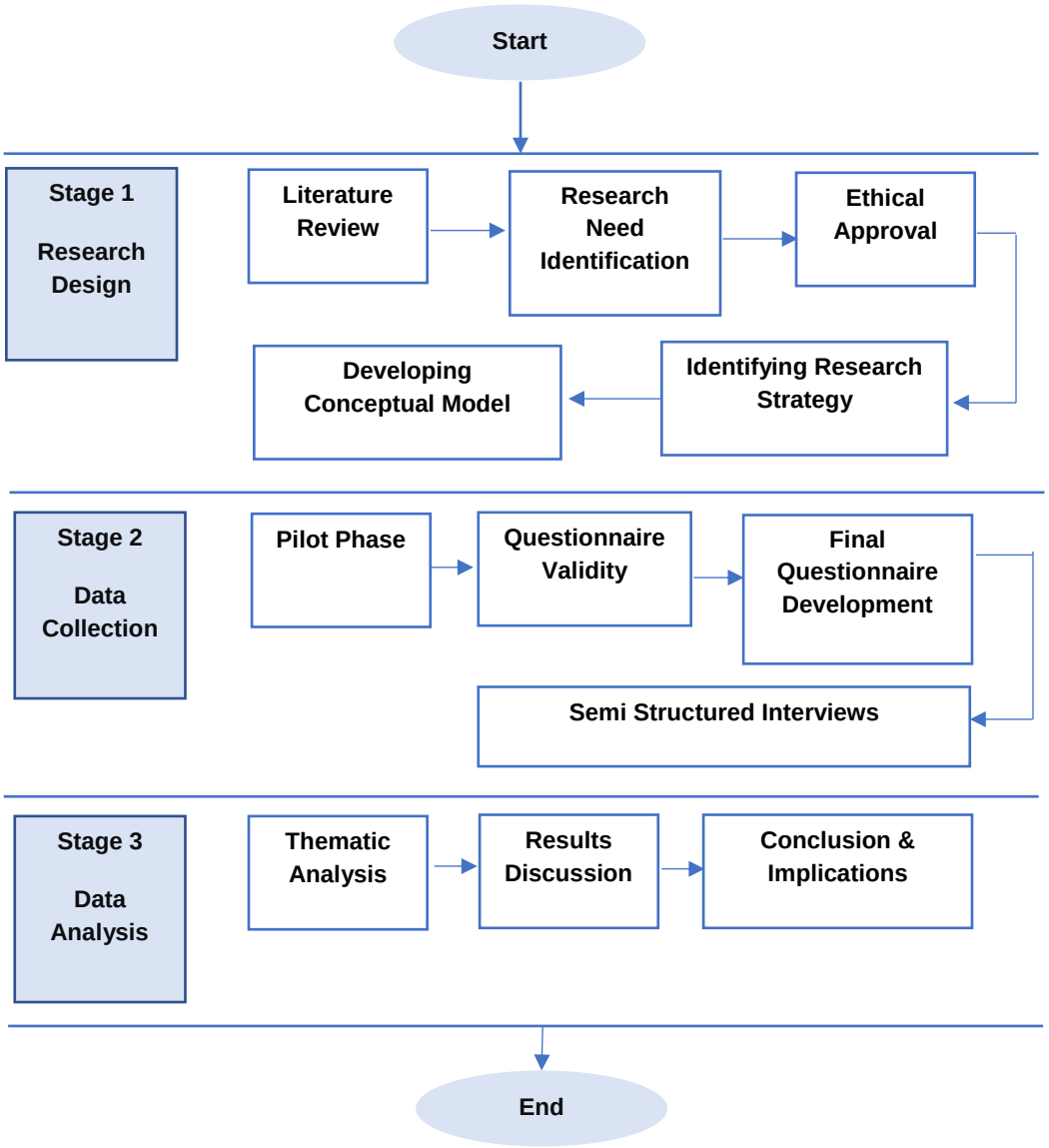

Figure 5-1: Research Design

5.4 Research Approach

5.4.1 Qualitative and Quantitative Research

Analysis of an event via occasions calls for collaboration between several different variables. For example, time, individuals, and culture that affect the phenomenon. Obviously, circumstances can turn out to be contrasting. The unacceptability of applying quantitative research, which cannot consider the distinction between normal science protests and individuals converged amid this research. Also, quantitative research can be utilised as a part of data research when they recognise changes in human conduct, since people impact data frameworks research as expressed by Bryman et al. (2015). This research includes individuals as chiefs who impact the selection and assessment of PPM. In this way, individuals, for example, officials, directors and activities pioneers are included in this study and this demonstrates the propriety of qualitative research. As exhibited in Chapter 1, the targets of this postulation are identified with key administration issues. Thus, the variables of protection and subjectivity are imperative to consider as they influence the vast majority of the data required. This communicates the need of research to consider these components. Furthermore, the research technique chosen must consider the way top administration choices are made, since individual data are coordinated by the hierarchical circumstance. Moreover, inside and out comprehension of the PPM process requires rich experimental data. Bryman et al. (2015) expressed the elements of both quantitative and qualitative research methods as exhibited in Table 5-2.

Dimension	Qualitative	Quantitative
Ideas	Research advancement	Operationalised
Approach	Unstructured, driven and open	Fundamentally determined
Centre	Interfaces occasions, exercises, variables and individual translation	Change in social world by static style
Connection in the middle of field and scientist	Inside and out research by close perspective of the occasion	General with no profound research of subject
Connection in the middle of respondent and scientist	Close and direct contact	Aberrant contact
Discoveries	Profound and rich data	General and particular data with no thoughtfulness regarding time or put, rigid and dependable

Table 5-2: Qualitative Vs Quantitative Research Methods

These components could be favourable circumstances and disservices as indicated by the research inquiry and targets. Therefore, the choice of proper techniques depends on the research inquiry and data. Numerous specialists (Miles, Huberman & Saldaña, 2014; Bryman et

al. 2015) have recommended that the qualitative method includes a greater number of words than numbers. Furthermore, the relationship between the hypothesis and research as the inductive approach utilising qualitative research has been addressed. This is as far as the created hypothesis goes without the research (Bryman et al. 2015). The understanding of qualitative research as an epistemological position is another concern, because qualitative research associates with the social world through research of the elucidation of occasions by members. The qualitative research can be constructionist as far as ontological measurement, since the collaboration between people is the premise for social properties (Bryman et al., 2015; Creswell, 2008).

Pros of Qualitative Method

Creswell (2008) stated that a specialist can comprehend the nature and many-sided qualities of the procedure of a study centre. Qualitative techniques can reflect numerous sorts of research, for example, individuals' lives, lived encounters, practices, feelings, sentiments, hierarchical working, social developments, social marvels and collaboration between countries. There are numerous purposes for doing qualitative research:

- Specialists' inclinations and experience: a few scientists are organised and find it irritable to do such work.
- Nature of the research issue or question: for instance, some people involved in the research may not be able to comprehend the research questions
- Novel comprehension of a given territory: this entails recognising or investigating substantive zones.
- Marvels with complex subtle elements: such occasions include difficulty in utilising more moderate research strategies.

Cons of Qualitative Method

Assarroudi et al., (2018) as well as Sherif (2018) stated that more consideration regarding the procedure of data accumulation is required as qualitative data are normally literary and rich. This might be lost amid translation of the data. Along these lines, the specialist needs to give careful consideration to the following:

- Capacity to control data gathering process
- Capacity to deduct required data
- Capacity to rehash required data for triangulation
- Capacity to sum up.

Sherif (2018) and Creswell (2008), regarded the investigation stage as one where rich and multifaceted data can be differently deciphered. This could prompt a specialist's inclination. They also perceived controlling perceptions and findings associated with acceptance and changing so that the research objectives can be influenced by the circumstances surrounding the data accumulation process. This change could be created by element cases.

5.4.2 Justification for selecting Qualitative Research

There are various factors that ought to be considered while using qualitative research methodology. The most essential of these is that qualitative research can help us to comprehend any issues we do not know much about (Goodyear, Barela, & Jewiss, 2014; Guba & Lincoln, 2011).

- Qualitative research is suitable for the problem statement stated in Chapter 1; that is, it is contingent upon the dominating government methodologies and regulations. This means different issues can arise in the aspects of inadequate advantages, vested political side interests, imaginative progression, streams of data, structures of correspondence and cash related inconveniences among different confinements. We can use qualitative research to get perspectives and conclusions of various things that we do not know much about, or to get internal and external data, which are hard to get with quantitative techniques. Data in qualitative research are gathered by having meetings with people, through record research, or perception. In this way, gathering of data takes quite a while. The qualitative methodology obliges us to utilise fewer specimens as gathering of data takes quite a while. However, the data obtained in this work are precise, inside and out, and centralised.
- Qualitative research is chosen as it is concerned with the suppositions, perspectives and proposals from human experience and internal sentiments of people. Qualitative research technique is particularly critical in giving definite clarification, translation and clear comprehension of any issue. It helps us to investigate and comprehend issues from new perspectives and viewpoints and is completed by people.
- As organisational management operates as a solitary unit, organisations rely upon each other for resources to carry out their tasks (Neverauskas & Ciutien 2011). This is one of the problems stated in this paper. The methodology that portrays the phenomenon as it seems to be precisely is qualitative research. The fact is discussed in section 4.3. This means qualitative research utilises data to fabricate and create ideas and speculations that help us to understand a new concept. It is an inductive style of building and creating

hypotheses. Quantitative methodology, on the other hand, attempts speculations that both exist and are proposed. It is a deductive style. Quantitative research can mirror various sorts of examination; for instance, people's lives, lived experiences, emotions, slants, progressive work, social improvements, social wonders and coordinated effort between nations.

- Qualitative research is the most appropriate because specialists plan to comprehend the selection of PPM through the general population who work in it. Thus, answering the problem statement encompasses a broad assortment of business undertakings, which consolidate protection, accounting, IT, information transfers, counselling, building, social and development administrations (Lerch & Spieth, 2013).
- To put it plainly, PPM is appropriate in its multi-faceted characteristic state. This likewise urged the creator to gain from genuine appropriation of PPM. The specialist's point is to think about the selection of the PPM process top to bottom, which is mind boggling, and the qualitative research underpins the scientist in leading the appropriation of PPM through "where", "what" and "why" questions. Hence, qualitative research ought to be appropriate for the problem statement, according to Creswell (2008), who said that the crucial centre of value is for an organisation to meet its partners' requirements (Martinsuo 2013; Neverauskas & Ciutie 2011).

5.5 Research Strategy

Prior to implementing interpretivism method as the rationale governing this research, and implementing the qualitative research method (see Sections 5.2 and 5.4), this section aims to provide clarity on the research strategy that is suitable for this work. There are different research strategies, as defined by Miles et al., (2014), used in social sciences. These include surveys, case studies, histories and archive analysis. The selection of a research strategy is based on the research questions and the effect the researcher has on the events during investigation. These strategies can be identified as either inductive or deductive classifications. In this section, the attempt is to review the use of case study strategy and why it is suitable for this research.

Saunders et al. (2015) define case study as: "*An inquiry empirical in nature and investigating a contemporary effect in relation to real life application specifically where there is lower clarity on the boundary between an event and context*". Furthermore, Bryman et al., (2015) indicate case study is not used to for validate hypothesis through statistical analysis, but to develop a constructive process in the context being examined.

5.5.1 Justifying the Use of Case Study Research

The case study is considered as a suitable strategy to analyse a phenomenon broadly in its regular circumstance. This is through applying numerous techniques, for example, meeting, perception, composed materials and accumulation of various substances to gather the required data (Yin, 2009). Thus, there is a need to answer inquiries of why and how by utilising interviews and other data gathering techniques. It is likewise vital to comprehend components that identify with PPM reception and assessment, to answer the *what* question. The specialist must invest energy in 'the field' to comprehend the issues at hand (Cornford et al., 2005; Rosemann et al., 2008). As specified in Chapter 1, the fundamental target of the observational part of this research is to consider PPM appropriation and assessment. At the end, a research is required; in as much as profundity could be expected, in matters where administrators really consider the significance of PPM. This is refined by applying diverse data gathering techniques as approved in Section 5.4.1. Numerous attributes have been expressed for contextual analyses. Table 5-5 presents these qualities. A case study approach is the most appropriate chosen research strategy. The reasons for this with reference to each objective are depicted below:

1. To provide a brief audit of the different musings and perspectives of PPM and how to execute it to bolster the government in applying GRC and taking decisions; to mull over the philosophical presumptions and methodological contemplations talked about in the above areas. The case study approach for this examination appears to be the most proper. Yin (2009) depicted a case study as a system that permits the specialist to examine a concept inside of its environment, defining when the limits between the concept and its connection are not obviously clear. It leaves an open window to audit different thoughts and how these could be better executed in order to help the government in its decision-making. It has been contended that case study research is the most comprehensively qualitative research to choose in data frameworks research (Jackson and Bazeley, 2019).
2. The second objective of this thesis is to examine and review the variables affecting PPM in the setting of GRC and decision-making. The motivation behind this examination is to comprehend and look at a phenomenon (i.e. exertion of data partaking in GRC) that is limited by a socio-specialised setting and is affected by a few ecological, authoritative and mechanical elements. It endeavours to give an account of what government offices are going through before offering data electronically with their internal colleagues. Remenyi et al. (1998) underlined that case study investigations are a standout amongst the most suitable ways to give a clarification of the researched marvel; furthermore, they help in comprehending the subject being studied and its encompassing surroundings.

3. The thesis also seeks to critically explore and look at the stages that administrative associations reach while PPM is undertaken. It will also determine the qualities and the importance of the PPM in connection to investment stages that can bolster the general decision-making process in legislative elements and GRC. It can be contended that the exertion of PPM has not been explored in GRC and there is exceptionally restricted exploration looking at decision-making processes with respect to legislative elements in an arranged joint effort environment.
4. The thesis presents a conceptual system advancement for PPM support in GRC, which comprehensively states past destinations. To place a case study in context and legitimise this system as the most fitting method for leading this examination, it is helpful to contrast this technique with other related procedures typically utilised.
5. Having defended the utilisation of case study systems in this thesis, it is fundamental to choose whether single or numerous cases ought to be embraced so as to increase adequate knowledge of the phenomenon.

5.5.2 Case Study Type

Numerous types of contextual investigation are used, for example, exploratory, clear and illustrative as highlighted by Yin (2003). The research inquiry is the integral component while considering the demarcation between the types. Based on this characterisation of the case study sorts, this research deems the exploratory contextual investigation as a suitable choice. This is on account of the emphasis on the inquiries *what*, (for example, what are the elements that affect the appropriation of PPM), and *how*, (for example, how do we include PPM in creating business methodologies) in leading this research. Thus, new ideas of PPM are characterised and created, and these support the hypothesis and the case for extra research.

5.5.3 Single or Multiple Case Studies

The research system for the contextual investigation could include single or numerous cases. The determination of which should be connected for the research is imperative before gathering the data to handle the research question. A full picture of hierarchical arranging changes and appropriation and assessment of PPM could be delineated by a single case study, as it supports rich data accumulation in an authoritative setting. Yin (2009) recommended that selecting a solitary (single) case study is mostly used when:

1. It speaks to a basic case for testing a very much figured hypothesis (i.e. it meets every one of the necessities for testing a hypothesis).
2. It speaks to an amazing or a special case.
3. It is illustrative (i.e. catching the circumstances and states of ordinary or typical circumstance).
4. It is impactful (i.e. exploring a wonder that was beforehand out of reach)
5. It is longitudinal (i.e. researching the same single case at two or more distinctive time period).

Based on the research question about the reception and assessment of PPM, the researcher would not want to use a single case study for two specific reasons.

Firstly, to defeat the changed environment of key arranging in various associations and in addition to distinctive businesses. This prompts the second reason, which considers the replication strategies that support the created calculated structure (Chapter 3). Since the contrast between the strict replication (the comparable elements for PPM for numerous situations) and hypothetical replication (the unique components for PPM in various contextual investigations) can be expressed by analysing PPM in various commercial enterprises.

As it is, relying on the use of just one case study would not yield desirable data outcomes to support the selection and evaluation of PPM. Subsequently, the different contextual investigation procedure is a more proper fit for this proposal. The proof would be all the more convincing, and it would build the strength of the general study (Yin, 2009). Bryman and Bell (2015) found that using another case study method is typically associated in research of business and administration. In any case, broad assets and time would be expected to lead various case studies (Yin, 2009). In this way, the significance of the quantity of cases unmistakably should be adjusted with the research inquiry and its data necessities.

According to Jackson, and Bazeley (2018)'s assumption, the different case numbers must be above ten or not below four. Relatively, Castleberry and Nolen (2018) conducted another study and proposed that the number of case study investigations should not exceed five. Because of the research address, this proposition embraced two worldwide associations that are included in the PPM process. Nonetheless after all, the case study numbers were restricted to two because of distinctive businesses for request, constrained access since data are private at a vital level, and for future work to take account of diverse commercial ventures as well as diverse associations in the same business.

5.6 Investigational Research Methodology

From Sections 5.4.1 to 5.4.3, the justification for various cases was identified, and hence it emerged that empirical research methodology is the most appropriate to use. Numerous concentrates, for example, those by Yin (2009), Saunders et al. (2015) and Bryman et al. (2015) support identifying these systems earlier directing the contextual investigations. According to Jankowicz's (2005), on three phases ought to be executed in qualitative research. The phases are: research outline, case study data accumulation and data investigation. The researcher considers the above phases as perfect for the current research and Figure 5-2 presents these stages based on this research question.

The motivation behind this segment is to portray distinctive phases of the observational examination completed in this postulation. One state of mind about the stages in observational exploration is to envision the procedure as the purported "research wheel"; that means the examination is not direct but rather a recursive cycle of ventures over a given timeframe (Rudestam &Newton, 2007).Investigating the regularising writing demonstrates that the exact number of stages changes, however, they correspondingly take after the view of the warming-up and arrangement stage, extending activities and into the chilling off stage (Janesick 2000). The exploration process received in this proposal depends on three stages created by Jankowicz (2005) (Figure 5-2).

Figure 5-2: Stages of exploration process

These stages are delineated in Figure 5-3 and will be clarified in the following areas with objectives alignments.

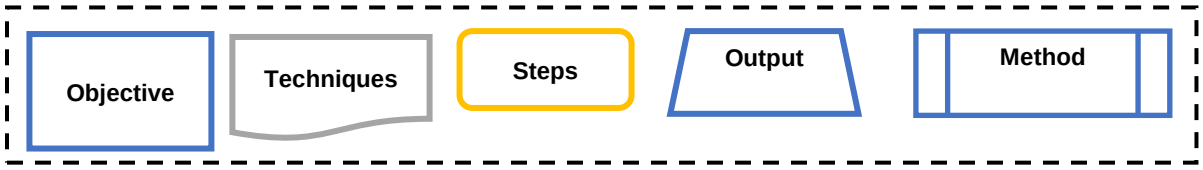

Figure 5-3: Research Process Symbols

Figure 5-4 below presents the groupings of empirical research methodology process

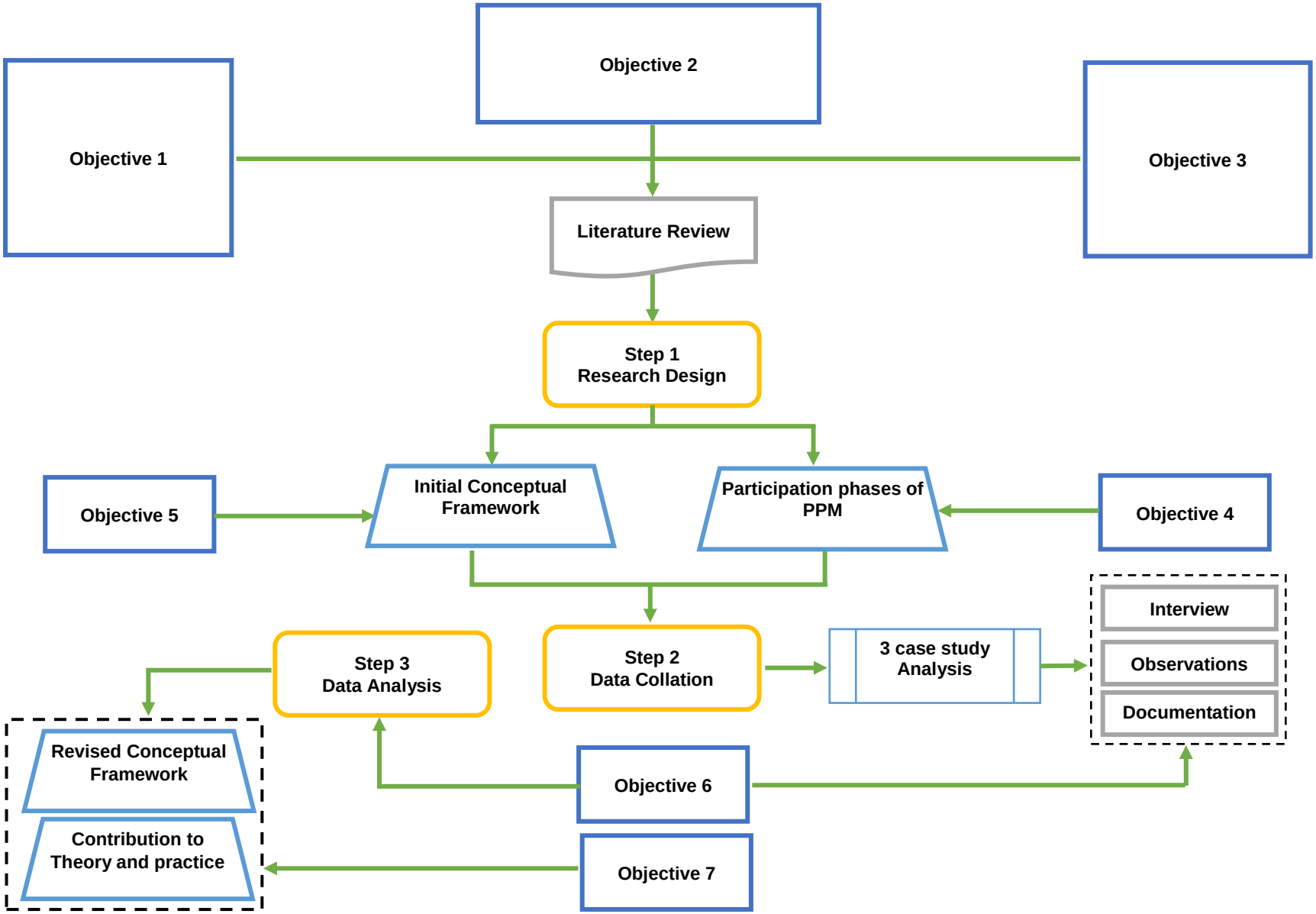

Figure 5-4: Research Process

5.7 Data Collection

The second phase of the research procedure entails data gathering. In this stage, different kinds of data gathering strategies are used as part of directing and executing the contextual analyses. For the purpose of data collection, a set of different strategies such as authentic case studies and verifiable reports are used (Yin, 2009; Bryman et al., 2015). Yin (2009) also adds that various evidence offshoots of the research topic can also be used. Sources include verifiable documentation, authentic records, interviews, perception and physical antiquities. It is important to note that the sources used for this current research have both traits: advantages and disadvantages in context of situational investigation. Table 5-3 lists the strengths and weaknesses of the data sources used for evidence purposes in this research.

5.7.1 Sampling Strategy

In a research study, it is very important to identify the sampling strategy. It involves identifying the target population, taking a sample (portion), making observation and generalisations (Bryman et al., 2015). In this research study, the target population identified is public sector organisations in Abu Dhabi Emirate, UAE. As it is difficult to include all public sector organisations in the Emirate, primarily because of time, constraint as well as limited, budget and effort, a small sample is considered with limited cases. This selection helps to save time, increases the efficiency of our budget and also increases the data accuracy and relevancy to the research questions. There are two types of sampling strategies: 1. Probability and 2. Non-probability. Probability, as defined by Saunders et al (2015), includes simple, cluster, stratified and systematic types and is based on the principle that each case in the population has equal chances of being selected for the research. Unlike probability, non-probability sampling eliminates the strategy of chance in the form of types: quota, convenience, and snowball.

5.7.1.1 Justification for Non-Probability Selection

In this research study, the sampling strategy selected is non-probability, convenience sampling specifically. Through the section, the researcher was able to use his time, effort and budget allocated efficiently. Unlike the other sampling strategies, convenience sampling is the least costly and highly flexible. It offers the research access to the cases that are purposely selected for this study.

Wellsprings of Evidence	Qualities (Yin, 2009)	Shortcomings (Yin, 2009)	Occupation of sources in this thesis
Documentation	• Stable can be looked into more than once. • Inconspicuous – not made as an aftereffect of the contextual investigation. • Exact–contains definite names, references and points of interest of the occasions. • Wide coverage–long range of time, numerous occasions and settings.	• Low for Retrievability • Biased selectivity, if gathering is inadequate. • Reporting inclination reflects (obscure) predisposition of creator. • Access - numerous be purposely blocked.	• Reports from the contextual analysis (case study) associations under scrutiny. • Reference material from the contextual investigation associations and different sites. • Different productions, for example, leaflets. Daily paper and magazine articles.
Interviews	• Focused on concentrates straightforwardly on contextual analysis point. • Clever gives saw easy-going surmising's.	• Inclination because of inadequately built inquiries. Reaction predisposition. • Errors because of poor review. • Reflexivity-interviewee gives what questioner needs to listen.	• Organised meeting • Semi-organised meeting • Unstructured meeting
Participant Observation	• [Similar to above for direct observation]. • Bits of knowledge into interpersonal conduct and thought processes.	• Inclination because of specialist's control of occasions.	• Clear cooperation with orchestrated meeting between various gatherings of members.

Table 5-3: Summary Design of Data collection

5.7.1.2 Sample Size and Selection criteria

The fundamental goal of this study is to display the status of data partaking due to the necessary requirement terms of auditing the distinctive insights and point of view of PPM and the strategy for executions to bolster government in their GRC and decision-making. To break down and analyse the issues affecting the decision-making in a PPM system, three nearby powers were chosen as the case associations to be inspected.

These associations were chosen to address the target of this study for the following reasons.

- **Diversity** – There are three different entities i.e. the case government entity from utilities, case entity from infrastructure developments and case study entity from utility services. This diversity expands the scope of responses collected to address the research question and achieve the aim of the research.
- **Large-scale** – Given the nature of this research area, it is a mandatory inclusion criteria to consider large scale organisations (cases). Hence, the three selected cases are large scale organisations (public and private) that have applied PPM and GRC concepts in their respective workplace.

5.7.1.2.1 Case Study 1: Government entity from utilities

As issues, for example, political perspectives, money, IT establishment and society are diverse; it is intriguing to look at how they respond to the thought of PPM with comparable authoritative structures. Ultimately, since this exploration concentrates for the most part on sharing sensitive data, relatively few government representatives were pleased to share their perspectives, encounters and maybe any disastrous histories regarding governance. This has brought about a set number of associations chosen. The status of the coordinated effort prior and then afterward the usage of the venture and diverse parts of how it works will be exhibited in detail in the following chapter.

Meetings and report investigations have been apparently a more grounded data gathering strategy in the literature than interpretive contextual analyses (Silverman, 2010). This work depends on meetings for interpretive qualitative data gathering and uses other available auxiliary sources; for example, documentation investigation, members' perceptions and sites. Clark and Veale (2018) propose that the meeting is an up-close and personal interpersonal experience intended to evoke answers to the research theories. It permits considering the activities, occasions and understanding of the members, giving more meaning to data gathering (Assarroudi et al., 2018).

Meetings were used as the primary method of data collection for this current research. Because an interpretive philosophical methodology is used as the basic premise of this research, it is established that meetings were the most credible and suitable data gathering source. The meeting strategy makes note of: the activities and occasions that members face during the meeting time, their elucidations, the research members' perspectives and the targets of different members (Assarroudi et al., 2018). According to Clark and Veale (2018), a meeting is an interpersonal dialogue between two or more parties that is designed and aimed to extract answers interlinked with the research's line of inquiry and assumptions. Meetings are dynamic and can be accomplished via usage of device. In terms of the usefulness of meetings, Clark and Veale (2018) confer that meetings enable the participants to analyse the activities taking place in their surroundings. Meetings are also useful because they facilitate direct verbal interactions, and therefore they are suitable when discussion about complex issues is required. There is increased responsiveness and cooperation between the interviewee and interviewer.

5.7.1.2.2 Case Study 2: Government entity from infrastructure developments

Infrastructure developments are another case wherein interviews are adopted, in order to collect opinions from people involved. Observations are another means to record the utilisation of various infrastructure developments and their impact. Distinctive sorts of public–private organisations have been polished in foundation improvement in both created and creating nations with various results. From one viewpoint, numerous ventures in a wide scope of divisions have been effectively created through various organisations. These incorporate streets, spans, ports, airplane terminals, railroads, power, water supply, waste transfer frameworks, telecom systems, different data technology administrations, schools, inns, healing facilities, penitentiaries, and even military offices.

There are diverse numbers of meetings for the situation examined in this research. This identifies with the chance of gathering the obliged data to bolster the research question for each situation. Furthermore, the quantity of meetings was due to numerous reasons. Firstly, the research centre considers particular units where not everybody can give the fundamental data to the research. For this situation, a facilitator from every contextual investigation was approached and met. These organisers were senior administration staff (colleagues to CEOs) because the research question required abnormal state data administration. They indicated those workers who could give the data to the research. This was after discussing the research business proposition with both organisers. Furthermore, the data were gathered until new sources could no longer increase the value of the research question. After the key purposes of the research was known,

a discourse of various inquiries with the facilitators was done keeping in mind the end goal to decide the key witnesses inside the association, as specified before.

At that point, they were approached to check accessibility, and meeting times were planned. The facilitators prepared the inquiries and made clear the meeting plan. The interviewees assumed an essential role as chiefs through the key arranging process, since they were occupied with the appropriation, assessment and usage of the PPM process. This supported the comprehension of the PPM phenomenon in both cases.

5.7.1.2.3 Case Study 3: The case study in Utility Services

The board is one of the biggest committees in the nation that serves many individuals, covers a larger zone and utilises more staff giving a scope of key open administrations, including among others instruction administrations, social case administrations, property, highways, arranging and decline accumulation. As a major aspect of the government, real change for utility services is to guarantee that evaluation, arranging and choice making would prompt great results for citizens in need and their families. The key reason for the government was to give cutting edge staff and administrators with the important offer, upheld by an electronic case some assistance to record, order, dissect and yield the data required. A few offices needed to partake to nourish:

a. The essential data in any case and
b. Case-based data all through the administration conveyance.

The structure of the between departmental joint effort and how the task was up and running will be introduced in the following chapter.

Interviews thus play a vital role eventually in the stream to analyse various utility services performances. According to Clark and Veale (2018), interviews permit the specialist to discover how members think or feel by inspiring organised or unstructured inquiries. Besides Silverman (2010) clarifies what constitutes a meeting: any verbal affirmation or disconfirmation of perception, any formal or casual or easy-going responses to the inquiries postured to the members. This permits the gathering of data in the most common habitat and consistent with the implications appended by the member in terms of the issue under scrutiny. Being available in the same environment, the members are given the chance to feel, watch and comprehend the connection exactly the same way. The principle point of leading meetings is to suggest direct verbal conversation starters to the members; there are diverse methods for leading meetings: up close and personal, voice to voice, screen to screen or individual to centre gathering (Clark and Veale, 2018; Assarroudi et al., 2018). The configuration of the meeting can be pre-composed which incorporates an arrangement of inquiries to be asked, time distribution to every inquiry and sorts

of scrutinising, all as indicated by a set need. There are three types of meetings organised, unstructured and semi organised meetings (Roller, 2015; Abdalla et al., 2018). The major separating element between the sorts of meeting is the inquiries and need as far as centre and timings. In any case, Clark and Veale (2018) recommend that there is no ideal time for completing meetings. Organised meetings concentrate on foreordained, outlined and particular inquiries, which the specialist entirely holds fast to. Unstructured meetings are casual meetings that are coordinated by the scientist at the season of the meeting and no pre-characterised particular inquiries are postured to the member.

This empowers more noteworthy comprehension. Interviews empower organising of essential issues. Along these lines, the interviewer can invest more energy in essential issues (Ngozwana, 2018). There are three sorts of meetings, to be specific organised, semi-organised and unstructured meetings (Clark and Veale, 2018). The most critical distinction between them is the way of the inquiries. This implies they are influenced by elements, for example, centre, need and noting time. Abdalla et al., (2018) reported that there is no ideal length of time for directing meetings.

All the critical matters of PPM considered in Chapters 3 and 4 were expressed in the meeting plan. In this way, the issues considered in the Agenda are spread in more than two areas:

1. General Data: in this part, broad data about the association under scrutiny were gathered. They are: number of workers inside of the association; centre business of the association; way of the association and, being a worldwide business, number of auxiliaries and, specialty units inside of the association. In all, a few issues, for example, the kind of people, states of the association and general data about the PPM ventures were overseen by the interviewer. Such data were gathered through open-finished inquiries, so the interviewees had time to consider their reactions. This sort of inquiry is known as the semi-organised meeting. Vital arranging data: here data on data frameworks arrangements and their variables were gathered.
2. The organised meeting was the fundamental for the wellspring of data for the motivation, while semi-organised and unstructured were utilised as required. This means the specialist used organised inquiries for the motivation, while semi-organised inquiries were used to clear or examine any focuses in the meetings. The semi-organised inquiries considered issues that were not expressed in the meetings' motivation. Unstructured meetings occurred during break or out of the workplace. These unstructured inquiries did not record all things as the considered researches were not on the motivation, and on the

grounds that they based on issues like aspiration, work fulfilment etc. Then again, both organised and semi-organised were tape recorded and interpreted. This procedure of recording and interpreting helped the examiner to concentrate on saving so as to gather the data time for both the interviewees and interviewers. As the interviewees were in senior administration positions, their time was restricted. Table 5-4 shows the summary of data collected from various perspectives.

Case study	Type	Interviewee position	Interviewee syncopate	Type of Interview
Case Study # 1	Government entity from utilities	CEO	CEO	Email/Face to face
		PMO Head	PMO	Email/Face to face
		Department Director	DD	Email/Face to face/Telephone
		Portfolio Manager	PM	Face-to-face
		IT and Information System Director (Portfolio Management Software leader)	IT	Email/Face to face/Telephone
		Enterprise Risk Manager	ERM	Face-to-face
		Internal Audit Manager	IAM	Face-to-face
		Employee dealing with Portfolio and PPM / PMO	Employee	Face-to-face
		Strategic Planning Director	SP	Face-to-face
Case Study # 2	Government entity from infrastructure developments	CEO	CEO	Email/Face to face
		PMO Head	PMO	Email/Face to face
		Department Director	DD	Email/Face to face/Telephone
		Portfolio Manager	PM	Face-to-face

		IT and Information System Director (Portfolio Management Software leader)	IT	Email/Face to face/Telephone
		Enterprise Risk Manager	ERM	Face-to-face
		Internal Audit Manager	IAM	Face-to-face
		Employee dealing with Portfolio and PPM / PMO	Employee	Face-to-face
		Strategic Planning Director	SP	Face-to-face
Case Study # 3	Government entity from utilities services	CEO	CEO	Email/Face to face
		PMO Head	PMO	Email/Face to face
		Department Director	DD	Email/Face to face/Telephone
		Portfolio Manager	PM	Face-to-face
		IT and Information System Director (Portfolio Management Software leader)	IT	Email/Face to face/Telephone
		Enterprise Risk Manager	ERM	Face-to-face
		Internal Audit Manager	IAM	Face-to-face
		Employee dealing with Portfolio and PPM / PMO	Employee	Face-to-face
		Strategic Planning Director	SP	Face-to-face

Table 5-4: Summary of data collection

5.7.2 Interviews

There are three types of interview exist: 1. Structured, 2. Semi-structured and 3. Un-structured (Saunders et al., 2015). For a research study that is designed with an interpretivist outlook and case study strategy, qualitative interview instrument can be used to collect *detailed descriptive responses from the real world to interpret the phenomenon being examined*. A structured interview is quantitative in nature and is primarily self-administrative. This means the researcher has no role to play during the data collection. On the other hand, unstructured and semi structured interviews are qualitative; the former rely on informal conversation while the latter is flexible as new questions may emerge based on the responses received from the participants.

5.7.2.1 Justification for Selecting Semi-structured Interview

In this research study, the data collection instrument selected is semi-structured interview. Given the interpretivist nature of this study, the selected instrument allows feasible collection of responses with a flexible degree of personalisation. It aids the researcher in identifying the underlying assumptions and beliefs of the respondents from the case studies, along with the rationale (Saunders et al., 2016). Also, it helps the researcher to strike a balance between structured and unstructured interviews. This would enable the interviewer to ask deep questions in areas of interest in order to obtain new information (Bryman et al. 2015).

5.7.2.2 Sample size and Selection Criteria

The sampling strategy selected in this work is non-probability for the semi-structured interviews; specifically, convenience sampling is applied. It is chosen because it is less costly and highly flexible, as it gave the researcher the time and convenience to approach the respondents who provided suitable information to achieve the research aim. To obtain higher quality data, it was essential to collect data at three levels: senior management, managers and associates, as explained in detail in Table 5-4. The selection criteria used for the study respondents are given below:

- Respondents that can apply PPM and GRC systems with minimum 10 or above years' experience in either public or private sector are included in the study
- Those who are part of a large-scale organisation are included.
- Respondents that make strategic decision, involve in enterprises' risk management and portfolio management are included.

Based on the above selection criteria, the most probable designations that are suitable for the semi-structured interview were researched and identified as the following 'Nine" positions. These nine positions were identified by consulting industry experts in UAE that deal, engage, interact or use systems related to PPM and GRC. It may be noted that these positions are common position names and the title may or not differ across different organisations. Hence, the aim was to find at least '1' employee with the identified job position or similar job role for the semi-structured interview.

- CEO
- PMO Head
- Department Director

- Portfolio Manager
- IT and Information System Director (Portfolio Management Software leader)
- Enterprise Risk Manager
- Internal Audit Manager
- Employee dealing with Portfolio and PPM / PMO
- Strategic Planning Director

5.8 Data Analysis

Data investigation is the third stage in experimental research. The case studies generated via observational data analyses were duly triangulated. Because qualitative data are typically not number-oriented, there is a risk that the investigative analysis may not be well-structured and formulated (Miles, Huberman and Saldaña, 2014; de Sousa et al., 2019). Resultantly, the research requires for the researcher to correctly discern the words and activities of the respondents involved. Michael (2018) characterised qualitative data research to be comprehensive exercise that includes: data sorting, assembling the data into understandable units, tracing examples, collection and removal of data base of value, credibility and usefulness, and choice of reporting style and formatting. For this current research however, the researcher has used Nvivo programming for qualitative data analysis in order to augment the quality of the data produced (via coding). Post data analysis, the extracted data were drafted using the inductive methodology to derive evidence for this research. Subsequently, the data were used to establish observation proof report which supported the selection and assessment of PPM model (Figure 5-5).

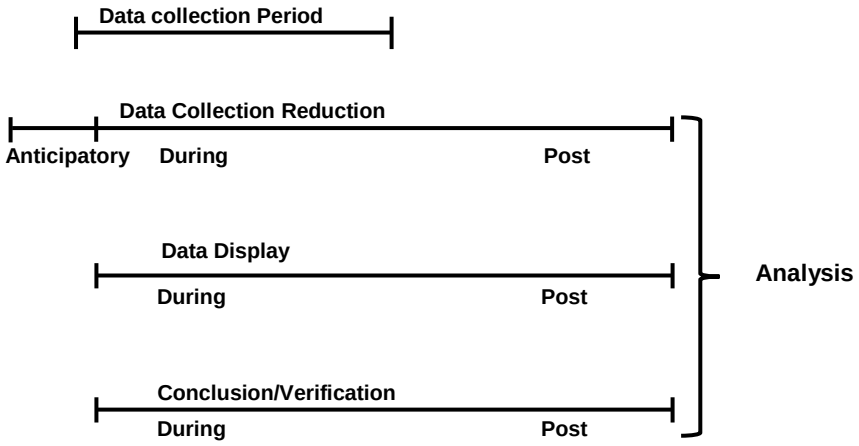

Figure 5-5: Components of Data Analysis: Flow Model

Source: Miles and Huberman, 1994

5.8.1 Data reduction

Data lessening is a ceaseless procedure that begins before the data are really gathered and proceeds until the last yield of the research is introduced. While aggregating the writing audit and outlining the calculated system, data decrease is occurring in the research process. As indicated by Michael (2018, p.25), "data decrease is the procedure for selecting, centring, rearranging, abstracting and changing the data that show up in reviewed field notes or translations." Data coding used to lessen is mostly done by forming topics from data gathering, abridging or design coordinating (Miles, Huberman and Saldaña, 2014). In this study, the scientist has embraced coding plan in light of the calculated system segments. This aids in arranging and extricating the right data from the huge piece of data into important classifications. By applying theoretical system to decrease the data it is consistent with what Yin (2009) proposed, which is to utilise the hypothesis and all-around organised research intended for data gathering and investigation. Accordingly, the study connected a theoretical system and research inquiries to infer the topics for the data lessening stage. Taking care of a lot of data can be a bulky and complex undertaking.

5.8.2 Data display

Data presentation is the second part of the data research. It is the condensed and very much composed type of data taken from an extensive lump that can produce important conclusions. It permits the user to comprehend what the specialist knows and what is occurring and gives to the examiner an unmistakable picture for reaching inferences. According to Yin (2009), utilising contextual investigation inquiries to create classifications, including scientific categorisations, and withholding topics, which is the best way. The latter is embraced in this study. Data showcase can be performed through creating grids, diagrams, outlines and systems (Michael, 2019). In this study, the responses to the case study inquiries are specifically and adroitly shown; a grid approach inside and crosswise over cases was used for the relevant and practical level components. Besides, an iterative procedure of data showcase and research was done to discover relations, correlations and any re-investigation prerequisites (Miles, Huberman and Saldaña, 2014). It is once more data diminishment since the data are broken down; those found to be helpful and essential for showcasing are kept while those not useful are removed from the presentation. This stage is like the past phase of data diminishment; however, in data showcase, categorisation entirely holds fast to the research questions.

5.8.3 Verification

The last phase of the data investigation is reaching inferences and confirmation. From the beginning of the data accumulation, the analyst gathers data to concentrate relations, examples, clarifications, and suitable recommendations. Equipped scientists hold these conclusions delicately; the conclusions to be drawn, which are inchoate and ambiguous at the beginning are progressively expressed and grounded skilfully (Michael, 2018). Design coordinating depends on the basis of coordinating hypothetical expectations of the study to exact discoveries that have been proposed as reinforcing the inward legitimacy of the contextual investigation by Yin (2009). Other than the example coordinating strategy a few miniaturised scale activities were completed to set up hypothetical lucidness.

Utilising a product bundle to compose a careful and straightforward investigation of observational data has been proposed by numerous analysts (Creswell, 2008, Miles, Huberman and Saldaña, 2014). This study utilised Nvivo programming to build pace, quality and better representation of data. It permitted sorting out semi-organised meetings, to make straightforward codes both deductively and inductively, and return to the data for better quality research. It additionally helped to deliver graphical representations of the investigation, which are available in Chapter 5 of this proposal. Nvivo programming helped in focusing on suitable pieces of data; henceforth helped in proper diminishment of data procedure. Notwithstanding, choice making, understandings were fundamentally done by the scientist.

5.8.4 Within and cross case analysis

To fortify data research, this study considers inside and cross case investigation. As for the inside case investigation, the research analyses hypothetical forecasts and casing of reference while for the cross-case research, amalgamation system is utilised to discover similitudes and make a powerful comprehension through cross case correlations (Yin, 2009; Miles &Huberman, 1994). Keeping in mind the end goal for doing such, level 2 questions are utilised for the inside case investigation as these try to break down data inside the case with reference to the hypothetical discoveries. Cross case investigation is directed utilising level 3 questions as specified in segment 4.6 (case study convention). Discoveries from the responses to level 3 questions lead to research with hypothetical underpinnings in this research.

5.9 Triangulation of Data

Critical research discovery issues such as authenticity, quality and legitimacy ought to be looked at in interpretive research. It implies accepting the outcomes and triangulation. Four types of triangulations are prescribed by Yin (2009) (Figure 5-6):

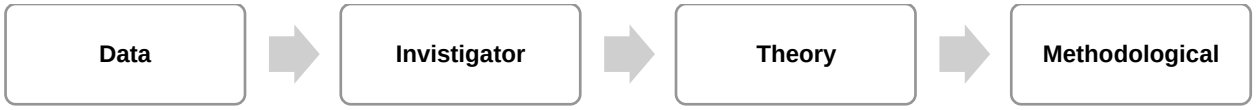

Figure 5-6: Four sorts of triangulations

Data triangulation essentially is the practice of accumulating data through different outlets (sources). Examiner triangulation is when more than one researcher is involved in the research process. In Hypothesis triangulation, a data set is accumulated and deduced from different data sources (varied viewpoints on one kind of data). Lastly, methodological triangulation is accomplished by using different data analysis strategies to examine certain kinds of data. In relation to this subject, Janesick (2000) and Baskerville et al. (2002) state that interdisciplinary triangulation focuses on examining issues which are regulated by multiple sources (Table 5-5).

Organisation	Type of triangulation	Source
Case studies 1,2,3	Data	Documentation
		Archival records
		Interviews
		Observations
		Physical artefacts
	Methodological	Documentation
		Archival records
		Interviews
		Observations
		Physical artefacts
	Interdisciplinary	Information Systems
		Strategy
		Management
		Culture

Table 5-5: Types of data triangulation in this study

5.10 Case Study Protocol

The case study convention expects the case research to have unwavering quality and data should be gathered from a solitary case study by the specialist, regardless of the fact that the case is

part of numerous cases. There are numerous purposes behind the contextual investigation convention. They bolster the specialist (Yin, 2009):

- To concentrate working on this study subject and to direct the contextual investigation rigorously.
- To characterise issues, for example, the crowd, members, fundamental data and time before beginning the experimental work.
- From the contextual investigation convention strategies, Yin (2009) and Maimbo et al. (2005) tended to the significance of the case study addresses and clarified the limits. These inquiries mirror the specialist's genuine line of request.
- On account of the study addresses, the contextual investigation convention comprises: a review of the contextual investigation venture, field strategies, case study inquiries, and direction for the contextual investigation report (Yin, 2009; Maimbo et al. 2005).

5.10.1 Overview of the Case Study Portfolio

The primary aims of this research are to contribute to the existing main procedures of PPM by developing a thorough understanding of the PPM and its various aspects and attributes (advantages, necessities, drivers, systems, development strategies, apparatuses, and Portfolio management and governance technique). Hence, it underpins different specialists by including more variables (holders) or qualities of these substances of the reasonable model or by trading their involvement with proposed cases. From the above approach and perspective, the end-goal of this research is to: accumulate and analyse pertinent data assets to enhance understanding of the reception and assessment of the PPM process; to recognise the embraced procedure of choice making for PPM inside of the case study associations; to order the advantages, prerequisites, and drivers considered in the PPM reception inside of the contextual analyses; to distinguish authoritative components, for example, the arranging group identified with PPM reception in the associations; to characterise the PPM methods in the writing and those embraced in the associations portrayed for the situation contemplates; to find the suitability of these components for expansion in an applied model for PPM reception.

5.10.2 Field Procedures of the Research

With the contextual investigation system, it is critical to contrast the genuine selection results and the research data. Thus, the activity arrangement for data accumulation is urgent if there should be an occurrence of an adjustment in the data gathering environment. Such changes could

influence the case quality. Interviewees' conduct and accessibility of reports from chronicled files are samples of such changes. This activity arrangement comprises the followings:

Recognising the interviewees: This research concentrates on PPM; hence the interviewees were senior officials, organisers, and undertaking administrators, since there is learning requirement for arranging procedure, strategies and devices. Every of these meetings was recorded, deciphered and looked into by the interviewees for legitimacy. In any case, chronicled archives, reports, and association's sites are samples of different strategies that were utilised. Distinctive techniques for data gathering and comparable inquiries of various interviewees expand the triangulation of data and maintain a strategic distance from inclination in gathering data. The specialist knew about every adjustment made in the data gathering environment; for example, an adjustment in the meeting time or the cancelation of a meeting.

The specialist arranged a timetable for data gathering to compose the data accumulation process. This timetable contained dates, time, meeting length, and area. Such a timetable is vital in dealing with any progressions during the data gathering process. It is additionally imperative since abnormal state administration has no extra time, and sometimes in between meetings are required. This gives time to survey the data gathered and to check if there is any extra data that should be considered in subsequent meetings. This timetable was accepted by the organiser inside of every association. This also helped the specialist in distinguishing the suitable interviewees by numbering any cancelation or postponement through the data gathering process.

Moral issues: The analyst knows the interviewees that gave their consensus since they came back to the association itself to distribute the data. Suitable and complete data were obtained by the scientist to finish the research. Therefore, the associations are called Case A1, Case A2 and Case A3 for secrecy.

Numerous aptitudes are required to lead the interviews. These abilities work to interface the hypothetical work with data accumulation. Along these lines, considering the meeting plan as a research guide during data gathering is imperative. What is more, a few open doors during the meetings can be useful to the research and the specialist ought to know about them; for example, acquiring records and knowing different interviewees. Thus, adaptability is expected in order to know when to apply diverse sorts of meeting (organised, semi-organised and unstructured). Such adaptability requires a certain association with the interviewees. This certainty can be acquired by disclosing to the interviewees the confidentiality of their data. Along these lines, the specialist begins with general inquiries; for example, the interviewee's position and his/her specialty in the association. Certainty is imperative in recording meetings. The interviewees were asked if their

meetings can be recorded or not. They were told that they would get an interpreted draft to audit for input.

5.10.3 Questions in the Case Study

Four levels of inquiries were produced with a specific end goal to concentrate on the data accumulation and clarify the purposes for the inquiries. These inquiries were promptly filled in the questionnaire. This was regarded as the right way to accumulate data to prevent identifying with the interviewees. They likewise help the interviewer to get ready for the meetings and the scientist to consider the proper data to be gathered. Gathering these data is critical in examining the reception and assessment of PPM. Table 5-6 comprises these inquiries.

Q1	What are the variables connected by the case associations that influence the choice making process for assessing the appropriation of the PPM process?
Q2	What are the elements connected with the PPM process?
Q3	What are the advantages, prerequisites, and drivers in PPM process reception?
Q4	What are the assessment criteria utilised by the case associations through the assessment of PPM strategies?

Table 5-6: Questions addressed by the empirical inquiry

The questionnaire developed for qualitative data collection was administered using semi-structured process, with the researcher communicating with the respondents either through email, face to face or telephone. The use of semi-structured questionnaire helped the researcher to collect data, specifically in using literature review for information verification and also to gain personal insights. Both open and closed ended questions were used, with a majority of the questions containing both fixed responses and open-ended response. For example, the use of fixed response Yes/No/Open-ended answer allowed to measure the responses against direct questions like whether the case study has a PMO office, if they have a PM methodology in place, etc. Hence, the use of Yes/No answers allowed clear capturing of the responses. For complex questions, the addition of the open-ended responses allowed the researcher to investigate further into responses that needed clarity. The questionnaire did not make use of other forms of closed ended questions such as Likert scale as it does not help to capture clear responses. For example, when asked if a PM Office is available, a Likert response such as slightly agree or disagree does not clearly indicate if the organisation has a PMO office or not.

In relation to the level of personnel included in the data collection process, the researcher included individuals from the highest to the lowest position. This diversity allowed the researcher

to have answers from multiple viewpoints, while understanding that each individual has his/her own view. For example, the priority of CEO in answering the questionnaire will be oriented towards strategic point of view whereas for ERP professional, it will be oriented towards risk.

5.11 Focus group

An essential stage in the data analysis process is the validation and revisiting of the framework and testing of the revised framework for PGRC. In this research study, focus groups will be conducted as a post-analysis strategy to test the revised conceptual framework for PGRC. The selected method which is a 'qualitative approach' allows gaining in-sight into understanding the working of the revised PGRC framework by obtaining data from related sample. Through the application of focus groups, which is primarily group interviews, the researcher was able to revalidate the model and its variables leading to an effective PGRC model.

To evaluate the effectiveness of the revised conceptual framework proposed, a focus group interview discussion was conducted with PGRC experts in UAE with the sample size identified as 5. The sample size selected is small yet optimal to promote a healthy discussion on the PGRC model and facilitate the researcher with the required inputs on its efficiency. Open ended questions were utilised by the researcher to enable the focus group discussion, ensuring coverage of each key variable administered in the framework development. The process conducted for the focus group is identified below.

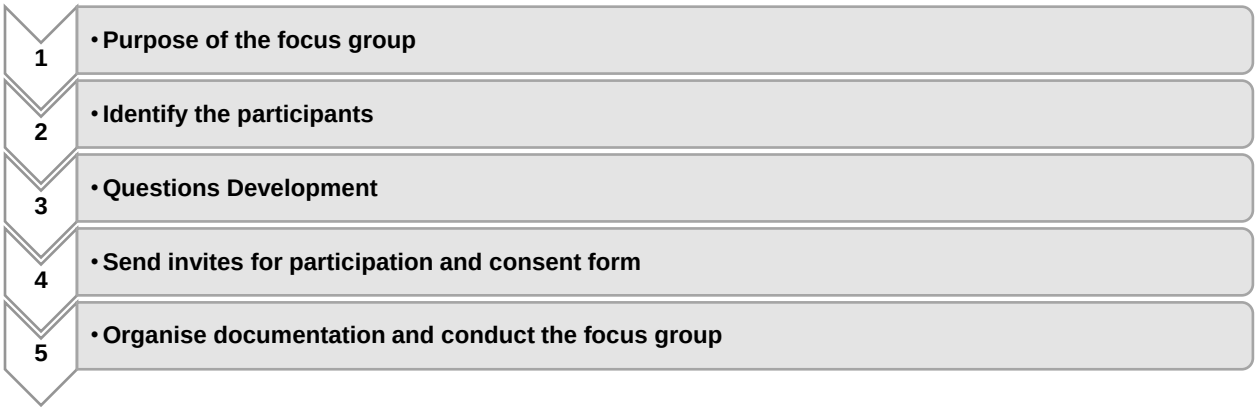

Figure 5-7: Process applied for Focus Group

5.12 Ethical Consideration

Ethics relate to the moral considerations and principles that guide the conduct of the researcher during an investigation and reporting of its findings. Commonly found ethical considerations include confidentiality, voluntary participation, and not causing harm to the participants. As the current research study is non-scientific, the participants are not subjected to any harm. They are

provided with detailed information on the aim and objectives of this research study; they were clearly told of the role they have to play and what their responses would be used for. Assurance is provided in maintaining the confidentiality of the information collected as such during this research process, the respondents were clearly informed of their right to withdraw from the research process at any time. Also, they were told that none of their personal information or their identity will be revealed.

5.13 Conclusions

This section aims to explicate and reinforce the reasoning for the research approach chosen for this current research. Numerous epistemological viewpoints and their alignment and appropriateness with respect to this research were duly taken in deliberation. While doing so, the researcher also justified the use of the interpretivist approach. In line with the core research questions, line of inquiry and targets (established in Chapter 1), the researcher developed a model (based on different references) that was befitting for the reception and assessment of PPM. On the basis of the paradigm established, the interpretivism approach was deemed most suitable. Subsequently, the qualitative research methodology was also finalised. An avocation for the selection of qualitative research strategies was additionally introduced in this part. The explanations for this choice depend on the point and goals of this research which is to build a reasonable system for the execution of e-government activity.

In section 5.2, the researcher elaborated on the usefulness and credibility of the qualitative methodology for this current research. The researcher provided numerous explanations for the choice. The explanations underlined the method suitability on the basis of the following parameters: nature and scope of research issue and research questions, elements of PPM procedures. Thereafter, based on the research approach, the research methodology was discussed in Section 5.3. The different criteria considered whilst making the methodology choice were established and explained including the purpose. In the following section, contextual analyses were carried out and justified. Thereafter, in, Section 5.4.2 a thorough elucidation was provided about the different data gathering methods adopted: interviews, documentations, physical antiquities and perception.

In the following segment, the research explains the empirical research methodology used in the current research. In Section 5.5, the different types of data triangulation methods are highlighted. The case convention plan is established wherein the operation activity plan endorses experimental work in which contextual viewpoints are extracted and analysed. In all the research

methodology actions determined in this chapter are directed to achieving the premeditated conclusion and end-goal of this research.

6 RESULTS & DISCUSSION

6.1 Introduction

In this chapter, the researcher compiles a detailed description of the research data collected for the purpose of examining and validating the conceptual framework developed in Chapter 3. The chapter also provides the outcomes of the case study conducted by the researcher. Research interviews of the case study are utilised and they consist of PGRC related data and details gathered from the perspective of PPM, GRC and overall project management approaches.

The researcher analyses the case studies from various perspectives and outlines the leading aspect of the entire research, which is PGRC. This section also enumerates the benefits, risks, barriers and good practice regulations of development of PGRC for entities in Abu Dhabi. This will enable a successful and efficient development as well as implementation of PGRC.

Here, first the introduction is given; secondly the section provides a background of Abu Dhabi, the choice of case study, and the rise of PPM and GRC. Thereafter the outcomes of the research data analysis are presented and how they are executed by using qualitative analysis.

The chapter also studies the benefits, barriers and risks of PGRC in detail. As a by-product, the researcher is able to identify the various aspects of PGRC and prioritises them accordingly. The researcher dwells on change in management which is the major cause of concern in the implementation of PGRC. The findings of the same have helped to identify the approaches required to handle resistance to change. In conclusion, the researcher is able to identify those factors which are a pre-requisite in the previously developed conceptual framework for PGRC. Adding these factors will make the model to be well applied in entities in Abu Dhabi, thus yielding better results.

6.2 Case Study Background

Since the main aim of this study is to present important data regarding PPM and the strategy for execution to bolster government in their GRC and decision making, the researcher decided to interview personnel who are a part of the government entities in the UAE. The researcher aims to breakdown and understand a number of issues which affect the choice making in PPM systems, and therefore the researcher chose 3 government entities for inspection. The first case study is a government entity from the utilities, the second is an entity from infrastructure developments and the third case study is from utility services. All the three case studies will be referred to as Case A1, Case A2 and Case A3 respectively.

For the ease of understanding, the researcher has developed tables with responses from respective case studies. In each organisation, 9 personnel were interviewed and their responses are depicted by the researcher in a tabular form under each case study.

6.3 Respondents' Demographics

For the present study, the researcher has opted for qualitative analysis wherein 27 participants were interviewed. All these participants were a part of three case studies that were chosen for this research. The interviews were carried out to break down and gain an understanding of an assortment of issues which were affecting the choice making in PPM systems. The three case studies are all government entities. The first case study is a government entity from Utilities, the second case study is a government entity from Infrastructure Developments and the third case study is a government entity from Utilities services. From amongst all the three case studies, various representatives and heads were interviewed along with the employees which helped to shed light on the various aspects of PPM and GRC development. For the purpose of this study, the researcher interviewed CEO, Department Director, IT and Information System Director, Strategic Planning Director, Internal Audit Manager Employee dealing with Portfolio and PPM/PMO, Enterprise Risk Manager and Portfolio Manager. A diverse group of participants with hierarchy in ranks was chosen to ensure that there is a thorough understanding of the PPM process at every level and how it is being utilised at the organisations.

6.3.1 Gender and Age Demography

From amongst the total 27 respondents who took part in the interview conducted by the researcher, 18 were males while only 9 were females (Figure 6-1). This indicated that women are equally represented and therefore there is a need for more women to be a part of the workforce.

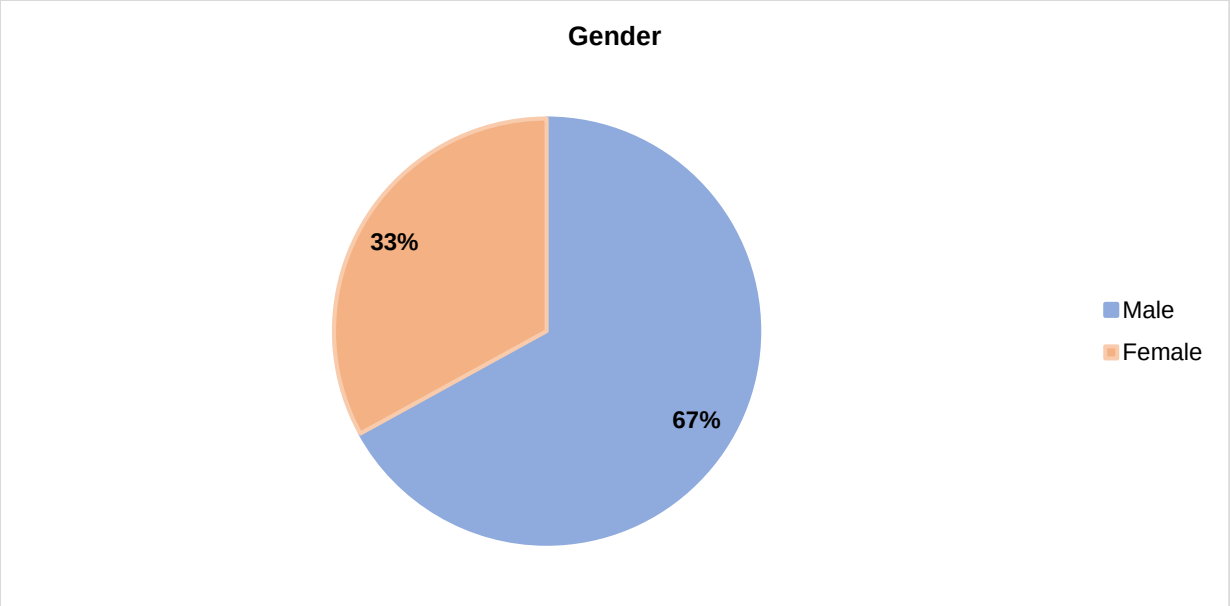

Figure 6-1: Respondents by gender

Out of the 27 participants, 14 participants were under the age group of 31-40 years while the remaining 13 were under the age group of 41-50 years. This represented that the personnel who were being interviewed were mature and understood the research and research requirements (Figure 6-2).

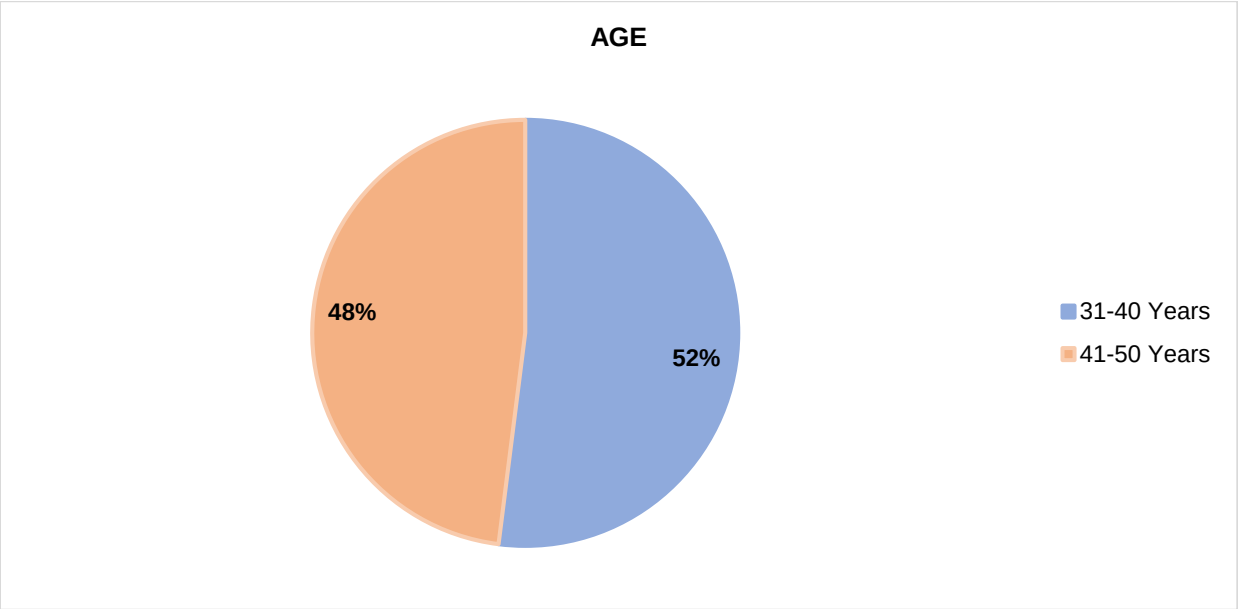

Figure 6-2: Respondents by Age

6.3.2 Experience

The researcher aimed to learn about the total years of experience each participant had to gauge their expertise. Out of 27 respondents, 13 respondents had 11-20 years of experience while 14 respondents had experience of more than 21 years. This indicated that all the participants had a lot of experience to label them as professionals. In a similar manner, the researcher inquired about the years of experience that the participating individuals had in their current position. From amongst the 27 participants, 11 had 1-2 years of experience, 13 had 3-5 years of experience while 3 had above 5 years of experience in their current position indicating that the participants were well versed with their roles and responsibilities within the organisation. Lastly, the researcher also inquired of the participants their total years of working in government organisations. This knowledge would help to determine how adept the participants are regarding the workings of government entities and how PPM is prevalent within these entities. Out of the 27 participants, 7 participants had 1-10 years of experience in a government entity, 15 had 11-20 years of experience while the remaining 5 had more than 21 years of experience working in the government sector. This clearly showcased that all the participants were well experienced and knew how government entities conducted their PPM.

6.3.3 Qualifications

It is very important that in government entities the personnel who head the various departments have the required knowledge that would help them to make important PPM decisions. Thus, for the qualifications of the participants, 18 participants had done Masters while the remaining 9 had completed their PhD. This indicated that all the participants were highly educated and aware of their job portfolios (Figure 6-3).

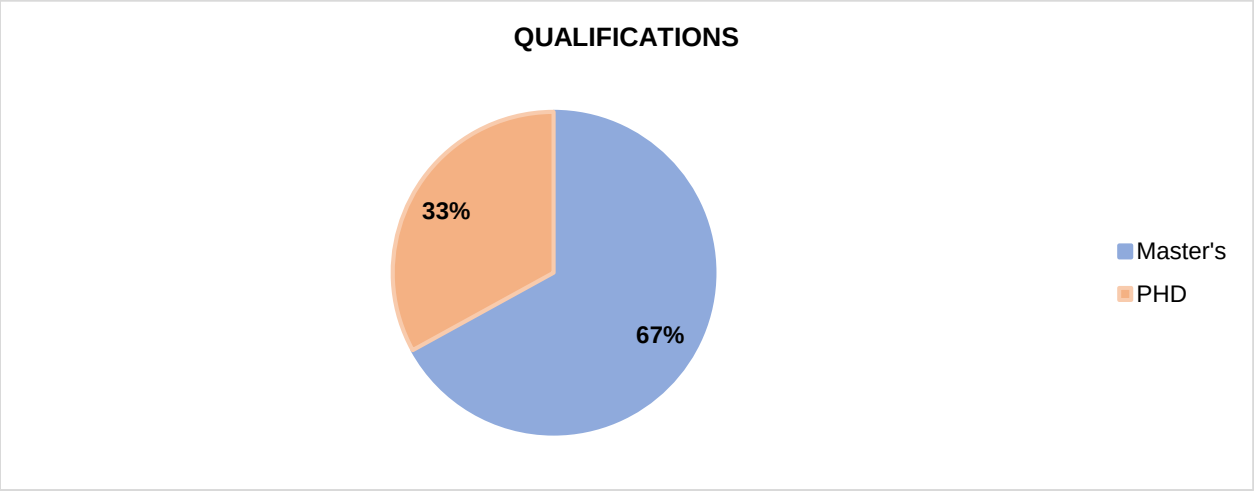

Figure 6-3: Respondents by qualification

6.4 The Current State and Practices Followed

6.4.1 Organisational Structure and Preferred Structure Followed

When it comes to managing projects, there are a number of practices being followed in every organisation (Table 6-1). The researcher first asked the participants about the kind of organisational structure that their organisations have and which one do they prefer.

From the literature, it is found that a suitable organisational structure is a pre-requisite to implement PPM in order to encourage higher level of coordination between senior management and individual business units (Emerson, Nabatchi & Balogh, 2012; Lockwood, 2010). It is important to note that all the three case study organisations follow the functional organisational structure, as stated by the 27 participants. It is one of the most common structures wherein employees are grouped based on the similarity of their tasks or roles. When they were asked about the organisational structure they prefer, they all stated a Balanced Matrix structure. This clearly indicated that government entities in Abu Dhabi need to adopt the balanced matrix structure as it ensures better resource coordination and flexibility in sharing of human resources across the scope of work (Turner, 2009). The need to adopt a balanced matrix structure is supported in the literature (Potter & Toburen, 2016; Tadewal, 2014), which insisted that organisational structure supports organisational culture including communication and logistics aspects.

When the participants were sked to give the reason for choosing balanced matrix structure, one of the portfolio managers stated, “it leads to having more delegation with accountability and empowerment”.

	Case A1		Case A2		Case A3	
Current organisation structure	Currently	Preferred	Currently	Preferred	Currently	Preferred
Functional Structure	9	0	9	0	9	0
Weak Matrix Structure	0	0	0	0	0	0
Strong Matrix Structure	0	0	0	0	0	0
Balanced Matrix Structure	0	9	0	9	0	9
Projectised /Project team Structure	0	0	0	0	0	0

Table 6-1: Responses to Organisational Structure and Preferred Structure

6.4.2 Project Management Office (PMO) and Methodology of Project Management Followed

The researcher in this section gauged to know whether the government entities chosen for this research had a well-structured PMO (Table 6-2). The researcher was confounded to learn that

PMO was not present in any of the three case studies. This indicated that there was no single entity within these organisations, which defined the standard and processes for project management. PMOs are a vital part of any organisation as they help in the establishment and maintenance of project consistency, efficiency and project cost.

The researcher then inquired if there was a defined methodology used for project management and if it was used within the organisations. In the first case study, all 9 participants replied in the affirmative, while in the second case study, 8 responded in the affirmative while one replied in the negative. In the third case study, all the replies were in the affirmative thus helping the researcher to conclude that there indeed was a well-structured project management methodology being used in these organisations. Joslin and Muller (2015) confirmed that having a clear and well-defined project management methodology will enable a firm to achieve any project it embarks on. The researcher also inquired whether this project management methodology aligned with the corporate strategy. To this question, out of the 27 participants, 26 replied in the affirmative while only one respondent from the case study 2 replied in the negative. The findings are in line with the literature which states that alignment with organisational strategy is one of the basic requirements for implementing PPM (Aubry &Hobbs, 2011). When the researcher asked the participants whether the project management methodology used by them aligned with the Abu Dhabi plan, 26 of them said yes, while one from case study 2 said no.

The researcher then asked if the defined methodology covered the vital aspects of governance, risk and compliance. To this again, 26 respondents said yes while one from case study two said no. Thus, this made it clear that while there was no PMO in the case study organisations, there was a well-structured project management methodology that aligned well with the corporate strategy as well as Abu Dhabi vision, thus ensuring the goals are met.

	Case A1		Case A2		Case A3	
Response	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
We have PMO office (if yes please answer point # 2 and 3)	0	9	0	9	0	9
Corporate or Enterprise Office: (please specify to whom it reports)	0	0	0	0	0	0
Divisional Office	0	0	0	0	0	0
The PMO is working closely with corporate strategy	0	0	0	0	0	0
The PMO office is working closely with Enterprise Risk Management	0	0	0	0	0	0
We have a defined methodology for project management.	9	0	8	1	9	0

We have a defined methodology and been followed.	9	0	8	1	9	0
We have a defined methodology and aligned with corporate strategy.	9	0	8	1	9	0
We have a defined methodology and aligned with Abu Dhabi Plan.	9	0	9	0	9	0
The defined methodology covering the aspects of governance, risk and compliance.	9	0	8	1	9	0
Others to be mentioned						

Table 6-2: Responses to Project Management Office (PMO) and Methodology

6.4.3 Role in Project Management

The researcher asked the respondents if they were responsible for project management, planning or execution and monitoring. They all answered in the affirmative. All the respondents had varied duties within the scope of project management and thus they were well aware of project portfolio management systems and understand GRC. One of the strategic planners stated that his role included "*approval of the project budget and project charter".* On the other hand, the employees who dealt with portfolio and PPM stated that their duties included looking into the details of the project and *"gauging the effects of the project and how they will be managed during their tenure".* Some were also responsible for the timely execution of projects or in the planning of portfolios.

6.4.4 Project Reviews

The researcher in this section sought to understand how often projects are reviewed by the top management as well as the responsible ranks to ensure not just the viability of the project, but also determine its progress. From the responses, it was clear that these reviews are mostly carried out on a monthly basis in all the three organisations. As observed in the table below (table 6-3), all the three case studies conducted monthly corporate projects reviews. On the other hand, when it came to projects handling by the respondents personally, they were being reviewed monthly as well as annually. Lehnert et al. (2016) identified the importance of controlling projects by doing review regularly and the case study findings confirm that the case study organisations are aware of the value of review activities and are engaged in monthly and annual reviews.

Case		Weekly	Biweekly	Monthly	Quarterly	Semi annually	Annually
Case A1	Corporate projects review	0	0	9	0	0	0
	Projects Manager Reviews	1	0	4	1	1	2
	Interview participations	0	0	0	3	5	1
Case A2	Corporate projects review	0	0	8	1	0	0
	Projects Manager Reviews	1	0	3	2	1	2
	Interview participations	0	0	0	5	1	3
Case A3	Corporate projects review	0	0	9	0	0	0
	Projects Manager Reviews	2	1	1	1	2	2
	Interview participations	0	0	0	1	2	6

Table 6-3: Responses to Project Reviews

6.4.5 Considerations during Project Review

After it was established that project reviews were an important part of PPM, the researcher asked the respondents to identify the main considerations and area of discussion during project review. As can be observed in table 6-4, project governance is an important factor considered during project review. Sixteen out of the 27 respondents noted that project governance is considered during project review while the remaining 11 were of the opinion that it was a central point during the planning phase. Similarly, portfolio governance was an important aspect during the review period as 23 participants agreed that portfolio governance is important for reviews. Musawir et al (2017) found there is a positive relationship between project governance and project success and the research findings show that the case study organisations consider project governance as an important aspect to be reviewed regularly to ensure the success of the projects.

Similarly, programme risks were considered as very important aspect during reviews, according to 21 respondents. The remaining details are listed in table 6-4. It is important to note that 'Budget Control' is an important factor during planning as well as reviewing stage, according to the respondents.

The findings are in line with the literature that project management is a strategic process used during the planning and review stages that consist of clear system, processes and tools. These leads to a successful project (Momcilovic et al., 2014; Møller et al., 2016). The case study organisations are involved in planning and reviewing of project, portfolio and programme governance, risks, compliance as well as ensuring alignment with strategic objectives.

	Case A1		Case A2		Case A3	
Activity	**Planning**	**Review**	**Planning**	**Review**	**Planning**	**Review**
Project Governance	4	5	3	6	4	5
Project Risks	5	4	6	3	6	3
Project Compliance	6	3	5	4	5	4
Programme Governance	6	3	5	4	5	4
Programme Risks	3	6	2	7	1	8
Programme Compliance	3	6	4	5	4	5
Portfolio Governance	2	7	1	8	1	8
Portfolio Risks	3	6	4	5	4	5
Portfolio Compliance	5	4	5	4	4	5
Effect of the projects, programme and portfolio on corporate Governance	3	6	2	7	4	5
Effect of the projects, programme and portfolio on corporate Risks	3	6	3	6	5	4
Effect of the projects, programme and portfolio on corporate Compliance	3	6	4	5	4	5
Budget control	5	4	5	4	4	5
Assure the alignment with corporate objectives and risk management	3	6	2	7	4	5
Assure the alignment with Abu Dhabi plan	5	4	6	3	6	3

Table 6-4: Responses to Considerations during Project Review

6.4.6 Information Gathering Practices

Every organisation has certain practices for gathering information related to projects planning and review. These practices are usually universally adopted and thus they help in better planning as well as project reviews. Regular project reviews and evaluations will make projects not to fail because they allow problems to be identified fast and also provide their solutions (de Bony, 2010; Yuming & Quan, 2007) (Table 6-5). Amongst the various listed methods of gathering data, face to face interview with project managers and project parties was the most common way of gathering data for project review. The researcher also noted from all the respondents that 'direct observation' was another methodology commonly used. This indicated that during the reviewing of projects, top management observe the evolution of the project and based on that make necessary changes. Some of the other methodologies which were unanimously agreed on by all the 27 participants included lessons learned after completing the project, bench-marking, corporate strategic objectives, aligning with Abu Dhabi plan, corporate risks and internal audit.

This work confirms the use of various tools for strategic project management as found in the literature (Momcilovic et al., 2014; Møller et al., 2016).

	Case A1		Case A2		Case A3	
Projects information gathering	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
Face-to-face interviews with project managers and project parties.	9	0	9	0	9	0
Face-to-face interviews with project clients.	0	9	0	9	0	9
Distributed survey to project manager and project parties.	0	9	0	9	0	9
Distributed survey to project clients.	0	9	0	9	0	9
Direct observation.	9	0	9	0	9	0
Lessons learned after the project closure.	9	0	9	0	9	0
Bench marking.	9	0	9	0	9	0
Corporate strategic objectives.	9	0	9	0	9	0
Aligning with Abu Dhabi plan.	9	0	9	0	9	0
Corporate risks	9	0	9	0	9	0
Internal Audit	9	0	9	0	9	0

Table 6-5: Responses to Information Gathering Practices

6.4.7 Practice Followed in Managing Project and Review

In this section, the researcher sought to learn what practices the three organisations and their internal departments followed to manage projects and review. As can be assessed from table 6-6 below, the practices followed included local, regional and international best practices as well as operational best practices and benchmarking, the findings confirm the literature that implementing best practices is important for organisations to ensure project management practices are of the highest standards (Tarantino, 2008). However, it is noted that these best practices were followed at the corporate level and not at the departmental level in the case study organisations.

	Case A1		Case A2		Case A3	
Followed Practice	**Department Level**	**Corporate Level**	**Department Level**	**Corporate Level**	**Department Level**	**Corporate Level**
Local best practices	0	9	0	9	0	9
Regional best practices	0	9	0	9	0	9
International best practices	0	9	0	9	0	9
Operational best practices	0	9	0	9	0	9
Bench marking	0	9	0	9	0	9
All of them	0	9	0	9	0	9
None of them	0	0	0	0	0	0

Table 6-6: Responses to Practice of Managing Project and Review

6.4.8 Perceptions Regarding the Current Practices

It is vital to understand what the top management and the employees perceive about the current practices that they follow in their organisations. Thus, the researcher asked the respondents about their perceptions of the current practices they follow. Surprisingly, the respondents accepted all the statements presented by the researcher as seen in table 6-7. The statements include: 'The current practice is underling on corporate strategy for project success', 'Stakeholders are committed to project success', 'The planned and current projects are aligned with Abu Dhabi strategic objectives' and 'The practices followed for projects planning and review provide specific information, are relevant and clear'. The findings confirm what is in the literature that the case study organisations undertake key success steps including alignment with strategy (Badewi, 2016), involvement of project stakeholders (Pemsel and Müller, 2012), improvement of governance, risk and compliance with clear and well-organised project planning and review processes (Too &Weaver, 2014).

	Case A1		Case A2		Case A3	
Perceptions on the current practices	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
The current practice is underling on corporate strategy for project success	9	0	9	0	9	0
Stakeholders are committed for project success	9	0	9	0	9	0
Stakeholders are committed to adopt new projects with new ideas	9	0	9	0	9	0
Stakeholders believe that project planning contributes to the success of project executions, programmes and portfolio	9	0	9	0	9	0
Projects quality levels are improved after stakeholders' enrolments	9	0	9	0	9	0
Projects governance levels are improved after stakeholders' enrolments	9	0	9	0	9	0
Projects governance levels are improved after aligning with corporate strategy	9	0	9	0	9	0
Projects governance levels are improved after aligning with corporate risks	9	0	9	0	9	0
Stakeholders believe in the effectiveness of the current projects, programmes and portfolio	9	0	9	0	9	0
The planned and current projects are aligned with Abu Dhabi strategic objectives	9	0	9	0	9	0
There is alignment among corporate strategy, current project s and the planned.	8	1	9	0	8	1

The followed practices of projects planning and review provide specific information, are relevant and clear	9	0	9	0	9	0
The current practice of projects planning and review helps on projects governance, risk identifications and compliance assurance.	9	0	9	0	9	0
The organisations have achieved their objectives and Abu Dhabi objectives from the current practices.	9	0	9	0	9	0
The organisations are recognised more and predictable from the current projects and the followed practices	9	0	9	0	9	0
Projects parties are satisfied from current practices	9	0	9	0	9	0

Table 6-7: Perceptions Regarding the Current Practices

6.4.9 Proper Governance, Risk and Compliance on Existing Projects

The researcher in this section wanted to learn whether the participants agreed that their organisations have proper Governance, Risk and Compliance with respect to their current projects at both corporate and departmental level. As can be observed in table 6-8, all the respondents agreed that there was proper GRC on the current portfolios, programmes and projects at corporate level and not at the departmental level. According to the PMO Head, "*this misalignment is due to the mismatch between the vision, values and objectives at the corporate level and departmental level. Furthermore, there exists a major gap in knowledge and skills between the corporate level and departmental level".* Another Department Director noted that *"there is also less sense of responsibility and accountability between the corporate and departmental levels. And, there is no proper communication either along with lack of technical and management experience between the corporate and departmental levels".* This discussion indicated that there was a disconnect with respect to the departmental and corporate levels GRC.

Case	Response	Corporate Level		Department Level	
		Yes	No	Yes	No
Case A1	We do have proper GRC on the current Portfolio	9	0	0	9
	We do have proper GRC on the current Programmes	9	0	0	9
	We do have proper GRC on the current Project	9	0	0	9
Case A2	We do have proper GRC on the current Portfolio	9	0	0	9
	We do have proper GRC on the current Programmes	9	0	0	9
	We do have proper GRC on the current Project	9	0	0	9
Case A3	We do have proper GRC on the current Portfolio	9	0	0	9
	We do have proper GRC on the current Programmes	9	0	0	9
	We do have proper GRC on the current Project	9	0	0	9

Table 6-8: Responses to Proper Governance, Risk and Compliance on Existing Projects

6.5 Strategic Alignments of Portfolio Project Management

In this section, the researcher focused on learning about PPM strategic alignments, review and prioritisation.

6.5.1 PMO and Regular Reviews

The researcher asked the participants to indicate if the existing PMO conducted regular review to assure there was alignment among the project portfolio, corporate strategic objectives and Abu Dhabi Plan. It was noted that all the 27 respondents agreed that the practice is followed by the PMO on regular basis and is aligned with the corporate objectives as well as the Abu Dhabi Plan (Table 6-9). The respondents also agreed that this practice is done upon the request of the top management and decision-makers. However, only one respondent from case study 1 accepted this statement, 'This practice is planned and under development to be conducted' in; none accepted it in case study 2, two did in case study 3 while the remaining 21 participants did not accept it. This shows that the reviews are not planned unless the key personnel plan and insist on them. Srivannaboon & Milosevic (2006) confirmed that misalignment with strategy leads to project failure; also, Too and Weaver (2014) insisted that there are higher chances for a project to fail if it does not align with corporate strategy.

Strategic alignments	Case A1		Case A2		Case A3	
	Yes	No	Yes	No	Yes	No
The practice is followed by PMO	9	0	9	0	9	0
The practice is followed by PMO in regular basis	9	0	9	0	9	0
The practice is followed to assure the alignment with corporate objectives.	9	0	9	0	9	0
The practice is followed to assure the alignment with corporate objectives and Abu Dhabi Plan	9	0	9	0	9	0
This practice is done once the key personnel of the corporate are requesting this practice. (upper management and decision-makers)	9	0	9	0	9	0
This practice is planned and under developments to be conducted	1	8	0	9	2	7

Table 6-93: Responses to PMO and Regular Reviews

6.5.2 Project Selection Criteria

For any project, the project selection criteria are an important guiding principle used to select which projects are to be undertaken in any organisation. Thus, the researcher asked the participants to choose from a list of projects portfolio selections criteria. When asked if the project portfolio selections criteria are defined at their organisations, all 27 participants answered yes. Furthermore, all the 27 participants also agreed that the project selections criteria are mature, fully followed and deployed and that the key personnel of the corporate decide on the project to be selected (Table 6-10). The findings are in line with the literature which states that project selection criteria are well-defined in public organisations (Maceta, P. & Berssaneti, F. 2019; Badewi, 2016). The findings show that the case study organisations are aware of the importance of project selection since it was also found to be an imperative step in their portfolio project management (Neckowicz et al., 2015; Khameneh, Sobhiyah &Hosseini, 2016).

Projects portfolio selections criteria	Case A1		Case A2		Case A3	
	Yes	No	Yes	No	Yes	No
Project selections criteria are defined	9	0	9	0	9	0
Project selections criteria are under developments	1	8	0	9	2	7
Project selections criteria are mature	9	0	9	0	9	0
Project selections criteria are fully followed and deployed	9	0	9	0	9	0
The key personnel of the corporate are taking decisions regarding project selections	9	0	9	0	9	0

Table 6-4: Responses to Project Selection Criteria

6.5.3 Projects Portfolio Prioritising

As has been established in the Literature Review, one of the important functions of PMO for project portfolios is prioritising. The researcher thus inquired from the participants how projects portfolios are prioritised in their organisation. From the given statements, the 27 respondents agreed the PMO has a defined policies and procedure for prioritisation of projects portfolio. All the participants also agreed that the PMO prioritises all projects portfolio according to corporate objectives, Abu Dhabi plan and their financial requirements (Table 6-11). They agreed that the key personnel of the corporate take decisions for projects prioritisation. This clearly indicates that project prioritisation is done according to a number of factors in all the three case studies and that it is the responsibility of the key personnel including the decision-makers and top management to prioritise projects portfolio. The findings support the literature review which shows that project prioritising is of utmost importance and ought to be done with proper procedures and clear guidelines (Srivannaboon &Milosevic, 2006; Petit, 2012; Badewi, 2016)

Projects portfolio prioritising	Case A1		Case A2		Case A3	
	Yes	No	Yes	No	Yes	No
The PMO has defined policies and procedure for projects portfolio prioritisation.	9	0	9	0	9	0
The PMO has defined policies and procedure for projects portfolio prioritisation, but not followed	7	2	4	5	3	6
Policies and procedure for projects portfolio prioritisation are under development / planned to be developed.	4	5	3	6	4	5
The PMO prioritises all projects portfolio.	9	0	9	0	9	0
The PMO prioritises all projects portfolio according to corporate objectives.	9	0	9	0	9	0
The PMO prioritises all projects portfolio according to Abu Dhabi Plan.	9	0	9	0	9	0
The PMO prioritises all projects portfolio according to financial requirements.	9	0	9	0	9	0
The key personnel of the corporate take decisions for projects prioritise	9	0	9	0	9	0

Table 6-5: Responses to Projects Portfolio Prioritising

6.5.4 Project Performance Assessment

It is extremely important for organisations to undertake project performance assessments, which reflect the corporate performance (Table 6-12). They require monitoring of the project portfolio, which in turn assures the performance by the PMO. Thus, the researcher asked the respondents to identify the current Project portfolio assessment criteria followed by their organisations' PMO project portfolio performance. All 27 respondents agreed that 'KPI and performance monitoring of projects and portfolio are defined' and 'Project and portfolio performance reports are prepared based on request from top management and decision-makers'. However, it is also important to note that the defined KPI's implementation and monitoring are not done throughout all the organisations since only 16 respondents agreed that the defined KPI and performance monitoring are implemented and monitored on regular basis; the remaining 11 did not agree. Performance assessment of projects is a well-defined process in the case study organisations as it is the primary aspect of PPM to ensure that the objectives of the projects are met (Teller & Kock, 2013; Caniels & Bakens, 2012, Unger et al., 2012; Beringer, Jonas &Knock, 2013).

Projects portfolio Assessment	Case A1		Case A2		Case A3	
	Yes	No	Yes	No	Yes	No
KPI and performance monitoring for projects and portfolio are defined.	9	0	9	0	9	0
The defined KPI and performance monitoring are fully implemented.	7	2	6	3	7	2
The defined KPI and performance monitoring are implemented and monitored on regular bases.	5	4	6	3	5	4
The defined KPI and performance monitoring are planned to be developed.	9	0	9	0	9	0
Project and portfolio performance reports are prepared based on request from upper management and decision-makers	9	0	9	0	9	0

Table 6-6: Responses to Project Performance Assessment

6.6 Projects Decision

In this section, the researcher aimed to learn about the procedures in place through which decisions for projects acquisition are made. Project acquisition can be tough and therefore these decisions are guided by certain principles. In the case study 1, five participants were a part of project planning while four were part of making decision on project planning. In case study 2, six participants were part of project planning while three were part of decision-making on project planning. In the case study 3, five were part of project planning and four were a part of decision-making on project planning.

6.6.1 Role in Project Planning and Decision

The researcher first attempted to understand the role each respondent played in the project planning and decision (Figure 6-4). The researcher provided two options to the respondents; whether they were part of project planning or were responsible for making decision on project planning.

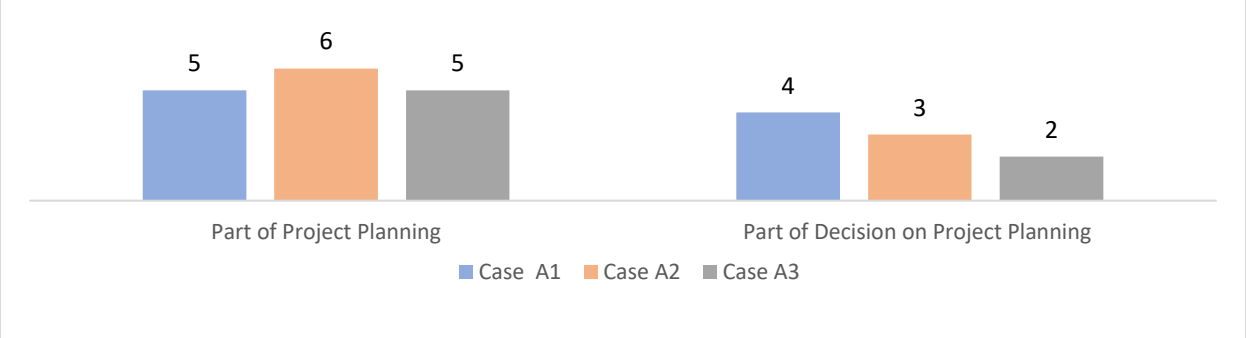

Figure 6-5: Responses to Role in Project Planning and Decision

6.6.2 Projects Adoption

It is vital to understand what the criteria are for picking up and adopting any projects within the government entities (Table 6-13). To understand the same, the researcher asked the participants to identify amongst the given options how projects are adopted by their respective government entities. From amongst the suggested methods, all the 27 participants chose 'Business unit directors' suggestions and feedback', 'Directions from the government', 'Uniqueness of the project and initiatives', 'Enterprise risks and internal audit finding'. Other choices included 'employee suggestions and feedback' 'open discussions among corporate stakeholder business units and employees'. The findings support the literature which shows that project decision-making should be done based on an organisation's needs and strategic objective (Blomquist & Müller, 2006).

Projects adoptions / method of projects decision	Case A1	Case A2	Case A3
Companies suggestions, feedback and latest solutions	0	0	0
Proposal submitted from solution providers	0	0	0
Business unit directors' suggestions and feedback	9	9	9
Employee suggestions and feedback	2	1	3
Open discussions among corporate stakeholders, business units and employees	2	3	3
Open discussions among corporate stakeholders and external stakeholders	0	0	0
Alignment with Abu Dhabi vision and plan	3	4	2
Directions from the government	9	9	9
Competing on the region	0	0	0
Uniqueness of the project and initiatives	9	9	9
Enterprise risks and internal audit finding	9	9	9

Table 6-7: Responses to Projects Adoption

6.6.3 Right Method of Project Adoption

The researcher inquired from the participants what in their view is the right way of adopting projects. All the nine respondents in case studies A1, A2 and A3 felt that 'alignment with Abu Dhabi vision and plan' and 'alignment with corporate objectives' were the two main criteria for project adoption (Table 6-14). This indicated that corporate objectives and Abu Dhabi plan were the most important factors for project adoption, as it would help to achieve the corporate goals. The results agree with the literature that public organisations have different project selection criteria which are usually not based on return on investment but rather on the government's strategic objectives (Maceta, P. & Berssaneti, F. 2019).

Projects adoptions / method of projects decision	Case A1	Case A2	Case A3
Projects return of investment	0	0	0
Alignment with Abu Dhabi vision and plan	9	9	9
Alignment with corporate objectives	9	9	9
Projects economic values	0	0	0

Table 6-8: Responses to Right Method of Project Adoption

6.6.4 Project Planning

In this section, the researcher posed two statements regarding projects planning and asked the participants of their view regarding the one they chose. The two statements included the following:

1. The corporate attainment of assistance and consultancy from third party (consultant companies) through the process of planning and execution of projects.
2. The corporate does not obtain assistance and consultancy from third party (consultant companies) through the process of planning and execution of projects.

All the 27 participants unanimously chose the first option, stating that their organisation did obtain assistance from third-party consultant companies. The portfolio manager stated that *"in those projects where expertise resources are not available or where dedicated resources are required for continuous period of delivery and can impact other planned work streams for each department, third party assistance becomes necessary".* The IT Director and Information Systems Specialist of Case A3 also stated that *"in many cases it becomes extremely important to have experts on the project who are able to handle the deadlines and are aware of the working, thus it becomes important to enlist the help of such third-party consultants".* The CEO of Case A1 stated *"it is our aim to conduct projects based on the highest standards of projects so that the projects do not get delayed".*

6.7 Project Efficiency, Effectiveness and Corrective Actions

In this section, the researcher presented the strategy used for projects and how these projects will assist in the achievement of the strategic objectives of GRC.

6.7.1 Best Practices and Lesson Learned

The researcher asked the respondents in this section to answer the questions, which were related to the best practices, and the lessons learned as well as an overall view of the project planning, execution and review. All the 27 participants responded positively to the statements presented as observed in table 6-15 below. This indicates that the case study organisations followed and

implemented all the necessary steps to ensure project management and completion is accurate and improved continuously. The findings of this study support the literature (Tarantino, 2008).

Actions	Case A1		Case A2		Case A3	
	Yes	No	Yes	No	Yes	No
Best practices of project managements and planning are applied	9	0	9	0	9	0
Lesson learned practice is followed after any projects closure	9	0	9	0	9	0
Projects planning, management and executions are improved from year to year	9	0	9	0	9	0
Projects and portfolio achieved the desired objectives	9	0	9	0	9	0
Stakeholders are having full visibility on the projects and portfolio	9	0	9	0	9	0

Table 6-9: Responses to Best Practices and Lesson Learned

6.7.2 Current Practices

The researcher then inquired from the participants whether they felt that the current practices followed by their organisation are ideal (Table 6-16). Out of the 27 respondents, 18 responded 'yes' while the remaining nine said 'No'. One of the employees dealing with Portfolio and PPM who replied in the negative explained that *"while there is improvement in communication between the corporate and the department about project issues, risks, financial status etc, there still remains a disconnect with respect to practices not being unified. They vary from department to department and are highly dependent on the department director's involvement as well as interest in projects".* In a similar manner, one of the portfolio managers of Case A3 noted that *"departments don't communicate with each other and thus this creates miscommunication at times".*

	Case A1		Case A2		Case A3	
	Yes	No	Yes	No	Yes	No
Are the current practices followed by your corporate ideal? Justifications are needed to support your answer	7	2	6	3	5	4

Table 6-16: Responses to Current Practices

6.7.3 Projects and Portfolio Effectiveness

A number of factors collectively result in the projects and portfolio effectiveness. The researcher sets about to understand what these factors were and thus asked the participants to identify the main factors from a list of factors (Table 6-17). All the 27 participants unanimously agreed that in their respective organisations, 'Projects and portfolio have a clear ongoing plan by the corporate', 'Projects policies, procedures and plans are flexible for changes when there is any problem',

'Employees are motivated to contribute to the project process'. All these factors contribute to the efficiency and effectiveness of projects. The case study organisations fulfil the important proposed attributes of PPM as found from the literature (Patanakul, 2015) and also work towards increasing project effectiveness through a number of strategies (Agarwal & Virine, 2016; Ismail et al., 2016). However, all the 27 participants also noted that 'project planning takes longer time than is required', which could possibly mar the effectiveness of the project.

Project efficiency and effectiveness	Case A1		Case A2		Case A3	
	Yes	No	Yes	No	Yes	No
Projects and portfolio have clear ongoing plan by the corporate	9	0	9	0	9	0
Projects policies, procedures and plans are flexible for changes in case of circumstances	9	0	9	0	9	0
Employees are motivated to contribute to project process	9	0	9	0	9	0
Employee competency is always measured prior projects decisions and after project launching	3	6	4	5	2	7
The skills, knowledge and attitudes of employees are always considered and determined for efficient results of the project	1	8	2	7	1	8
Project planning takes longer time than what is required	9	0	9	0	9	0

Table 6-17: Responses to Projects and Portfolio Effectiveness

6.7.4 Project Maturity

Maturity is a vital objective for any corporations on specific project management. Thus, the researcher presented certain statements that assessed the maturity against the standard. When asked if the PMO conducted assessment based on the set standard of project management, all 27 participants replied yes. The same answer was invoked when the researcher stated that the PMO conducts compliance assessment based on the set standard of project management and by aligning project with corporate strategic objectives. However, it is important to note that the respondents did not agree that the PMO takes corrective actions for non-compliancy as noted in table 6-18. Out of the 27 participants, 24 did not agree while only three agreed. The case study organisations engage in well-organised assessment programmes for their projects as recommended by the literature (Teller & Kock, 2013; Caniels & Bakens, 2012, Unger et al., 2012; Beringer, Jonas &Knock, 2013); however, they do not take corrective actions, which makes the assessment to be ineffective.

Assessing the maturity against the standard	Case A1		Case A2		Case A3	
	Yes	No	Yes	No	Yes	No
The PMO conducts assessment against the followed standard of project management.	9	0	9	0	9	0
The PMO conducts compliance assessment against the followed standard of project management.	9	0	9	0	9	0
The PMO conducts compliance assessment against project alignment with corporate strategic objectives.	9	0	9	0	9	0
The PMO takes corrective actions for non-compliancy	1	8	2	7	0	9
The PMO takes corrective actions for non-compliancy for all project portfolio	2	7	1	8	0	9
The PMO takes corrective actions for non-compliancy for critical project portfolio only	1	8	1	8	0	9

Table 6-18: Responses to Project Maturity

6.8 Project Portfolio Governance and Auditioning

In this section, the researcher tried to gear the research towards the governance aspect of project portfolio and auditioning aspect of the project portfolio.

6.8.1 PMO Charter

It is extremely important to maintain a PMO charter as the charter constitutes the roles and responsibilities, purpose and objectives as well as policies and authorities of the PMO. The researcher thus asked the respondents about a few important aspects of this PMO charter to understand whether such a charter is present in their organisations. All 27 participants agreed that the PMO charter was reviewed and updated regularly. Furthermore, all the participants agreed that the PMO charter is updated based on the changes that occur within the corporate, thus keeping it current. Participants in all the case studies agreed that there is clarity in the roles and responsibilities for all the project managers along with that of programme and portfolio managers. Based on the responses as mapped out in table 6-19, it can be understood that there is proper clarity with respect to PMO charter and there is a general understanding of the roles that each employee as well as top management plays within the business structure of the organisations.

The case study organisations are aware of the PMO charter, the importance of clear and well-defined roles and responsibilities of project stakeholders as well as the policies and guidelines for the project participants, as found in the literature (Danesh, Ryan &Abbasi, 2015; Bakar &Yusof, 2016).

PMO Charter	Case A1		Case A2		Case A3	
	Yes	No	Yes	No	Yes	No
The PMO charter is reviewed and updated on regular bases.	9	0	9	0	9	0
The PMO charter is updated based on any changes occurs on the corporate.	9	0	9	0	9	0
The PMO relationships with corporate business units are clear and well defined.	9	0	9	0	9	0
The PMO relationships with corporate business units are well understood by business units.	9	0	9	0	9	0
Roles and responsibility are defined and made clear to all PMO staff.	8	1	7	2	9	0
Job description is defined for PMO staff, but no clear charter for the PMO	2	7	1	8	4	5
Roles and responsibilities are clear for all project managers with clear authorities also for programme and portfolio managers	9	0	9	0	9	0
The PMO has the responsibilities of defining the policies of project management and guidelines for participants and the stakeholders.	9	0	9	0	9	0
The PMO policies are communicated to all business unites in the corporate.	9	0	9	0	9	0
Classifications criteria are defined by PMO for all type of projects.	9	0	9	0	9	0
Projects are classified on the corporate based on their size and budget.	8	1	9	0	8	1

Table 6-10: Responses to PMO Charter

6.8.2 Project Control

In order to have governance on a project, control is one of the important elements as seen in the literature (Broady and Roland, 2008). The researcher thus asked the respondents to answer a few questions with respect to projects boards and controls. All the participants agreed that the PMO head/director is one of the key members of the corporate board and also has the roles and responsibilities of the project review for all members. The participants also agreed that the PMO has full access to all the projects, programmes and portfolio which makes it able to do predictive analysis. There are also procedures established by the PMO for projects auditing, which all 27 participants agreed to. Table 6-20 below indicates the replies of all the 27 participants indicating the control that the PMO has over projects and portfolio. It is however important to note that when asked whether the PMO has member on the internal audit team, 24 participants replied ‘no’ and

only three replied 'yes'. This is because, as put by the PMO Head, *"it is not possible since the audit reports to the board of directors".*

The case study organisations have effective project control measures in place as the literature shows that project control enables organisations to avoid deviating from their plans and budget (PMI, 2000). The case study organisations engage in auditing processes, which is found to be key in project management for meeting of their goals and any corrective actions can be taken when there is any deviations as found in the literature (Hilb, 2012; Ramezani et al., 2011).

Projects board and controls	Case A1		Case A2		Case A3	
	Yes	No	Yes	No	Yes	No
PMO head / director is member and key of the corporate board / executive management team review	9	0	9	0	9	0
PMO is having the roles and responsibilities on the project review for all members.	9	0	9	0	9	0
Projects, programme and portfolio statues, performance, functions and achievements	1	8	2	7	1	8
Project portfolio, performance, portfolio management, and other functions are compiles by PMO for executive board.	9	0	9	0	9	0
The PMO has full visibility of all the projects, programmes and portfolio for all business units and has cross functions.	9	0	9	0	9	0
The PMO can do predictive analysis because of having full visibility of all projects.	9	0	9	0	9	0
PMO follows all the actions agreed on in the projects board review.	9	0	9	0	9	0
As part of the executive controls to oversee business issues, the PMO establishes policies, procedures and guidance for committees such as steering committee, risk committee, governance committee, executive committee, etc.	9	0	9	0	9	0
Project code of conduct is established and signed by all staff, and reviewed on regular bases	0	9	1	8	0	9
HSE standard established, implemented and follow as part of the project management approach.	9	0	9	0	9	0
Enterprise Risk Management is established, applied on the projects and monitored on projects implementation.	9	0	9	0	9	0
Do you have audit committee as part of projects board review? If yes what is the function of it?	2	7	0	9	1	8

PMO has member in the Internal Audit office	2	7	0	9	1	8
PMO has procedures for projects auditing.	9	0	9	0	9	0
PMO has detailed report about projects auditing and are effectively implemented with corrective actions	9	0	9	0	9	0

Table 6-11: Responses to Project Control

6.9 Challenges Barriers and Best Practices for PGRC

In this part, the researcher aimed to gather some visibility about the challenges and barriers facing PGRC.

6.9.1 Governance, Risk and Compliance on the Existing Projects, Programmes and Portfolio

The researcher asked the participants to identify the extent at which their organisations implement GRC on their existing projects, programmes and portfolio. They were also asked to explain how their organisations apply governance on their portfolio including programme and projects, risk identifications and risks subsequence, and aligning compliancy with their corporate objectives, policies and standards. To this, the portfolio manager in Case A1 stated *"we have established the risk committee, HSEQ committee, procurement committee and project executive board committee to ensure we have a proper governance within our organisation. Therefore, we have governance established for all our projects, programmes and portfolio".* On the other hand, the employee dealing with Portfolio and PPM stated that Individual projects at the organisation level are not well controlled due to the following reasons:

1. *Project managers are not aware that it is their role and responsibility to follow all existing procedure and ensure there is proper reporting about project status, risk, cost, etc.*
2. *Lack of experience and knowledge about project management skills*
3. *Lack of departmental level alignment with corporate level*
4. *Lack of communication and adherence to existing policy*

6.9.2 Challenges and Barriers

The researcher asked the participants to identify the main challenges and barriers, which are faced by their corporate in managing their projects, programmes and portfolio. In response to this, the CEO of Case A3 responded thus, "*some of the main challenges that I have observed in our organisation include resistance to change, lack of experience and knowledge, lack of understanding of the importance of integration between the departments and the organisations, lack of transparency between the project managers and the organisations".* It is important to note

that most of the participants felt that their corporates have similar challenges and barriers. One of the employees in Case A2 dealing with portfolio and PPM stated, "*There is also lack of awareness about risk management and the importance of identifying risks early; lack of understanding of the escalation process within the organisations".* This clearly showcases the fact that the organisations are facing many challenges when it comes to management of projects, programmes and portfolios.

6.9.3 Challenges and Barriers in GRC on the portfolio

The researcher in this section sought to understand the main challenges and barriers in establishing GRC on a portfolio. From amongst the respondents, the IT Director and Information Systems Specialist (Portfolios Management Software leader) in Case A2 stated that there were a number of challenges that affect having GRC on a portfolio. These include: "*Lack of awareness within the organisation of the importance of GRC on portfolio, maturity level of the PMO and existence of the project management procedure and lack of experienced project managers within the organisation".* In a similar note, the Enterprise Risk Manager in Case A1 also noted other challenges, such as *"Non-availability of risk mitigation plan, not understanding the impact of the non-availability of GRC on portfolio, lack of consistency in the approach of delivering the portfolio, lack of follow-up from the organisation management and lack of portfolio board to follow up on the implementation of projects".* The case study organisations are facing many challenges in implementing GRC in their portfolio management as also seen in the literature (Tricker & Tricker, 2015; Nissen &Marekfia, 2014).

6.9.4 Critical factors for success or failure of projects and portfolio

The researcher asked the participants to list those critical factors, which influence the success or failure of projects and portfolio in governments. To this question, one of the employees in Case A1 stated a number of critical factors as follows:

- *Availability of experienced project managers*
- *Availability of projects procedures and guidelines*
- *Availability of projects, programmes and portfolio governance through PMO or executive project board*
- *Availability of clear communication within the organisation*
- *Availability of external stakeholders' support*
- *Availability of required financial funds*

In a similar fashion, the portfolio manager of Case A2 quipped that *"when there is lack of communication between all the parties involved, it leads to chaos and lack of understanding. Similarly, along with proper communication, availability of funds also plays a crucial role in the success of projects and portfolio".*

6.9.5 Importance of PGRC for the Economic Welfare of Abu Dhabi

The researcher asked the respondents to state, in their own opinion, the importance of PGRC to the economic welfare of Abu Dhabi and whether it is important for achieving strategic objectives. To this, the CEO of Case Study 3 stated, *"It is very important to ensure there is an integration among the portfolio: Projects and Programmes and there is need to have a proper alignment between the portfolio and the overall corporate level strategies within and with other organisations within Abu Dhabi. This will allow a unifying process of delivery, optimisation of funds and clarity and transparency on plans and ensure it meets the Abu Dhabi strategic objective".* In a similar note, the portfolio manager stated that *"it has been observed that there are many instances when there is a lack of alignment between the corporate and its strategic objectives. This leads to project failures and goals set are not achieved".* These responses clearly showcased the importance of PGRC for the welfare of Abu Dhabi.

6.9.6 PGRC for Infrastructure Development

The researcher asked the respondents on how PGRC could be adapted into the government and how it is responsible for infrastructural development. One of the employees in Case Study A3 responded that *"This will allow proper integration and coordination of infrastructure projects and the overall corporate strategy of these entities, which will support the overall strategy of the government".* The internal audit manager in Case Study A1 also stated that PGRC was important for proper integration of all the various projects that are being carried out by the government under one single roof.

6.9.7 Effect of Followed Practices and Policies

The researcher asked the respondents if their organisations have practices and policies they follow and their impact on the success of PGRC. To this, all the 27 participants replied that they have policies and practices that they follow and listed out the major reasons why they have effects. The Department Head of Case A2 justified that "*Having maturity project governance within the organisation requires: Experienced project managers, availability of projects procedure and guideline and also availability of PMO along with the latest benchmark on the latest project*

management practices. When all these factors are integrated fully it results in successful PGRC that yields results that are in line with the strategic objectives of the entity".

6.9.8 Enhancing Government Processes and Efficiency with PGRC

Lastly, the researcher asked the respondents if PGRC can enhance the government's process and efficiency. To this, all the 27 participants answered yes and stated that PGRC is an important aspect of management within the government entities. The portfolio manager of Case Study A1 stated *"it ensures projects are delivered in more effective and efficient manner, it puts proper governance in place, ensures more transparency at the corporate level and it helps to ensure management has access to portfolio status and details at any time when required".* The Department Director in Case Study A3 also stated that "*Having proper mitigation and response plan due to any delays or change management is made possible by the presence of PGRC and it also ensures that the stakeholders are supportive of the success of the portfolio".* These responses showcased the readiness of the government entities to embrace PGRC as it helps to manage processes and projects better.

In the next section, the researcher discusses the results at length and aligns them with the literature review done in Chapter 2. Based on these findings and the discussion, the researcher is able to revisit the framework and bring about necessary changes.

6.10 Discussion

In this section, the researcher aims to discuss at length the findings of the interview and the case studies in order to verify the literature review done in Chapter 2 and also verify the applicability of the conceptual framework developed in Chapter 3. This will help in the future adoption of the framework for Abu Dhabi entities.

In the literature review, the researcher identified the need to develop a framework that addresses the importance of PPM and GRC within Abu Dhabi entities and their project, portfolio and programmes. The PGRC conceptual framework devised by the researcher helped to determine the right techniques that need to be adopted by the entities in order to minimise risks and ensure compliance while managing their finances accurately in multiple projects.

Due to the rapid changes in the market combined with environmental and political changes and the advancement of technology, there is an urgent need to review the GRC framework of every business. The multidirectional changes have driven companies to build their governance, risk management and compliance activities in a specific manner that protects them from certain risks while also addressing particular risks and compliance responsibilities. However, according

to many researchers, the lack of coordination is a major concern as evident from the results of the interview conducted by the researcher. Such lack of enterprise-wide focus can lead to a lot of inefficiencies in the coverage of risks and a general lack of understanding regarding the interrelations between risks and lack of stakeholders' confidence. In light of the present business trends, Abu Dhabi government is set to experience strategic consequences if the GRC is not managed accurately.

In the opinion of Wiesche and Schermann (2011), there are a number of drivers which have led to an integrated approach to GRC. These factors include increased regulations, new technologies, ethical and financial scandals, demands for transparency and accountability and advent of new technologies. Having an integrated PGRC approach helps to keep up with the speed at which new regulatory requirements are enacted while also enabling easy expansion in international markets. Furthermore, there are a number of manual processes which lead to an increase in non-compliance, thus adoption of PGRC will lead to better compliance by means of new technological advances. Lastly, a well-developed framework will enable the reduction of complex processes, which utilise different administrative services, thus limiting consolidated reporting on important part of efficient working.

6.10.1 Practices Followed in Organisations for Management of Projects

Presently, in Abu Dhabi government entities, functional structure is being followed. This is one of the most common types of organisational structures wherein employees are grouped within the organisation based on their skills. This kind of structure is ideal in stable environments wherein business strategies are not dynamic in nature. A high number of respondents in the interview indicated that functional structure was the most common structure in Abu Dhabi entities. This shows that the entities are averse to change and that bureaucracy within these organisational structures makes it difficult to bring about the required changes as per the market conditions. In contrast, most of the respondents were of the opinion that having a balanced matrix structure would be ideal as it is two-dimensional. In such a structure, employees are assigned to two organisational groups- functional group as well as a specific project group. This allows for enhanced representation as well as accountability. This is vital for compliance, as accountability is a major component of GRC as well PPM. Those organisations that approach policy without accountability tend to face significant risk in business (Baker, 2011). In this respect, accountability relates to monitoring of incidents that violate policies and tracking of training. It has been observed that a lot of entities are not able to manage the lifecycle of their policy which causes the policy to

be out of date and ineffective, not being aligned with the business requirements (Frigo &Anderson, 2009).

Project management offices play a vital role in seeking better efficiency and tighter controls. The PMO helps in maintaining the standards for project management at the organisation (Too &Weaver, 2014). One of the most important functions of PMO is strategic planning as well as governance (Muller, 2011). This helps in establishing projects by making use of the pre-defined criteria and planning in a manner that aligns with the company goals. PMO is responsible for advising the senior management regarding the best projects that should be adopted, the best policies that should be implemented and the right projects that should be developed strategically that are in alignment with the organisational goals of the company. In case of project governance, PMO is responsible for developing and implementing policies and regulations, processes and functions along with responsibilities and procedures which help in the control and management of projects, portfolios and programmes (Badewi, 2016). It was however surprising to note that not many entities in Abu Dhabi have a defined PMO. In cases where there is a PMO, there is no defined methodology that is in alignment with the company's goals, strategic planning and the various aspects of GRC. The case studies too indicated that there is a general lack of a well-defined PMO within the business culture in the UAE, which leads to difficulties in the accurate management of multiple projects according to the strategic goals of the organisation.

The researcher also noticed that there is a general lack of reviewing of projects by the concerned authorities within the organisation. Reviews of projects and portfolios are extremely important as they help to identify the short-comings, the associated risks and the financial fore bearings of each project. In a lot of cases, as has been pointed out by Badewi (2016), the lack of reviews has caused projects to be misaligned with the corporate strategy and has led to big losses. Aligning with the corporate strategy is the basic requirement of any project and in the absence of this, there is a disconnect between the project objectives and corporate strategy and goals. This disconnect leads to projects being incomplete or incapable of achieving the desired results. Many valuable lessons can be learnt by conducting regular project reviews, in pre, during and post implementation stage. Such reviews help to distinguish between the common causes and the specific causes of variation in the project development process. Project reviews also enable the development of common metrics which can be utilised to track the efforts of the teams across the various projects undertaken by the organisation (Blomquist &Müller, 2006). Based on the reviews, management can implement necessary changes and develop a clear vision regarding the improvements required for the entity.

Researchers have also mentioned the importance of post-implementation review in identifying whether what was delivered was useful (Badewi, 2016; Hobbs & Aubry, 2011). Simply completing a project does not mean that the project management process has ended. The real measure of success is the completion of a project and achieving the business need that was set to be achieved. Post-implementation reviews can also help to identify what changes are required to deliver greater benefits. Lessons learned from the execution of one project should be applied during the implementation of the next project in order to cut down on losses. For the purpose of project reviews, it is best that reviews are conducted in all the departments within the organisation, wherein the senior management conducts independent reviews. This helps in the identification of problem areas which can then be rectified accordingly. The researcher however noted that there was a lack of such crucial project reviews in entities in Abu Dhabi. There were no feedback loops and the workforce did not conduct reviews either pre-, during or post-completion of a project. This clearly indicated the urgency for entities to adopt the project review approach which forms an important part of the PPM. Project, portfolio and programme governance, risks and compliance should be reviewed individually along with their effects. This will enable to gauge which of the components of PPP as well as GRC are lacking in the entity and what changes are required and whether they are aligned to the goals and objectives of the organisation.

In order to ensure proper planning and consequent review of projects, it is vital to gather information and data by utilising important practices. From the responses received from the participants, some of the most common methodologies for gathering information included face-to-face interviews with project managers, project parties and project clients, surveys to project managers and project parties and also to the clients, direct observation and lessons learned after the closure of projects. Furthermore, benchmarking, corporate strategic objectives and internal audits were also considered as a useful method for gathering information.

In order to bring about the implementation of the PGRC, it is vital that certain practices are followed by organisations to ensure a smooth implementation. These include national, international, local and regional best practices. These best practices are developed to ensure that the organisations are protected appropriately against any kind of potential risks (Müller, Martinsuo & Blomquist, 2008). This is also the ultimate objective of risk management wherein it defines the risk, gains an understanding of the risk tolerance of the entity and takes appropriate steps to manage the risk. As organisations continue to spend time and money on GRC, focussing on best practices is imperative for businesses (Tarantino, 2008).

Apart from following the best practices at various levels, it is also vital for organisations to identify the practices they follow and what changes need to be adopted. This can be made

possible by adopting the PGRC model as developed by the researcher in the previous section. From the interview conducted by the researcher, it was identified that there are many perceptions that the management has formulated based on the practices followed. These include stakeholders and their role in adopting new ideas, considering project planning as an essential tool for the efficient execution of projects, increase in quality and governance and levels after enrolling the participation of stakeholders and alignment with the corporate strategy. This is an essential part of PPM, since according to Pemsel and Müller (2012), alignment with corporate strategy and enrolling stakeholders for their input is important for project management. Thus, following best practices of project planning and reviewing helps in projects governance, risk identifications and compliance assurance (Too &Weaver, 2014).

It is vital that organisations have proper GRC on existing projects, whether at the corporate or departmental level. However, it was observed that while at the corporate level GRC was implemented, it was not at the departmental level. This can be detrimental to the PGRC framework. This misalignment is mainly because of differences between the vision, values and objective at corporate level and departmental level. It is vital to address this knowledge and skill gap. According to Mitchell and Switzer (2009), a federated approach to GRC is highly recommended, especially for enterprises within Abu Dhabi as there are common standards and methods along with taxonomies utilised for identification of risks, management and risk reporting throughout the entities. Furthermore, to meet the unique needs, individual standards, methods, and workflows are also supported (Mitchell &Switzer, 2009). Coordination is central, wherein accountability is distributed. Thus, GRC is performed at the corporate as well as departmental level.

6.10.2 Portfolio Project Management Strategic Alignment

The business environment across the UAE is growing more complex accordingly and therefore there needs to be many considerations apart from cost and profit. Furthermore, governmental entities tend to work on multiple projects simultaneously which may not be confined to a single industry (Dye & Pennypacker, 1999). It is due to these reasons that there needs to be strategic coordination of the projects. The selection and evaluation of these projects is increasingly more complex, such that there is a need for an updated analytical model (Eggers, 2012).

In recent times it has been observed that there are many project failures that have plagued large corporations with high losses (Pemsel &Müller, 2012). According to Badewi (2016), one of the major reasons for these project failures and consequent losses is the misalignment of projects with the corporate strategy. Due to the lack of strategic alignment of the projects, there is no

strategy that the projects are able to follow nor is there a project GRC framework that governs the projects resulting in unexpected losses. In the absence of project prioritisation and tools for corporate strategy, projects are out to face failure (Srivannaboon &Milosevic, 2006). Too and Weaver (2014) are of the opinion that one of the major contributors to project failures is the misalignment with corporate strategy wherein there is little or no understanding of the project scope and what the projects are set to achieve. Petit (2012) is also of the opinion that in many cases the corporate strategy is not known to those people who are working on the projects. Project managers tend to not open up about the detailed business strategy to those working on the project which leads to different expectations from the project. Secondly, the main corporate strategy is not realistic or lacks clarity and thus vital ideas are not integrated into its being. These are the major reasons for project failure and therefore there is an immediate need for strategic alignment of portfolio project management.

The main aim of PPM is to evaluate, prioritise and select the projects that are in-line with the business strategy. It is vital that there is alignment of all the on-going projects with business strategy of the entity (Srivannaboon &Milosevic, 2006). This is an extremely important aspect of modern organisations as organisations try to find a balance between their daily functional operations and initiating projects. In the opinion of Srivannaboon and Milosevic (2006), projects are considered as the vehicle of business strategy implementation. They are nothing but effective strategic weapons, which are the central building blocks for the implementation of business strategy. When a project gets approved and funded but is not tied directly to the corporate strategy it does not lead to the realisation of strategic goals (Pemsel &Müller, 2012). There is a general disconnect throughout the organisation since the employees are not aware of the project strategy and what the end goal should be.

Impediments can be greatly reduced if there is a better understanding of the organisational strategy and important initiatives are taken to ensure alignment of portfolio project management (Patanakul & Shenhar, 2012). It is also important that the projects be managed effectively or else it may cause project overload, which leads to ineffective and insufficient use of a company's resources. It was observed that there is an alignment among the project portfolio, corporate strategic objectives and Abu Dhabi Plan. This is an indication that the entities recognise the importance of project planning and GRC reviewing. In any decision-making process, project selection process must be well defined and be in-line with the strategic objectives of the entity (Badewi, 2016). The PMO thus plays an important role in not just identifying the right projects and the decision-making process but in also prioritising project portfolios (Petit, 2012). For this prioritising, there are well-defined processes and procedures by the PMO, based on the corporate

strategy and objectives (Badewi, 2016). Financial requirements are also taken into consideration while prioritising. PMO may make use of project selection methods such as benefit measurement method or constrained optimisation method, in-line with the corporate objectives (Srivannaboon &Milosevic, 2006). As discussed earlier, PPM helps in the selection and completion of projects which aids in the accomplishment of the organisational objectives and vision (Too &Weaver, 2014). It is important to measure the individual performances of projects, and consolidate these measurements in a manner that brings out the strategic importance of the projects. There are a number of ways in which they may be measured; however, continuous monitoring is important as it gives a good understanding of the success of projects.

6.10.3 Project Decision-Making Process

The decision- making process involved in the adoption of any project includes strategy that identifies the areas where the organisation needs to initiate improvement in terms of organisational structure, product development and manufacturing capacity (Blomquist & Müller, 2006). The ability to make such informed and effective decisions in a timely manner is the key to sustainable projects. Usually the process of project selection involves identification of projects that are in-line with the corporate strategy, followed by evaluation and prioritisation of the projects, selection and commencement of the projects and reviewing of the projects regularly (Bebchuk & Fershtman, 1994). It is also important to note that many different considerations need to be considered while evaluating projects. These include competition within the region, project uniqueness and findings of internal auditing. At times, organisations also tend to outsource the project planning as well as execution as they may not have expert resources. The project selection process assesses each project idea after which those projects with the highest priority are chosen as it would not just benefit the organisation but also help in the success of the organisation. Positive outcomes are the basis of any project selection. This is also resonated in the responses received from the participants. Patanakul and Shenhar (2012) also suggest that there are five important steps to project selection. These include:

- Ensure that the project aligns with the organisational strategy or corporate strategy
- Identify a responsible individual who will ensure that the project not only accomplishes all the objectives but that it runs smoothly throughout.
- Assess the organisational environment
- Identify the resources that are available
- Identify what are the success parameters

All these pointers when identified will help in the selection of a project that is beneficial for an organisation.

6.10.4 Efficiency and effectiveness of Projects and the Use of Corrective Measures

After the completion of projects, it is vital that the organisations utilise the lessons learned and apply it in future projects. This helps to improve the planning and execution of projects and thus achieve their objectives. It was noted that a majority of entities in Abu Dhabi follow these practices and utilise the lessons learned from previous projects in the execution of future projects. Stakeholders should have clear projects and portfolio to ensure better visibility.

When evaluating processes, efficiency and effectiveness are commonly used since project management utilises a number of processes. Organisations struggle to achieve a balance between quality, time and cost and they need to do so efficiently and effectively (Ika, 2009). Efficiency of a project relates to meeting all the internal requirements for cost, margin and asset utilisation while effectiveness relates to meeting as well as surpassing the customers' requirements. Efficiency relates to how productively the resources are utilised for the achievement of the goals of a project. There is a lot of emphasis on acquiring the right project team that can execute project tasks in a manner that helps in the achievement of goals. Effectiveness, on the other hand, concentrates on measuring how appropriate the goals are which the organisation aims to achieve. The building as well as measuring of the effectiveness of a project begins right from the start when the scope of the project is being defined right at the planning stage since this scope largely revolves around the goals of the project and what the end-deliverables are (Desouza & Evaristo, 2006). The distinction between the two helps the management on focussing on the various aspects of business (Blomquist & Müller, 2006). Continuing the focus on the two factors, it is also implied that improvement is a major part of these terms. This requires evaluation of the processes and making incremental improvements with every consecutive project. Having clarity of plan is important for achieving projects' efficiency (Ika, 2009). Employees' contribution is another important factor in the achievement of projects' efficiency and only when they are motivated does it result in projects' efficiency and effective completion. The role played by PMO is multi-fold as it needs to conduct assessment on various aspects, such as project planning and compliance of project alignment with corporate strategic objectives. Furthermore, corrective actions for non-compliancy should also be undertaken by PMO. Firms in Abu Dhabi ensured that such checks and assessments were carried out, which helped them to achieve efficient and effective projects.

6.10.5 Project Portfolio Governance and Auditing

According to Desouza and Evaristo (2006), those PMOs which have established standards with appropriate governance will experience decreased project delays and cost over-runs. A PMO charter helps to identify its role, and perform various functions. These include project management integration into the enterprise, providing project management tools and overseeing the project cycle (Yaghootkar &Gil, 2012). Since the PMO charter spells out the purpose and objectives, roles and responsibilities, policies and authorities of the PMO, it is extremely important that there is regular review as well as update of the PMO charter. Furthermore, the charter should have clarity regarding the role and responsibility of the PMO office and its working members.

Programme managers and portfolio managers need a clear understanding of their responsibilities in order to ensure that their projects are managed effectively and efficiently, achieving the corporate objectives (Salameh, 2014). The PMO charter helps in ensuring this efficiency. The charter also helps to identify who the sponsors are, the support structure and staffing required for efficient delivery of services (Desouza & Evaristo, 2006). Thus, the PMO head or manager should be a member of the corporate board in order to achieve a balance. They also play a major role in the reviewing of project, portfolio and projects and have full visibility of the activities in order to suggest necessary actions. Based on the assessment of the activities the PMO is able to formulate important policies and procedures not just for execution of the project but also for the various committees that are part of the project execution and portfolio management such as risk committee, steering committee, governance committee (Yaghootkar & Gil, 2012). Many successful enterprises also have the PMO members as part of the project review committee as well as the internal audit committee in order to make necessary recommendations and corrective actions (Salameh, 2014).

Internal audit can play a significant role in helping an organisation to achieve its strategic goals with respect to project and portfolio management. Thus, an internal audit can be conducted by adopting the risk-based approach wherein each project that is being undertaken is selected and reviewed individually. For this, initial research becomes important as the project's relative importance needs to be determined. Internal audit of portfolios needs to focus on certain vital aspects, which will help to answer the importance of portfolio management.

- Determine the strategic importance of the projects under the portfolio to the corporate goals
- Determine the overall financial commitment to the portfolio and whether it is justified
- The impact of the portfolio on the financial performance of the organisation
- What regulatory or legal compliances are required for the management of the portfolio

- Determine the complexity of the portfolio
- Determine the time period required to complete the projects within the portfolio to yield results
- Determine all the major risks which are associated with the portfolio

All these aspects form the basis of internal audit, which can help in the proper management of a portfolio.

6.10.6 Challenges, Barriers and Best Practices of PGRC

The changing business climate is becoming extremely challenging and there is a need to address it. The changes are felt not just by the large corporations but even government entities can face issues. There are many important factors due to which application of GRC in Portfolios is important. These include:

- Presence of multiple projects and their execution in line with the corporate strategy to achieve corporate goals can be extremely challenging
- Stakeholders are increasingly demanding for high performance and more transparency in processes
- The growth of third-party relationships and associated risks presents certain management challenges
- Addressing of risks is vital but the associated costs are extremely high
- When the threats and opportunities are not identified, it leads to may consequences which are conducive to the growth of the organisation

It is due to these assorted reasons that PGRC has become important for all organisations, whether big or small, NGO's or governmental agencies. Addressing the above pointers is mandatory for the well-being of a business.

In order to integrate PPM and GRC, it is vital that there is a well-established GRC for the projects, programmes and portfolios within the entity. This can be achieved by having governance over PPP. Many entities have thus developed various committees such as risk committee, quality assurance committee and project executive board that ensure governance within organisation as well as on project and programmes (Desouza & Evaristo, 2006). However, the researcher noted via the interviews that the number of organisations that had established governance framework for individual projects was less. The reasons for this included lack of budget, lack of awareness regarding the role of each project manager and an overall lack of understanding of the PPM skills (Blomquist & Müller, 2006).

One of the major reasons cited by respondents in the interview with respect to barriers in managing the projects, programmes and portfolio was resistance to change and lack of integration between corporate and departments. On the other hand, challenges faced with respect to GRC on portfolio-included lack of awareness within the organisation on the importance of GRC on portfolio and maturity level of the PMO and existence of the project management procedure. Furthermore, in many entities there was lack of portfolio board to follow up on the implementation of the projects. This clearly suggests a need for the development of GRC framework that addresses portfolio. The lack of various vital initiatives suggests that the entities are not up-to-date with PGRC and thus a framework needs to be adopted by the organisations. The lack of urgency in this matter indicates that the entities are not well educated about GRC on portfolio which causes project delivery to be behind schedule. It is thus vital that a portfolio board is established which reviews the portfolio on a regular basis. The board would be responsible for reviewing the progress and offer corrective measures, make commissions and manage change (Müller, Martinsuo & Blomquist, 2008). It is also important that a governance structure be established that connects the portfolio via the project and programme boards. To address the same, it is important to establish a best practice checklist (Penny packer, 2005).

- Is there an incorporation of portfolio decisions into the management board and are change initiatives discussed?
- Who are the responsible personnel within the organisation for change initiatives
- Identify the people who escalate risks, changes and issues within the management board and give them the necessary tools for the same.
- In what manner are the risks, new initiatives and issues managed as well as communicated?
- Are there important decision-makers for each of the boards of Project, Programme and Portfolio? Do the decision-makers communicate at every level?
- Upon coming to a vital decision, how well is it communicated between portfolio and programme and projects?
- Is the entity equipped with the necessary tools for managers to communicate as well as share the lessons learned along with the necessary data information?

The suggested best practice checklist will enable the entities to deliver quality and value for money to the stakeholders and the customers (Pennypacker, 2005). The initiatives will also be a major source of motivation for leaders, managers and the teams of project and programme delivery to succeed. It is however important that the suggested initiatives be aligned with the

corporate strategy and organisational goals so that the expected benefits will result in operational movements (Müller, Martinsuo & Blomquist, 2008; Pennypacker, 2005). Implementing teamwork and embracing collaborative method of working will help in leveraging best practices within the organisation. Furthermore, according to Müller, Martinsuo and Blomquist (2008), it will also help in active management of risks, thus minimising disruption.

A number of critical factors have been identified by researchers that are responsible for the success or failure of government projects and portfolio; these include availability of budget and resources, dedicated governance structure to manage projects and portfolios, staff fluctuations, project schedule, monitoring and feedback, support of stakeholders and understanding of the key goals and objectives, enterprise-wise education regarding the concepts of risk management, adequate division of responsibilities on each project and the portfolio and an efficient delivery as well as management process that is based on the mutual co-operation of the project manager and the PMO (Kerzner, 2015; Too &Weaver, 2014; Steinfort & Walker, 2007). Thus, it is clear that success needs to be addressed not just from the perspective of top management, but also from the perspective of the stakeholders, active project team and the customers. Success is a collaborative achievement which involves joint-team effort in the identification of problems, formulation of solutions and effective delivery of these solutions (Kerzner, 2015). The next step involves fine-tuning of the strategies in a constructive manner (Steinfort &Walker, 2007). The researcher also observed that the critical factors were mostly lacking within the entities and thus it resulted in project and portfolio failure. Implementation of these factors is thus vital; therefore, it is best to integrate these critical factors into the PGRC model to achieve success as described above.

The importance of PGRC is largely missing in Abu Dhabi entities. This is mainly because GRC and PPM have not been explored jointly and there is very little literature in this regard. While project management is an important part of organisations in the UAE, they do not have any governance framework to address the issues faced in projects, programmes and portfolios. There is a need for a unified strategy that addresses the weaker processes of the organisation, while initiating important changes and ensuring change management at each stage. It is ideal to implement the PGRC model as it will help to achieve clarity as well as transparency on plans, thus meeting the strategic objectives of Abu Dhabi plan. Furthermore, the integration of PGRC will lead to proper coordination of infrastructure projects with the corporate strategy of the entities, which in turn will support the strategy of Abu Dhabi.

Based on the critical review of the PPM, GRC and PGRC practices followed by the entities in Abu Dhabi, the researcher suggests using important inputs in which the PGRC on government efficiency and processes can be enhanced:

- Delivery of projects should be efficient and effective
- Ensure there is a governance structure within the organisation that is responsible for each project and overall portfolio
- Have a risk mitigation plan as well as response plan for any delays caused due to change initiative
- Have experienced project managers on managing board as well as the PMO
- Availability of resources, project procedures and guidelines
- Communication channels on every level
- An effective means of learning from experience from the projects so that it can be utilised for continuous improvement of the process and procedures of project management

6.11 Conclusion

This chapter has conducted an in-depth analysis of the interviews conducted by the researcher and discussed literature with respect to the findings. The researcher was able to identify many shortcomings within the PPM and GRC of the entities present in UAE. It was identified that there is a lack of governance framework for portfolio and projects. Furthermore, there is a severe shortage of PMO in many of the entities within Abu Dhabi. Lack of such PMO indicates that there is a need for the establishment of PMO and adopting the PGRC framework. The framework that has been proposed by the researcher constitutes elements of PPM and GRC that can help the overall governance of projects and portfolio by addressing the various shortcomings. However, it was noted by the researcher that the PGRC framework that was previously developed by the researcher lacked a few factors which were important for the absolute success of projects, programmes and portfolio. In the ensuing chapter, the researcher will thus revisit the conceptual framework and suggest important changes that will help in the easy adoption of the PGRC framework and will also prove to be effective in bringing about necessary changes within the entities of Abu Dhabi.

7 REVISITING THE FRAMEWORK

7.1 Introduction

In this chapter, the researcher aims to draw a short outline of the research findings and conduct a short discussion regarding the findings. The lesson will also touch upon the lessons learned from the case studies and the literature review and thus revisit the conceptual framework that was proposed in Chapter 4 to add important factors to the framework that were identified by the researcher after conducting the data analysis. The researcher also presents a summary on the achievement of the research aim and objectives and whether the research was able to answer the research questions that were posed in Chapter 1.

The chapter focuses on deliberating the additional factors that were identified by the researcher during the data analysis and discussion in Chapter 5, which were not part of the literature review. Based on the findings and data analysis the researcher is also able to identify certain issues and limitations and therefore builds further on these aspects of PGRC and make necessary recommendations.

Chapter 3 and Chapter 4 presented the literature review based on which the conceptual framework was developed and presented. However, in Chapters 5 and 6 the data provided helped to assess the conceptual framework and thus revisit it. This chapter focuses on gathering the data and findings, considers the literature review and revises the proposed conceptual framework of Chapter 4. The researcher also identifies the challenges and barriers of PGRC and the fact that change management plays a major role in the implementation of PGRC. Thus, the researcher has provided the necessary change management approaches. While the researcher has built the framework based on the study conducted in UAE, he aims to make it generic and applicable to all businesses and corporations across the globe.

7.2 Findings and Discussions

7.2.1 Lessons Learned from Case Studies

In this section, the main objective of the researcher is to briefly summarise all the main findings of Chapter 5. As was reviewed in the Literature Review Chapter, there are not enough studies that have studied PPM and GRC together and there exists no literature linking them both. Thus, the researcher undertook case study research in three public sector organisations to:

- Test and validate the components of PPM
- Test and validate the components of GRC

- Map both the above components into a single framework
- Identify the barriers and challenges in the implementation of PGRC
- Identify change management approach to make the implementation process easy

Based on the findings of the case studies in Chapter 5 and the ensuing analysis of the results, apart from validating the data, additional factors were also identified by the researcher, which are discussed in this chapter. Based on these findings, certain changes had to be incorporated within the conceptual framework. The modified conceptual framework is presented later in the chapter. The outlines of the lessons learned from the research findings are presented below:

- When the conceptual framework presented in Chapter 3 was tested and validated, it was identified that few of the factors vary from country to country. Thus, in order to successfully integrate PGRC, it is important for every organisation to identify its factors and be prioritised. For example, while face to face interviews are preferred methodology for gathering information in the case study organisations, other organisations may prefer surveying and direct observation.
- From the interviews, it was observed by the researcher that respondents believed in better clarity and transparency of purpose to be able to implement PGRC.
- From the survey, it became obvious that there is a severe disconnect between the corporate and departmental levels. For example, while best practices are followed by the corporate level, they are not being followed at the department level.
- While the portfolios are being handled efficiently, with regular reviews, the researcher noted that individual projects at the organisations are not well controlled due to lack of awareness about the role and responsibility of each project manager to follow all existing procedure and ensure there is proper reporting about project status, risk, cost, etc. Lack of experience and knowledge about project management skills and lack of departmental level alignment with corporate level, lack of communication and adherence to the existing policy were all the major reasons for the non-application of PGRC.
- The researcher observed that all the respondents agreed that their organisations followed the best practices of PPM and GRC and acted upon the lessons learned. This leads to improving of portfolio management and project execution.
- The researcher also noted that each respondent who participated in this research had varied opinions about GRC and PPM within his/her organisation. However, mapping these differences helped to develop the new conceptual framework.

- Change management is an important concept, which needs to be addressed in the new conceptual framework since it poses as a major hurdle in the complete adoption of PGRC. This was evident from the responses that the researcher received from the participants.

7.3 Achievement of Research Aim and Objectives

The aim of this research is to *propose a conceptual framework to assess Abu Dhabi government entities to have Portfolio Governance, Risk and Compliance (PGRC) on their Projects, Programmes and Portfolio.*

To achieve the above aim, the researcher carried out case study of three government entities with a generic view of establishing whether the proposed objectives in Chapter 1 could be achieved or not. As a result of the research aim, the main objectives that were identified are:

7.3.1 Objective 1

To identify the factors that influence portfolio governance, risk and compliance and their role in the adoption and participation phases of PGRC

To achieve this research objective, a succinct review of the various literatures and view on the domain of PGRC and the way of adoptions GRC on the projects was conducted. In addition, an examination of the factors of PPM in the context of GRC in government entities was made.

Findings: Upon conducting an in-depth review of literature, it was identified by the researcher that there is very literature available in the domain of PGRC. There are no studies which have outlined the effects of amalgamating the PPM and GRC components together to formulate a PGRC framework. The need to have robust governance always exists to achieve a successful and efficient portfolio management. Handling a project within a portfolio involves adhering to other projects and objectives, ensuring that the right projects are picked. The literature review suggests that in order to significantly reduce the risks in a project portfolio, a portfolio-wide approach should be taken up. This is so that resources can be allocated and adjusted to accommodate projects. It also puts into consideration the other risks that may arise for additional projects throughout the portfolio, due to the interdependence between the projects.

Furthermore, within the literature, various theories in PGRC were identified such as the Four-stage GRC maturity model, GRC capability model 3.0, integrated conceptual GRC model, portfolio project management model, project portfolio management maturity model, Modern Portfolio Theory (MPT), stakeholder theory on governance and evolutionary governance theory.

By taking vital components from these theories the researcher was able to formulate the PGRC framework.

The researcher conducted a literature review to understand the application of PPM in the context of GRC. GRC is a critical business idea that assimilates a proactive and efficient risk-based approach to management which can then be utilised within the entire firm. For effective management of portfolios, there is a requirement for firms to maintain control and achieve balance over requirements of conflict even during limited resources. Therefore, upon conducting the literature review, the researcher was able to identify and co-relate a relationship between PPM and GRC components. He was therefore able to develop a PGRC framework in Chapter 3 which combined the vital components of PPM and utilised it with GRC to ensure quick delivery of projects and alignment of portfolio with the strategic objectives of the organisations.

7.3.2 Objective 2

To identify the factors that affect the adoption of PGRC in government entities in Abu Dhabi and validate them through the development of a conceptual framework

Findings: The researcher upon conducting case studies of three government organisations and presenting the surveys to the participants was able to conclude that for successful adoption of PGRC by government entities, there is a need to address many other challenges that are present in the functioning of these organisations. For example, it is important that there is a better communication between the corporate and departmental levels. It was observed by the researcher that the concepts of GRC were being adopted at the corporate level but not at the departmental level. Therefore, for adoption of the GRC methodologies, it is important that it is first adopted at the departmental level and then at the corporate level. In order to bring about the implementation of the PGRC, it is vital that certain practices are followed by organisations that would ensure a smooth implementation. These include national, international, local and regional best practices. These best practices are developed to ensure that the organisations are protected appropriately against any kind of potential risks.

Corresponding to the participation phases, which can support corporate GRC in government entities, the significance of PGRC was determined. Those PMOs which have established standards with appropriate governance will experience decreased project delays and cost over-runs. Presence of multiple projects and their execution in line with the corporate strategy to achieve corporate goals can be extremely challenging; therefore, upon conducting the literature review and survey, the researcher concluded that in government organisations, which take up

multiple projects at time, adopting PGRC can be extremely beneficial since it helps to keep track of the projects, keeping them in line with the corporate strategy as well as goals.

Based on the factors identified, a conceptual framework for PGRC adoptions for proper corporate GRC in the government entities was developed. The researcher took up literature review to identify the various components of PPM and GRC to identify the manner in which these components could be unified to develop a conceptual framework. For the sake of this study, the researcher studied each of the components separately, identifying their benefits, barriers and challenges and their importance, thus forming the conceptual framework which has been presented in Chapter 3. Past researchers in the area of PPM and GRC have led various investigations on building an effective model for multiple projects. However, the focus of the models was on project level or risk management as the primary elements. Lack of coordination in the GRC elements within PPPs create inconsistencies in the control functions, leading to increased costs. While it is found true that the GRC framework is interdependent, however, it needs a unified solution that leads to effective PGRC management across all levels of a firm. The integrated PGRC framework proposed by the researcher in Chapter 4 is an approach that is based on the elements of GRC identified in the Chapter 4 and of PPP as reviewed in Chapter 3. Portfolio management encompasses execution and adoption phases, which also correlate with the individual elements of the GRC function, yet are distinct in nature.

By analysing the empirical data obtained through multiple case study analysis in Abu Dhabi, investigation of the proposed conceptual framework was conducted. The initially presented conceptual framework in Chapter 4 has its basis in the literature review. The researcher, after conducting multiple case studies of government agencies in UAE was able to gather vital empirical data. This data helped the researcher to identify certain additional factors which should be a part of the conceptual framework. These factors have their root in the data gathered by the researcher and therefore they were not a part of the original conceptual framework that was proposed in Chapter 4. The updated framework will have greater applicability and can also be adopted by other organisations.

7.3.3 Objective 3

To identify strategic steps required to be conducted by governments to gain maturity in PGRC.

Findings: After presenting the revised conceptual framework, the researcher was able to identify many novelty contributions that this research has made in the fields of PPM and GRC. These include the unification of PPM and GRC, the identification of GRC framework, and its strategic

application in portfolio management. PGRC framework can be extremely beneficial for the government as it not just helps in the accurate management of multiple portfolios but also ensures that there are minimum risks and that the risks are mitigated in order to minimise any losses. The main aim of any organisation is to achieve its targets while fulfilling the corporate goals and this can be achieved only through the unification of PPM with GRC.

7.4 Revised Conceptual Framework for PGRC

In the conceptual framework presented in Figure 7-1 the researcher has identified additional key factors which have an effect on the portfolio management in any organisation.

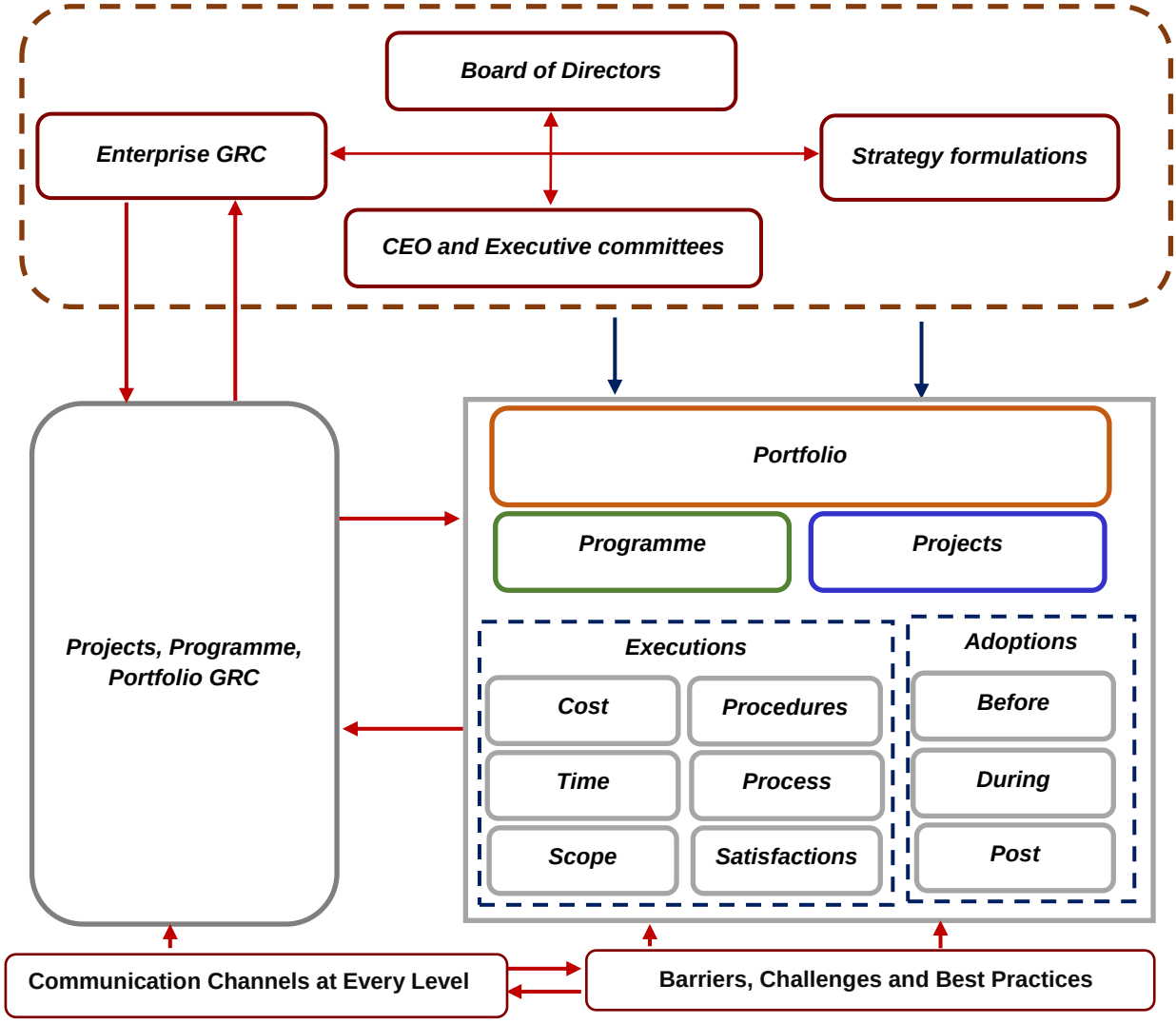

Figure 7-1: Revised conceptual framework

As can be observed in Figure 7-1 the researcher added important considerations into the framework, which include Barriers, Challenges and Best Practices and Communication Channels at every Level. These two new components of the framework are discussed at length below:

7.4.1 Barriers, Challenges and Best Practices and Communication

Barriers and Challenges

When the researcher inquired from the participants, what were the main challenges and barriers in the execution and management of multiple projects, the respondents identified resistance to change as a major barrier. Resistance to change refers to when the employees are not ready to adopt new systems. By applying change management techniques, resistance can be overcome.

- It is advisable to utilise a structured change management approach right from initiation of the PGRC adoption
- Enlist the top management as the key sponsors of the change
- Enlist help of the management which includes the middle managers and frontline supervisors as the advocates of change within the organisation
- It is vital that the key people in the organisation clearly communicate the need for change and its impact and benefits to the employees

The above tactics form a part of the structured change management approach and they address sources of direct resistance. It is advised to apply the above tactics early on the project cycle to completely avoid change resistance.

It is important to remember that resistance to change is a usual phenomenon and thus top management should not be shocked by it. Even while the PGRC presents a wonderful solution, there will still be resistance to change from the employees since they are set in their ways and refuse to change or update. Top management must therefore be prepared to take this into consideration while designing PGRC adoption.

Another major barrier that was identified by the respondents of the survey was the lack of an experienced project manager who would understand the importance of GRC for portfolio management and have the necessary skills to adopt and execute PGRC. This can prove to be a major barrier in the successful adoption of PGRC since a project manager should not only be adept in all the necessary processes but also be a strategic partner who is entirely interested in the organisational success. It is important to note that the success or failure of a project is not entirely based on one person alone. The effectiveness of a leader is impacted greatly by the

contributions made by the other members of the team. Highly effective project managers are known to have the skills to motivate the team member towards the completion of a project and present their highest skills. Furthermore, as identified by the researchers as well as the respondents, the ability to influence a number of stakeholders is an extremely important trait of a successful project manager. It is common knowledge that the scope of work on a project may keep altering; a project manager should be able to communicate these changes to the stakeholders as well as the team member in a manner that they are all on one page and are able to implement the changes unitedly.

The other barrier that was identified included the fact that there was no consistency in approach in delivering the portfolio. To counter this, it is advisable to start projects with best practices so that all the hurdles that are plaguing the projects are overcome. It is important to define the scope of the portfolio and validate viability of the portfolio from the business perspective. To do so, managers will have to prioritise the projects and define the portfolio strategy. It is also advisable to define the business indicators, which can be utilised for assessing the health and performance of the portfolio. In order to deliver highest value, it becomes extremely important to select and prioritise projects within a portfolio. These decisions are based on the benefits associated with individual projects and its overall impact on project portfolio.

7.4.2 Best Practices in PGRC

For the PGRC framework to be implemented successfully across the projects, it is vital to follow certain important best practices of PGRC.

- Integration of the GRC departments: In the by gone era, risk management included conducting internal and financial audit. However, due to changing technology, the risk landscape has changed drastically. Risk managers are now responsible to address the financial, legal, political, strategic, operations, continuity and emerging risks. There is a requirement to hold diverse domain knowledge to be able to mitigate risks; thus, it is best to breakdown the risk function in silos and develop an integrated approach to determine them under one head.
- Appointment of Chief Risk Officer: It has been observed that risk management heads do not report to the CEO directly and therefore many times the risk management issues are not known to the CEO directly. This problem is further aggravated when GRC department heads report to functional heads. In such scenarios there is always a possibility of risks being ignored and unaddressed completely. It is due to this reason there is an urgent need to appoint a Chief Risk Officer for Portfolio management who reports directly to the CEO.

- Develop a Risk Management Strategy: While many companies have their risk tactics in place, there is no formal strategy to guide them. Many organisations carry out reviews and audits without having a solid strategy in place. Thus, risk managers of the organisations simply navigate through risks with just these risk management tactics. Therefore, it becomes necessary to develop a risk management strategy that is in line with the business strategy or the organisation and management attitude.
- Invest in necessary tools and technology: With the changing business environment, there is a need to adopt new technology and leverage it against portfolio management. It is necessary to invest in more tools and technology, ensure better management of projects, and risk management. Utilisation of latest tools also helps in the improvement of resource utilisation and helps the organisation to address uncertainties.

These best practices when included within the scope of PGRC framework can help to enhance the framework effectively in such a manner that becomes applicable universally.

7.4.3 Communication Channels at Every Level

Miscommunication is a fact, which can happen at any stage and can cause unnecessary delays in project execution. Project managers must therefore pay special attention to establishing communication channels at every level. The respondents in the interview had noted that there was a general lack of communication and this led to chaos within their organisations, wherein the vital information was not reaching the intended audience.

In order to communicate effectively, it is important that the project managers have a fine grasp of the communication process. The communication process requires an effective medium via which the information is transmitted to the receiver. This medium could take shape of any form, each having its own merits and effects on the receiver. It is important to note that a number of factors can affect the message quality, such as values, beliefs, the medium that was utilised etc. This can affect the manner in which the recipient reacts to the message; for example, when a project manager communicates with the key stakeholders via email instead of a phone call to avoid harsh rebuttal. However, this may not be acceptable to the stakeholders. Therefore, it might be necessary to formulate an effective communication plan.

In the fast-paced business world, clear communication is a pre-requisite for successful PGRC. While there is an undeniable importance of effective communication, there still exists many loopholes in effective communication strategies within the organisations. Disseminating information accurately to the key stakeholders and the team members in a concise, engaging and

coherent fashion can have a major effect on the business objectives of the organisations. Thus, in order to communicate effectively to achieve maximum outcome should be the goal of project managers.

Dissect Jargon

In order to be able to present the data in a clear manner, it is important that the project managers craft the portfolio in a manner that it caters to the entry level of expertise. This is especially important while holding a conversation with the board members or shareholders since it is important to remember that not everyone hails from similar work background. It is therefore vital to assess the presentation right during the production stage and dissect any jargon that will help to make the presentation more linear and alleviates potential misunderstandings. It can be rather challenging to keep the presentation simple yet not completely amateur. The narrative should therefore focus on providing information to all level of expertise and aim to deliver the main point of the discussion.

Context

It happens that the intended context of the message may be delivered but is not received by the recipient. This likely creates misunderstanding and may in many cases lead to mistrust. Transparency and repetition are the two communication tools which can be utilised in such a scenario to maintain proper clarity of the message as intended. Evaluating the visibility and transparency within the presentation can significantly help to ensure that the message is received in the right context. It can also prove to be beneficial if the key factors are restated and reiterated, as it will help provide better level of context. By displaying the information in a way for all the stakeholders and shareholders to be on the same page helps to cancel any misunderstanding, provides a better understanding, and also enables the project manager to provide greater insight into the subject matter.

Over-prepare

While presenting the product portfolio seamlessly helps in achieving the best outcome, it is vital to understand that the strength of the portfolio delivery is not only based on the clarity of view but also in being able to come up with clear answers to those questions which may arise after the idea is reported. Often times the shift may lead to new ideas. Therefore, it is important to completely research the topic, especially those that are uniquely related to the project, as it will open avenues for deeper conversations. When planning for a presentation, preparation is

extremely important; project managers need to be creative in their approach while also ensuring there is a connection to the main area of focus.

Today, more than ever, it has become crucial for project managers to effectively communicate with their employees at each level to ensure that there is clarity regarding the expectations from the projects so that it helps in better PGRC. Lack of communication will make the plan not clear to the workforce and therefore they may not execute the projects as desirable. Therefore, this component is an important element that has been added to the PGRC framework by the researcher.

7.5 Change Management

From the literature review it was identified that with the application of PGRC, there will be significant changes in the manner in which portfolios are handled. Furthermore, when any new approach is being adopted, it brings about major changes within the office culture. This change is met with resistance. While stakeholders demand stability and predictability, the implementation of the framework will bring about major changes which will be experienced not just by the employees, but by the top management as well as the stakeholders. A culture needs to be developed within the organisation that always keeps moving ahead.

During major transformations, the focus of the top management is on devising the best strategic and tactical plans to deal with change. However, there is also a human side to change management, as resistance is felt from the employees. It is therefore important to align the company's culture, people and behaviour in a manner that it helps to achieve the desired results. While the decision-makers may be worried about change, some of the approaches to change management can make it easier.

- Address the change systematically: when a significant transformation takes place, it creates a 'people issue'. This includes the introduction of new leaders, workforce being asked to adapt to the new approaches, new skills and capabilities to be developed which will all lead to employees being resistant to change. Thus, a formal approach for managing change should be developed that would start from the leadership team and then engaging the employees and decision-makers. This should be developed and adapted early as change slowly spreads through an organisation. It is advisable to fully integrate the change management programme into the programme design and decision-making approach so as to develop a strategic direction.
- Start at the Top: Since change is unsettling for people inherently at all levels, when the change occurs, everyone including the workforce looks up to the CEO for strength and

support and leadership. Therefore, leaders must embrace the change themselves first in order to motivate the employees. Those executive teams, which work through change together, are best positioned for success since they are aligned and committed towards the direction of change.

- Present your Case: Even though employees work for an organisation, they demand answers to certain queries, especially regarding why a change is needed and whether it change will help the organisation to head in the right direction. For this, employees will look up to the leadership for answers and only when they receive satisfactory answers will they personally commit to the change. It is therefore a right opportunity for the leadership to present their case and also develop a written vision statement to ensure alignment of leadership, workforce and organisational change.

These aspects need to be considered while adapting the PGRC framework as it will bring about major changes in the manner portfolios are handled. When the leadership of the organisation takes initiatives to bring about the necessary changes and yet hold together the workforce, it results in success.

7.6 Testing the Revised Conceptual Framework for PGRC

In order to evaluate the effectiveness of the revised conceptual framework proposed in this chapter, a focus group discussion was conducted with five PGRC experts in UAE. They were assured that their names will not be published in the research in order for them to give their opinions freely. The PGRC experts selected the focus group differently from the case study participants in order to get different perspectives from different subjects. The summary of the focus group discussion is presented below.

Majority of the participants agreed that bureaucracy in UAE government entities makes the project management practices complicated. One participant commented that “bureaucracy let people to focus more on the processes without focussing on the end result”. Another participant confirms that “UAE government entities have red-tapism which requires extensive paperwork to be completed before any action can be taken. This makes the processes quite long and extensive”. The participants agreed that majority of the government entities in UAE do not have project management offices. One participant exclaimed that “it is astonishing to note how government entities seek to meet their corporate aims through their projects without having a proper project management office”. All the participants agreed that the project management office

should be headed by experienced project manager who would ensure that the projects are aligned with the organisational goals.

When the participants were asked to comment on the PGRC practices followed in UAE and how the revised framework would improve them, they all seemed to agree that the revised framework can be implemented at corporate level as well as departmental level.

One participant confirmed that “the current PGRC practices in UAE are quite misaligned and there is difference between corporate level objectives and departmental level objectives which make PGRC ineffective”. This led to a unanimous agreement that the revised framework will be effective in providing an alignment with corporate and departmental level objectives. Another participant noticed that “the current practices do not make the projects to align with organisational goals which result in a gap between project goals and organisational goals. I think the revised framework will remove this gap”. One of the participants was satisfied with the way the revised framework has ensured proper integration of organisational goals and corporate strategy in the implementation of projects. The participant exclaimed, “I see huge improvements in the project management with this framework and I hope there will be better practices with the use of this conceptual framework in the UAE organisations”.

The participants also largely agreed that the proposed framework will help organisations in deciding and selecting projects based on their strategic goals. One of them stated that “bureaucracy, red-tapism, self-interest and bias are some of the factors that affect the decision-making process in project management in government organisations in UAE. I hope the proposed framework will solve these problems”. Another participant also agreed that “the proposed framework will link decision-making on projects with the corporate strategy”.

When the effectiveness and efficiency of projects were discussed, the participants agreed that government organisations already have clear auditing practices which are used to assess projects and learn lessons for future purpose. One participant commented that “the framework proposed will help to streamline the auditing process and assess projects to know if they are based on formulated objectives and budget”. Another participant said that ‘the effectiveness of portfolio auditing is expected to be improved with the proposed framework since it will ensure that the projects under the portfolio are aligned with the corporate objectives, the financial performance of the portfolio is assessed and compliances are monitored”.

When the participants were asked to comment on the importance of GRC for portfolios, they all insisted that it’s imperative for the success of portfolios. One participant commented that “when organisations need to manage multiple projects, their management, budgeting, timing,

resource allocation and alignment with corporate objectives become challenging. This makes PGRC very important to effectively manage portfolios".

Another participant identified the risks involved in today's environment and said, "today's environment is very dynamic with fast changing internal and external factors influencing organisations in their decision-making process and this makes it important for government organisations to ensure they are engaged in projects which contribute positively and not a burden on them". One participant insisted on the effective management of risks involved in projects these days, "huge amounts of money are invested in projects and other huge resources are allocated like hiring new employees and employing new technologies, which make projects a risky business". Risk mitigation strategies are thus found to be important from the discussion as agreed by all the participants who also showed their high level of trust on the proposed framework for risk management of projects.

The participants also acknowledged the importance of the communication aspect and were satisfied with how the proposed framework ensures effective and open communication at every level. One of the participants, however, showed concern that "this will create chaos initially since government organisations are mostly structured in multi-tier hierarchy with bureaucratic behaviour and long power distance between higher management and lower staff, making it difficult for lower level staff to have direct communication with the higher management". This led to the very important aspect of change management which has been identified in the present research to be needed with the application of PGRC in organisations. It is generally agreed that major changes are needed in organisations before the PGRC can be applied for it to be effective.

Overall, the participants appreciated the efforts made by the researcher in formulating and proposing a PGRC conceptual framework for government organisations to use in their programmes, projects and portfolios. The participants expect that the framework will help the organisations to manage their portfolio effectively since all the key aspects have been taken into consideration while designing the framework. The focus group discussion led the researcher to have consensus on the effectiveness of the proposed framework.

7.7 Conclusion

This chapter focuses on evaluating the additional factors that have been identified by the researcher during the data analysis and added them into the revised conceptual framework. The new framework thus included factors which were not present in the original framework: barriers, challenges and best practices and communication at all levels. These two factors play a major role in how the PGRC will turn out and therefore it is important to include them in the framework.

The researcher added these factors after analysing the data and thus this framework was tested and validated. The revised conceptual framework that has been presented in this section is unique and adds novel contribution because:

- This is one of the first frameworks that explores the relationship between PPM and GRC. While the two have been studied separately, there is little to no research that has unified these two business strategies together to formulate a framework that addresses the importance of GRC for Portfolio.
- This model concentrates on unifying the various aspects of GRC with PPM. However, to do so, the researcher has first validated each component separately and conducted data analysis to ensure the factors were relevant to various set-up. The researcher specially added the two dimensions as they were the recurring themes which posed a problem for the implementation of the PGRC and in their absence the framework seemed incomplete.
- This framework can be utilised by top management, executives, department heads, project managers and decision-makers to understand the impact of PGRC and how it can be utilised in the proper management of multiple businesses. This research has also helped to bring to the fore the best practices that should be utilised for PGRC.
- Another novel contribution is that the model identifies the key actors that are responsible for the smooth functioning and management of multiple projects, which form a portfolio. The amalgamation of PPM and GRC formulate to provide the PGRC framework, which will help in the overall successful management of multiple projects undertaken by the Abu Dhabi government.
- The research has also helped to dwell on how change resistance should be countered and managed when the employees and the top management do not agree on change. Change management is an issue, which has been hardly discussed in literature with respect to PGRC, and thus this research has helped to offer techniques which can be used to execute successful change management.
- The revised conceptual framework will act as a handy tool for decision-makers, multiple programme handlers and project managers.
- The conceptual framework consists of those factors and elements, which can be tested and verified. Furthermore, these factors can also be mapped to identify additional factors, thus giving an opportunity to modify the framework further.
- In case of an academic point of view, the framework consists of those components, which can be studied independently and helps to better understand the barriers and challenges that are faced in an organisation.

In the next chapter, the researcher will present a research overview, explaining what was identified in each chapter along with the findings and explaining the research outcomes with respect to contribution to the body of knowledge. This will aid in understanding the direction of the research. Furthermore, the researcher will spell out the limitations that were met while developing and researching for this study. This will further help to discuss the issues and present recommendations for future research in the field of PGRC.

8 CONCLUSION & RECOMMENDATIONS

8.1 Introduction

In this chapter, the entirety of the thesis is captured by examining all the various important areas that have been covered in the research study while also drawing conclusions from the research objectives, literature review, data analysis and conceptual framework. This chapter also presents a short take on the findings while discussing the theoretical as well as practical contributions that are made by this research to the body of knowledge with respect to PGRC. Having spotted out the research limitations, the researcher made certain important recommendation for future research on the unification of PPM and GRC to develop PGRC.

8.2 Research Overview and Findings

8.2.1 Research Overview of Chapters 1-8

Over the years, the adoption of PPM has experienced significant growth in a variety of disciplines with the aim of ensuring that tasks are aligned to the diverse sectors and departments (Kaiser, 2015). Given that interrelationships in various business environments have led to the rise in the number of projects that are undertaken together within government, there has been an increase in the need to have GRC on the running portfolio, programme and projects.

Chapter 1 of this thesis concentrated on providing a brief background regarding the research context while also discussing the rationale and motivation for undertaking the study in the field of PPM and GRC. This chapter also provides the aim, which is to *propose a conceptual framework to assess Abu Dhabi government entities to have Portfolio Governance, Risk and Compliance (PGRC) on their Projects, Programmes and Portfolio.* To be able to achieve this aim, the researcher concentrated the study on 3 important research questions seen in Chapter 1.

In Chapter 2, a brief discussion has been undertaken to study the relevance of GRC and PPM to Abu Dhabi government organisations. The chapter started with giving a short introduction and description of the Emirate. As there are no previous literature and research on GRC and PPM in Abu Dhabi organisations, the researcher attempted to study why it would be relevant for Abu Dhabi organisations to effectively implement PGRC, how it can be linked with the organisational strategy and how it will be beneficial for the organisations. The chapter also discussed how the implementation of a PPM framework will lead to a better use of government resources resulting in better public satisfaction. The relevance was established in the chapter which formed the basis of the continuity of the research.

In Chapter 3, the researcher concentrated on conducting an in-depth literature review, which dwells on the various aspects of PPM and GRC with their characteristics evaluated. The researcher has identified a number of factors through this literature review which was used to formulate the conceptual framework.

The researcher first shed light on PPM by stating that portfolio management focuses on making decisions around programmes or projects and executing them based on the overall organisational goal and objective alignment (Jonas et al., 2013). Programme management in this respect has been regarded as a middle layer that emphasises on delivering benefits to business (Unger, Gemünden & Aubry, 2012). In definition, a portfolio is noted as a collection of projects (or programmes) that are managed with effective coordination to achieve a set of corporate objectives (Morris &Jamieson, 2005; Khameneh et al., 2016). Some of the most important aspects discussed on PPM in the literature deals with the centralised view of the project portfolio that raises the need for a centralised view of an organisation's projects. The preparation of an inventory of current and proposed projects, preferably though a central area responsible for collecting, analysing and distributing project information in a common format is seen as the primary step in the adoption of PPM approach. The researcher, after establishing the importance of PPM, explained the various components of PPM, which included strategy and governance. After explaining the process of PPM, the researcher discussed the various success factors of PPM as well as its challenges.

The researcher, after explaining the concept of PPM, explained the meaning of GRC. The researcher explained each concept individually to make the reader know the importance of GRC. Later, it was discussed that an integrated approach to GRC was necessary. The researcher noted that because of the numerous different processes being established under each division of a huge company, especially with the case of risk compliance initiatives, challenges arise when meeting both regulative and organisational points of view. Due to the numerous processes set in place, the problem of duplication and conflicting actions take place. These multiple systems of operation are expensive to maintain and implement across different divisions, causing them to slowly lose control and become a burden to the organisation's operations. With the help of the integrated GRC process, a single system is all that is needed to handle the multiplicity of governances, risks and compliance initiatives, all at once. The primary purpose of a GRC process is to make relevant changes to the organisation to provide a single solution that solves multiple facets of the organisation's structure.

Thus, based on the above discussion regarding PPM and GRC, the researcher developed the relationship between both concepts, leading to PGRC. The researcher mapped the Portfolio

component with each of the components of GRC namely Portfolio Governance, Portfolio Risk Management and Portfolio Compliance. Once the relations were established with the components of GRC, the researcher presented a number of theories in PGRC which included Four-stage GRC maturity model, GRC capability model 3.0, integrated conceptual GRC model, Portfolio project management model, Project portfolio management maturity model, Modern Portfolio Theory (MPT), Stakeholder theory on governance and Evolutionary Governance Theory. By taking vital components from these theories, the researcher was able to formulate the PGRC framework in the next chapter.

Chapter 4 is made up of the conceptual framework that was developed by the researcher based on the findings of literature review in Chapter 3. Considering the various theories that were discussed in the previous chapter, the researcher identified the gaps and developed a conceptual framework for adoption of PGRC in organisations. The chapter presented a detailed review and examination of the strategic framework for the elements of GRC, leading to the formatting of the strategic GRC and narrowing it down to the PGRC framework. To develop the framework, the researcher first studied the various frameworks for each component of GRC. After studying these frameworks, the researcher developed a unique PGRC framework, which included components from all the other component frameworks to ensure that the framework was not only holistic but also tested previously. The researcher stated that for effective management of portfolios, there is a requirement for firms to maintain control and achieve balance over requirements of conflict even during limited resources. This requires coordination in the project portfolio leading to an optimum outcome for the firm. Past researchers in the area of project portfolio management and GRC have led various investigations on building an effective model for multiple projects. However, the focus of the models was on project level or on risk management as the primary elements. Lack of coordination in the GRC elements within PPPs creates inconsistencies in the control functions, leading to increased costs. Thus, the researcher developed an integrated framework for PGRC.

The new integrated PGRC framework is an approach that is based on the elements of GRC identified in Chapter 4 and of PPP as reviewed in Chapter 3. The researcher also touched upon the importance of PGRC stating that the amalgamation of PPM and GRC led to the formulation of the PGRC framework, which will help in the overall successful management of multiple projects undertaken by the Abu Dhabi government. PGRC integrates the important aspects of PPM and GRC hence helping in cost cutting, risk reduction and increased return on investment. In this chapter the researcher was also able to revisit the RQs that were established in Chapter 1 and was able to provide answers to them all thus justifying the research purpose.

In Chapter 5, the researcher described the research methodology that was utilised for this research study. The researcher introduced the data theory in this chapter, explaining the epistemological stances, and reason for choosing the interpretivist stance. In addition, the researcher provided justification for choosing qualitative analytic approach since it fits right for the PPM and GRC studies and is also most suitable for the case study approach. The researcher also discussed the research strategy and research design at length in this chapter. Data were collected via administrating interviews with 27 participants from the three case study organisations that were chosen by the researcher. Various methods were used to survey the participants- face-to-face, telephonic and web-based questionnaires. Details regarding the same are presented in table 8-1.

Case study	Type	Interviewee position	Interviewee syncopate	Type of Interview
Case Study # 1	Government entity from utilities	1. CEO	CEO	Email/Face to face
		2. PMO Head	PMO	Email/Face to face
		3. Department Director	DD	Email/Face to face/Telephone
		4. Portfolio Manager	PM	Face-to-face
		5. IT and Information System Director (Portfolio Management Software leader)	IT	Email/Face to face/Telephone
		6. Enterprise Risk Manager	ERM	Face-to-face
		7. Internal Audit Manager	IAM	Face-to-face
		8. Employee dealing with Portfolio and PPM / PMO	Employee	Face-to-face
		9. Strategic Planning Director	SP	Face-to-face
Case Study # 2	Government entity from infrastructure developments	CEO	CEO	Email/Face to face
		PMO Head	PMO	Email/Face to face
		Department Director	DD	Email/Face to face/Telephone
		Portfolio Manager	PM	Face-to-face
		IT and Information System Director (Portfolio Management Software leader)	IT	Email/Face to face/Telephone
		Enterprise Risk Manager	ERM	Face-to-face

		Internal Audit Manager	IAM	Face-to-face
		Employee dealing with Portfolio and PPM / PMO	Employee	Face-to-face
		Strategic Planning Director	SP	Face-to-face
Case Study # 3	Government entity from utilities services	CEO	CEO	Email/Face to face
		PMO Head	PMO	Email/Face to face
		Department Director	DD	Email/Face to face/Telephone
		Portfolio Manager	PM	Face-to-face
		IT and Information System Director (Portfolio Management Software leader)	IT	Email/Face to face/Telephone
		Enterprise Risk Manager	ERM	Face-to-face
		Internal Audit Manager	IAM	Face-to-face
		Employee dealing with Portfolio and PPM / PMO	Employee	Face-to-face
		Strategic Planning Director	SP	Face-to-face

Table 8-1: Methods applied for data collection

It was important to carry out these interviews as they helped to test and validate the conceptual framework that was proposed by the researcher and also helped to identify additional factors that were absent in the Literature Review.

In Chapter 6, the researcher has presented the results of the interview that the researcher carried out with the 27 participants, nine from each entity. The researcher presented the case study background and an in-depth result of the responses that were acquired. This chapter also offers an analysis of the all the data that had been collected by the researcher by means of interviews. The researcher thus conducted a discussion, which addressed the different parts of the interviews and findings of the results and re-established a link between them and the literature review that was carried out in Chapter 3. This discussion basically tested and validated the components of the conceptual framework introduced in Chapter 4. However, this discussion also enabled the researcher to identify certain additional components that in the opinion of the researcher should be a part of the conceptual framework. This analysis was important for the research so that the findings could be discussed easily in the next chapter while also making necessary additions.

In Chapter 7 is where the researcher re-visited the conceptual framework that was in Chapter 4. In this chapter, the researcher first presents the findings, which was analysed through the data collected by the interviews that were administered by the researcher. This was an important step to not just validate the conceptual framework but also evaluate the implementation of the framework. The findings also validated the framework since most of the respondents agreed with the components that were a part of the framework. Furthermore, the respondents in many cases also made certain vital suggestions, which could be adopted to further strengthen the framework. Based on these findings and discussions, the researcher was also able to highlight the lessons learned from the three case studies. It also presented an opportunity to identify whether or not the research aim and objectives were met. The researcher then identified the additional factors which were not part of the original framework and revisited and established a new conceptual framework which integrated these additional factors. The new framework was validated based on the data analysis and discussion. The researcher also shed light on change management, which is an effect of the application of the new PGRC framework, since its application would bring about changes in the manner in which portfolios were handled and the manner in which the leadership will function. This was an important aspect of the after effect that the PGRC framework would have on organisations, and thus it was addressed by the researcher in this chapter.

Chapter 8 is the concluding chapter, which first presents an overview of all the research and then discusses the novel contributions that are made by this research study. The researcher finally summarises what were the research contributions made by this study, and discusses all the research limitations that the researcher experienced, thus making an argument for future recommendations.

8.3 Research Findings

In this section the researcher presents the key outcomes and findings that were derived due to this research (Table 8-2).

Finding Number	Description
Finding 1	The review of literature suggested that while there exists theories and models for PPM and GRC, these components have not been studied in a unified manner. As discussed in the literature review, due to the increasing number of projects that organisations take up, there is an urgent need to address the right manner in which multiple projects which form a portfolio can be managed while staying focused on the GRC. The absence of this literature resulted in the development of the present research study.
Finding 2	While understanding the various components of PPM and GRC, this study has attempted to study these components in a unified manner. Furthermore, the study was not limited to business organisations only, instead the researcher studied the application of these components in governmental agencies and understand how they affected the same.
Finding 3	The researcher upon conducting the data analysis identified the fact that the conceptual framework did not address the challenges and barriers that made the implementation of PGRC application difficult. Thus, the researcher identified the barriers and also discussed the best practices that would help in the simplification of the conceptual framework application
Finding 4	Lack of communication is a major component that can make or mar a projects portfolio. In order to ensure that the projects are completed within the expected time frame and with the accuracy that the project demands, a robust communication channel needs to be developed at every level. In the absence of these channels, there are chances that the workforce is not able to understand the corporate vision and thus there is a lack of project completion and achievement.
Findings 5	There is no literature, which details the best practices for PGRC. The literature that is available treats PPM and GRC separately. Therefore, there is a need to map and validate the factors and thus based on the same, establish best practices that can be applied universally.
Finding 6	Based on the literature review as well as the data analysis it is important that during the implementation of the PGRC framework the key actors are identified. The researcher is of the opinion that the key factors for each organisation differ, based on the kind of portfolio being handled.
Finding 7	Change management is an issue that needs to be dealt with nuance. Workforce is always resistant to change and in order to bring about the desired change, the top management and the decision-makers must set an example by embracing the change that comes along with the implementation of PGRC framework in organisations.
Finding 8	As a result of the research gap that was identified in the Literature Review, the researcher proposed a conceptual framework in Chapter 3. However, this framework was not completely unified and additional factors were identified by the researcher after conducting

	the data analysis. Therefore, the researcher added the additional factors to the framework and presented it in Chapter 6.

Table 8-2: Research Findings and Descriptions

The revised conceptual framework consisted of two critical factors:

Barriers, Challenges and Best Practices and Communication

Barriers and Challenges

When the researcher asked the participants to identify the main challenges and barriers in the execution and management of multiple projects, the respondents identified resistance to change as a major barrier. Another major barrier that was identified by the respondents of the survey was the lack of an experienced project manager who would understand the importance of GRC for portfolio management and have the necessary skills to adopt and execute PGRC. The other barrier that was identified included the fact that there was no consistency in the approach in delivering the portfolio.

Best Practices in PGRC

For the PGRC framework to be implemented successfully across the projects, it is vital to follow certain important best practices of PGRC. This included, integration of the GRC departments, appointment of Chief Risk Officer, developing a Risk Management Strategy and investing in necessary tools and technology.

Communication Channels at Every Level

Lack of communication was also identified by the researcher as a component that can cause issues to the stability of the PGRC framework. Thus, it is important to establish communication channels in every level of portfolio management.

8.4 Research Outcomes

As discussed in Chapters 5 and 6, the researcher was able to successfully analyse the research findings and thus revisited the conceptual framework based on the data that were analysed and the factors that were identified. One of the outcomes of this research study is that at present there are no studies which have touched upon the unification of PPM and GRC to develop a framework

that makes it easier to handle multiple projects successfully, keeping in mind the governance, risk management and compliance components.

8.5 Theoretical Contributions

This research has made significant theoretical contribution in the field of business and information technology by studying current PGRC practices in UAE and proposing a framework for implementing PGRC in government entities in UAE. Lappi et al (2019) stated that governance needs to be discussed in public organisations on a wider range of issues. From the review of the previous literature, it was noted that GRC and PPM have not been explored together which has left a gap in this area. Yamakawa et al (2019) confirm that although PPM has been in practice for many years, there has been limited research on the processes involved. When considering GRC for projects and portfolios, this integration needs to be studied in detail which this research has done reasonably. The present research has attempted to play a role in partially filling this gap by exploring PPM and GRC together generally and in Abu Dhabi government entities particularly. In addition, the exploration of previous literature shows that there is very little or almost non-existent research done on UAE on the topics of GRC and PGRC which will make this research an important contribution towards this gap. The present research explored the viewpoints of government representatives on PGRC, its key success areas, barriers to implementation, benefits expected and other key aspects. The research has been able to propose a framework for implementing PGRC in government organisations on the basis of the current structure, practices, behaviour and attitudes prevalent in government organisations in Abu Dhabi. The key success areas and barriers were identified which will provide a strong basis for other researchers when studying integration of PPM and GRC.

8.6 Practical Contributions

From the literature review, the researcher was able to identify the various factors, which affect the PPM components individually, as well as the GRC components. The literature review also made it possible to identify the number of barriers and challenges that pose a problem to the PPM. This will enable practitioners and organisations to work on identified PPM and GRC components to ensure success as well as to work towards removing the barriers and face the challenges in the management of portfolio and projects. The government organisations dealing with utilities and utility services as well as infrastructure development will benefit from the study since the data were gathered from utilities and infrastructure government organisations and they provide the PGRC framework which can very well be implemented by the organisations. The researcher also

contributed by developing the PGRC framework, which has not been studied until now. Data analysis in the present research helped to identify that lack of communication is a major component that affects the government organisations in Abu Dhabi because of their bureaucratic and multi-tier hierarchical structure, and thus it becomes difficult to implement any framework successfully. This finding will encourage government organisations to re-design their structure to improve communication within them. Similarly, the researcher identified that resistance to change is a matter that affects the implementation of the PGRC framework. The researcher noted through the data analysis that there was a certain resistance from employees to adopt the new framework because it would result in changes in the manner they work. People usually are not satisfied with any kind of change and prefer sticking to the usual routines that have been established over time. Thus, this research identified that leadership needs to take initiatives to change this attitude. One of the other contributions that this research has made in the field of PPM and GRC is the fact that there is no established PMO in the government entities here and therefore in its absence there is a difficulty in handling multiple projects successfully.

If the modified PGRC framework is implemented by government utilities and infrastructure development entities in Abu Dhabi, they will benefit by utilising better resources needed for projects and align them with the organisational goals and strategy. The framework recommended in the resent study will enable the government entities to have better project selection criteria and be able to avoid compliance issues as well as managing risk related to project management. The government entities in return will have higher customer satisfaction through increased public trust and make better use of public money. The risk and compliance issues will be avoided which will make the government entities to be more socially responsible entities.

8.7 Research Limitations

The study was carried out by the researcher within UAE and therefore the research is limited to the findings of this nation only. However, the researcher has tried to keep the findings relevant and applicable to the global audience.

The researcher also faced issues with respect to time factor; while the timescale for the research study was adequate, there were delays in obtaining approvals from the government entities. The case study organisations were all government entities and therefore gaining information from them proved to be difficult. The research interview consisted of face-to-face, telephonic and web-based questionnaire. The respondents were not able to set aside time for the interviews, especially when it came to face-to-face interviews and this resulted in a lot of delays.

Similarly, web-based interviews were not completed on time, as the respondents preferred receiving hard copies.

The researcher also faced issues when the respondents did not provide any justifications for their answers. Being semi-structured, the researcher faced problems in analysing their responses since justifications for their choices were absent in most of the interviews. In many cases, the respondents were not able to grasp the technicalities of the questions and thus were not able to answer them. Inconsistency in findings was a major setback for the researcher and was also very time-consuming. The focus of the researcher was to collect data that were most relevant and that would help to meet the aim and objectives of the research. The revised conceptual framework has components that are unique to the country and therefore they might be difficult to generalise for global application.

8.8 Recommendations

PGRC is a huge concept in itself, which relates to the effective management of multiple projects while maintaining the GRC. There is therefore a need to study this concept further from the perspective of management.

There is also a need to further study the components with a global perspective, which will help to make the framework more global in approach. As stated by the researcher earlier, the PGRC framework is unique in its kind since there have been no previous studies regarding this phenomenon. The researcher therefore recommends further studies into the various facets of PPM and GRC respectively and identifying the gap that can help to further amend the proposed framework.

There is also a need to conduct more research into change management in the application of PGRC in government organisations. The research findings indicate that not just the workforce but also the leaders and decision-makers are resistant to change since they are concerned about the implications that will be bought about with change.

Academicians can utilise this study to further dwell on the research gaps that are present in this study and develop further research in PGRC. There is very limited literature available regarding PGRC and the present research can open the floodgates to this aspect of business management.

Government must adopt the present framework and apply it in their organisations and also analyse the results to further identify the gaps which were not addressed by the researcher. The PGRC framework when applied will also help organisations to become more productive and ensure that their projects are handled efficiently.

8.9 Conclusion

This research concentrated on the various components of PPM and GRC and it was able to successfully draw out a framework which would unify the important factors of them both while also addressing the barrier and challenges, and developing best practices. The review of literature clearly showed that there is very less research in this domain and no researcher has unified the concepts to come up with a unique solution, even though the current business environment demands for such effective framework. The researcher after reviewing the components and factors was able to develop the PGRC framework and was also able to validate the same. However, during the data analysis, the researcher noted that few factors had an effect on the manner the PMO and the PPM functioned but were not addressed in the framework. Therefore, the researcher added these factors to help make the framework more applicable.

Despite all the challenges and limitations that the researcher faced, the researcher was able to successfully draw out the conceptual framework and make necessary recommendations for future studies. The researcher thus is of the opinion that this research will help to further build literature on PGRC and also enable future studies to be veered in this way. This is to ensure a better understanding of PGRC and increased studies in this field will only result in better functioning of organisations and better control and management of multiple projects under the current competitive business environment which demands flawless execution of projects.

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10 Appendix

Aston University

School of Engineering and Applied Science

"PGRC"

Dear respective participants,

I am currently doing a PhD programme in Engineering Studies focusing on portfolio project management at Aston University, United Kingdom, under the supervision of **Dr Brian Price**. My research topic is " **Portfolio Governance, Risk and Compliance** strategies **(PGRC) for successful project management: A case study of Abu Dhabi Government entities on infrastructure developments ".**

The research aims to assess the current practices followed by Government entities in the Emirate for the management of infrastructure projects and to identify how GRC can be applied at a strategic level in order to improve project delivery.

Your response is truthfully significant to the success of this study. I would like to assure you that your respective responses will remain **'Strictly Confidential'** and will be used for academic study purpose only. Therefore, I humbly request that you fill in the questionnaire. I shall be pleased to share the findings of this research with you if you want, once the study is completed. I sincerely thank you for giving me your valuable time to participate in this work.

Yours sincerely,

Saif Al Qubaisi
PhD Researcher
Aston University
alqubssf@aston.ac.uk
[redacted]

Semi-structured Interview

Part#1: *Demographic Information of Participants*

Name (optional)			**Current Position**	
Gender	□ Male	□ Female	Age	
Total years of experience			Years of experience on current position	
Total years of experience on Infrastructure Development			Total years of work experience with the government	
Qualifications level				
High School □	Diploma □	Bachelor □	Master □	PhD □

PART #2: the current state of projects in your organisation and followed practices in managing them

The purpose of part 2 is to assess the current state of projects in your organisation and the practices followed in managing projects in your organisation.

1. Please select the current organisational structure followed in your organisation and which structure do you prefer and why?

Current organisation structure	***Currently***	***Preferred***	***Justifications for preference***
Functional Structure	□	□	
Weak Matrix Structure	□	□	
Strong Matrix Structure	□	□	
Balanced Matrix Structure	□	□	
Projectised /Project team Structure	□	□	

2. The following table has general questions about the Project Management Office (PMO) and the methodology of project management followed by your corporate. Please justify your answer if no.

SR#	*Response*	*Yes*	*No*	*Justifications*
1	Does your organisation have a PMO? (if yes please answer points # 2 and 3)	□	□	
2	Is it a Corporate or an Enterprise Office? (please specify to whom it reports)	□	□	
SR#	*Response*	*Yes*	*No*	*Justifications*
3	Divisional Office.			
4	Does your PMO work closely with your corporate strategy?	□	□	
5	Does your PMO work closely you're your Enterprise Risk Management?	□	□	
6	Does your organisation have a defined methodology for project management?	□	□	
7	Has your organisation been using the methodology?	□	□	
8	Is your defined methodology in alignment with your corporate strategy?	□	□	
9	Is your defined methodology in line with Abu Dhabi Plan?	□	□	
10	Does the defined methodology cover the aspects of governance, risk and compliance?	□	□	
11	Do you have others to mention	□	□	

3. Are you responsible for any project management, planning, executions, monitoring, etc.? If yes, could you please explain your responsibilities and involvement in the projects based on your position?

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4. Based on the table below, does your corporate and you conduct projects review yearly and why? How often do you participate in this practice and why?

	Weekly	Biweekly	Monthly	Quarterly	Semi annually	Annually
Corporate projects review	□	□	□	□	□	□
Projects managers review	□	□	□	□	□	□
Interview participations	□	□	□	□	□	□

Based on Question # 4, can you indicate the considerations and the areas of discussions of projects review?

Activity	*Planning*	*Review*	*Reasons and activity descriptions*
Project Governance	□	□	
Project Risks	□	□	

Project Compliance	□	□	
Programme Governance	□	□	
Programme Risks	□	□	
Programme Compliance	□	□	
Portfolio Governance	□	□	
Portfolio Risks	□	□	
Portfolio Compliance	□	□	
Effect of the projects, programme and portfolio on corporate Governance	□	□	
Effect of the projects, programme and portfolio on corporate Risks	□	□	
Activity	***Planning***	***Review***	***Reasons and activity descriptions***
Effect of the projects, programme and portfolio on corporate Compliance	□	□	

Budget control	□	□	
Ensure alignment with corporate objectives and risk management	□	□	
Ensure alignment with Abu Dhabi plan	□	□	
If there are others, please specify	□	□	

5. What is the practice followed to gather information for related projects planning and review? Please select from the table below and justify your answer.

SR#	***Projects information gathering***	***YES***	***NO***	***Justifications***
1	Face-to-face interviews with project managers and project parties.	□	□	
2	Face-to-face interviews with project clients.	□	□	
3	Distributed survey to project manager and project parties.	□	□	
4	Distributed survey to project clients.	□	□	
5	Direct observation.	□	□	
6	Lessons learned after the project closure.	□	□	
7	Bench marking.	□	□	
SR#	***Projects information gathering***	***YES***	***NO***	***Justifications***
8	Corporate strategic objectives.	□	□	
9	Aligning with Abu Dhabi plan.	□	□	
10	Corporate risks	□	□	

11	Internal Audit	□	□	
12	If there are others, please specify	□	□	

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6. Based on Questions # 1, 2 and 6, can you identify the practice followed in your organisation and internal department operation to manage projects and review which followed by your organisations and you? Please select the appropriate box (s):

Followed Practice	***Department Level***	***Corporate Level***	***Comments if any***
Local best practices	□	□	
Regional best practices	□	□	
International best practices	□	□	
Operational best practices	□	□	
Bench marking	□	□	
All of them	□	□	
None of them	□	□	
If there are others, please specify	□	□	

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7. Can you please indicate your perceptions about the current practice followed by your organisation? Please select from below:

SR#	*Perceptions about the current practices*	*YES*	*NO*	*Comments if any*
1	Does the current practice depend on your corporate strategy for project success	□	□	
2	Are stakeholders committed to project success in your organisation?	□	□	
3	Are stakeholders committed to adopting new projects with new ideas in your organisation?	□	□	
4	Do stakeholders believe that project planning is the main contributor to the success of project executions, programmes and portfolio in your organisation?	□	□	
5	Are projects quality levels improved after stakeholders' enrolments in your organisation?	□	□	
6	Are projects governance levels improved after stakeholders;' enrolments in your organisation?	□	□	
7	Are projects governance levels improved after aligning with your corporate strategy?	□	□	
8	Are projects governance levels improved after aligning with corporate risks in your organisation	□	□	
9	Do stakeholders believe in the effectiveness of the current projects, programmes and portfolio in your organisation	□	□	
10	Do the planned and current projects in your organisation align with Abu Dhabi strategic objectives?	□	□	
11	Is there alignment among corporate strategy, current and planned project in your organisation?	□	□	

12	Do the practices used for projects planning and review provide specific information, that are relevant and clear in your organisation?	□	□	
SR#	***Perceptions on the current practices***	***YES***	***NO***	***Comments if any***
13	Is the current practice used for projects planning and review help in projects governance, risk identifications and compliance assurance in your organisation?	□	□	
14	Have the current practices help your organisation to achieve its objectives and Abu Dhabi objectives?	□	□	
15	Does your organisation more recognised and predictable due to the current projects being done and practices followed?	□	□	
16	Are the projects parties satisfied with the current practices in your organisation?	□	□	
17	If there are others, please specify	□	□	

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8. Based on the above; do you agree that your organisation has a proper Governance, Risks and Compliance (GRC) on its existing projects at the corporate level and departmental level and why?

Response	***Corporate Level***		***Departmental Level***	
	Yes	***No***	***Yes***	***No***
Does your organisation have a proper GRC on its current portfolio?	□	□	□	□
Does your organisation have a proper GRC on its current programmes?	□	□	□	□
Does your organisation have a proper GRC on its current projects?	□	□	□	□

Justification for the response

PART # 3: strategic alignments of Portfolio Project Management

The purpose of part 3 is to examine the Portfolio Project Management strategic alignments, review and prioritisation.

9. Based on part # 1 of the interview, can you indicate if the existing PMO in your organisation does regular review to ensure alignments among the project's portfolio, corporate strategic objectives and Abu Dhabi Plan. Please select from the table below and justify your response:

SR#	*Strategic alignments*	*YES*	*NO*	*Justifications and comments if any*
1	Is this done by the PMO of your organisation?	□	□	
2	Is this done by the PMO of your organisation on regular basis?	□	□	
3	Is this done to ensure alignment with corporate objectives?	□	□	
4	Is this done to ensure alignment with corporate objectives and Abu Dhabi Plan?	□	□	
5	Is this done once the key personnel (top management and decision-makers) of your corporate request for it?	□	□	

6	Is this practice being planned and under development to be conducted?	□	□	
7	If there are others, please specify	□	□	

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10. Projects selection criteria are significant in any decision, so kindly please select from the table the types being used in your organisation and justify your response:

SR#	***Projects portfolio selections criteria***	***YES***	***NO***	***Justifications and comments if any***
1	Are the project selections criteria used in your organisation well defined?	□	□	
2	Are the project selections criteria used in your organisation under development?	□	□	
3	Are the Project selections criteria used in your organisation mature?	□	□	
4	Are the Project selections criteria used in your organisation fully followed and deployed?	□	□	
5	Does the key personnel of your corporate take decisions regarding the selections of projects?	□	□	
6	If there are others, please specify	□	□	

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11. As well known, prioritising projects portfolios is one of the main functions of the PMO. Please select the methods used by the PMO in your organisation to do this and justify your response:

SR#	*Projects portfolio prioritising*	*YES*	*NO*	*Justifications and comments if any*
1	Does the PMO in your organisation have defined policies and procedure used for projects portfolio prioritisation?	□	□	
2	Does the PMO in your organisation have defined policies and procedures for projects portfolio prioritisation, but are not followed?	□	□	
3	Are the policies and procedure for projects portfolio prioritisation under development / planned to be developed in your organisation?	□	□	
4	Does the PMO in your organisation prioritise all projects portfolio?	□	□	

5	Does the PMO in your organisation prioritise all projects portfolio according to corporate objectives?	□	□	
6	Does the PMO in your organisation prioritise all projects portfolio according to Abu Dhabi Plan?	□	□	
7	Does the PMO in your organisation h prioritise all projects portfolio according to financial requirements?	□	□	
8	Do the key personnel of your corporate take decisions regarding projects prioritise?	□	□	
9	If there are others, please specify	□	□	

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12. Projects performance assessment reflects corporate performance which requires monitoring of project portfolio by the PMO to ensure good performance. Please select what method is followed currently by your corporate PMO to monitor project portfolio performance and justify your response:

SR#	Projects portfolio prioritising	YES	NO	Justifications and comments if any
1	Are the KPI and monitoring of projects and portfolio performance in your organisation defined?	□	□	
2	Are the defined KPI and performance monitoring fully implemented in your organisation?			
3	Are the defined KPI and performance monitoring implemented on regular bases in your organisation?	□	□	
4	Are the defined KPI and performance monitoring under plan to be developed in your organisation?	□	□	
5	Are the project and portfolio performance reports prepared in your organisation based on request from top management and decision-makers?	□	□	
6	If there are others, please specify	□	□	

PART # 4: Projects Decision

The purpose of part 4 of the interview is to gather information on how decisions regarding project adoption are made.

13. What is your role in the projects planning and decision?

□ A part of project planning	□ Take part in making decision on project planning
Comments if any: --- --- ---	

14. Could you please indicate from the followings how projects are adopted by your organisation?

SR#	***Projects adoptions / method of projects decision***	***Select***	***Justifications and comments if any***
1	Companies suggestions, feedback and latest solutions	□	
2	Proposal submitted from solutions providers	□	
3	Business units' directors' suggestions and feedback	□	
4	Employees' suggestions and feedback	□	
5	Open discussions among corporate stakeholders, business units and employees	□	
6	Open discussions among corporate stakeholders and external stakeholders	□	
7	Alignment with Abu Dhabi vision and plan	□	
8	Directions from the government	□	
9	Competing on the region	□	
10	Uniqueness of the project and initiatives	□	
11	Enterprise risks and internal audit finding		
12	If there are others, please specify	□	

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15. Based on your point of view, can you please indicate the projects that should be adopted in your organisation?

SR#	*Projects that should be adopted*	*Select*	*Justifications and comments if any*
1	Projects having return on investment	□	
2	Projects that are in alignment with Abu Dhabi vision and plan	□	
3	Projects that are in line with corporate objectives	□	
4	Projects with economic values	□	
5	If there are others, please specify	□	

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16. How are projects planned in your organisation? Please select from the table below and justify your response

□ My corporate obtains assistance from and consults third party (consultant companies) during the process of planning and execution of projects.
□ My corporate does not obtain assistance from and consult third party (consultant companies) during the process of planning and execution of projects.

Comments and feedback

PART # 5: Project efficiency, effectiveness and corrective actions

The purpose of part 5 is to provide information on the strategy used for projects and how projects will assist the strategic objectives of GRC.

17. Based on your experience in your corporate, please answer the followings. If no please indicate why if possible.

SR#	*Actions*	*Yes*	*No*	*Justifications and comments if any*
1	Does your organisation apply the best practices of project managements and planning?	□	□	
2	Does your organisation follow lesson learned after the end of any projects?	□	□	
3	Does your organisation improve its projects planning, management and executions from year to year?	□	□	
4	Does your organisation's projects and portfolio achieve the desired objectives	□	□	
5	Does your organisation's stakeholders have full visibility of your projects and portfolio	□	□	
6	If there are others, please specify			

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18. Are the current practices followed by your corporate ideal? Justifications are needed to support your answer.

□ Yes (explain how)	□ No (explain why)

Justifications:

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19. Projects and portfolio effectiveness (planning and management) are ensured by the followings:

SR#	*project efficiency and effectiveness*	*YES*	*NO*	*Justifications and comments if any*
1	Do your projects and portfolio have clear ongoing plan	□	□	
2	Are the projects policies, procedures and plans flexible in case of emergencies in your organisation?	□	□	
3	Are employees motivated to contribute to projects process in your organisation?	□	□	
4	Are employees' competency always measured prior to taking projects decisions and after project launching in your organisation?	□	□	
5	Are the skills, knowledge and attitudes of employees always considered and determined for efficient results of the project in your organisation?	□	□	
6	Does project planning take longer time than what is required in your organisation?	□	□	
7	If there are others, please specify	□	□	

20. Maturity is one of the goals of any corporations on specific project management. Please answer the following and justify your answer please.

SR#	*Assessing the maturity against the standard*	*YES*	*NO*	*Justifications and comments if any*
1	Does the PMO in your organisation conduct assessment based on the standard of project management?	□	□	
2	Does the PMO in your organisation conduct compliance assessment based on the standard of project management?	□	□	
3	Does the PMO in your organisation conduct compliance assessment of project in alignment with corporate strategic objectives?	□	□	
4	Does the PMO in your organisation take corrective actions for non-compliancy?	□	□	
5	Does the PMO in your organisation take corrective actions for non-compliancy for all project portfolio?	□	□	
6	Does the PMO in your organisation take corrective actions for non-compliancy for critical project portfolio only	□	□	
7	If they are others, please specify	□	□	

PART # 6: Project Portfolio Governance and Auditing

The purpose of part 6 is to discuss the governance aspects of project portfolio and auditing aspects of the project's portfolio.

21. Maintaining PMO charter is important since the charter contains the purpose and objectives, roles and responsibilities, policies and authorities of the PMO. Please answer the following and justify your answer.

SR#	*PMO Charter*	*YES*	*NO*	*Justifications and comments if any*
1	Is the PMO charter reviewed and updated on regular bases in your organisation?	□	□	
2	Is the PMO charter updated based on any changes in your organisation?	□	□	
3	Are the PMO relationships with corporate business units clear and well defined in your organisation?	□	□	
4	Are the PMO relationships with corporate business units well understood by your organisation?	□	□	
5	Are the PMO roles and responsibility well defined and made clear for all PMO staff in your organisation?	□	□	
6	Is there a well-defined job description for PMO staff, but no clear charter for the PMO in your organisation?	□	□	
7	Are the roles and responsibilities for project managers, programme and portfolio managers made clear to them in your organisation?	□	□	
8	Does PMO have the responsibilities of defining the policies of project management and guidelines for participants and stakeholders in your organisation?	□	□	
9	Are the PMO policies communicated to all the business units in your organisation?	□	□	
10	Are classifications criteria defined by PMO for all type of projects in your organisation?	□	□	

11	Are projects classified in the corporate based on its size and budget?			
12	If there are others, please specify	□	□	

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22. Sponsors are one of the main elements to have governance on a project. Please answer the following and justify your answer please.

SR#	***Projects board and controls***	***YES***	***NO***	***Justifications and comments if any***
1	Is the PMO head / director a member and key of the corporate board / executive management team review in your organisation?	□	□	
2	Is the PMO playing its role and responsibilities in the project review for all members in your organisation?	□	□	
3	Does the PMO know about all your company's Projects, programme and portfolio statues, performance, functions and achievements?	□	□	
4	Are Project portfolio, performance, portfolio management, and other functions compiled by the PMO for the executive board in your organisation?	□	□	
5	Does the PMO have full visibility of all the projects, programmes and portfolio for all business unit and have cross functions in your organisation?	□	□	
6	Can the PMO do predictive analysis because having full visibility of all projects in your organisation?	□	□	

7	Does the PMO follow all the actions agreed on the projects board review in your organisation?	□	□	
8	As part of the executive controls to oversee business issues, does the PMO establish policies, procedures and guidance for committees such as steering committee, risk committee, governance committee, executive committee, etc. in your organisation?	□	□	
9	Are the project codes of conduct established and signed by all staff, and reviewed on regular bases in your organisation?	□	□	
10	Is HSE standard established, implemented and followed as part of the project management approach in your organisation?	□	□	
11	Is the Enterprise Risk Management that is established applied on projects in your organisation?	□	□	
12	Does your company have an audit committee as part of the projects board review? If yes what is its function?	□	□	
13	Does the PMO have member on the Internal Audit office in your organisation?	□	□	
14	Does the PMO have procedures for projects auditing in your organisation?	□	□	
15	Does the PMO have details reporting about projects auditing and effectively implement them with corrective actions in your organisation?	□	□	
16	If there are others, please specify	□	□	

PART # 7: challenges, barriers and best practices for PGRC

The purpose of part 7 is to offer visibility on the challenges, barriers and best practices for Portfolio Governance, Risk and Compliance.

23. Based on the interview parts; to what extend do you have Governance, Risk and Compliance on the existing projects, programmes and portfolio in your organisation? Also, can you explain how you have governance on your portfolio including programme and projects, risk identifications and risks consequence, and aligning compliancy to your corporate objectives, policies and standards?

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24. What are the main challenges and barriers facing your corporate in managing its projects, programmes and portfolio?

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25. What are the main challenges and barriers to have GRC on the portfolio of your organisation?

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26. What are the critical factors that influence the success or failure of projects and portfolio in governments?

27. ---

28. How important is PGRC to the economic welfare of Abu Dhabi? Also, how can we achieve its strategic objective?

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29. How can PGRC be adapted to the government responsible for infrastructure developments and to other government entities?

30. ----------

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31. Does the followed practices and policies affect the success of portfolio in specific PGRC? If yes, then what are those factors?

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32. Based on your experience, do you think PGRC can enhance governments' process and efficiency and how?

□ Yes	□ No
Please justify why?	

Justifications:

Part # 8 Suggestions, feedback and comments

Please identify if any further suggestions, feedback and comments or other views on the events domain.

Thank you for the time spent to answer the questionnaire. Please indicate your interest to get a copy of the study results by providing your information.

□ Yes	□ No
Delivery Information	
