

**ENTERPRISE RISK MANAGEMENT:  
DEVELOPMENT OF STRATEGIC ERM ALIGNMENT  
FRAMEWORK FOR OIL AND GAS INDUSTRY IN KUWAIT**

A Thesis submitted for the degree of Doctor of Philosophy

By

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## **Dedication**

To my loving parents and to my soul mate Dr. Hifaa for their everlasting love and endless support. It would not be possible to finish my PhD journey without your prayers and unlimited support.

It is my pleasure to dedicate this work to my beloved wife and my children for their love, patience and understanding. I would like also to express my gratitude to my family, brothers and sisters for their inspiration and encouragements.

## **Declaration**

I, Mishal Alajmi, hereby declare that this thesis is entirely based on my own research. I hereby declare too that this thesis has not been and will not be submitted in whole or in part for any other qualification.

## **Abstract**

In order to effectively cope with greater and widespread uncertainty, organizations have to manage risk efficiently. This is particularly relevant for business organizations in the energy sector, especially as the nature of their operations is by default challenged by a diverse set of hazards and risks. Accordingly, this research aims into developing an Enterprise Risk Management (ERM) framework aligned with organizational strategies and objectives that is specific in nature and purpose to the oil and gas industry.

Academic and practice literature reveal that there is very limited academic and professional literature into alignment of ERM with organisational strategies and objectives in oil and gas industry. In addition, despite the development of several ERM frameworks, many organizations are still facing challenges in aligning ERM with their key strategies and objectives. This is due to the fact that most of the existing frameworks are of a visionary nature and lack implementation guidance which required for implementing ERM effectively and successfully.

This research investigates the drivers and barriers facing National Oil Companies (NOC's) along with ERM adoption in the Gulf Countries Council (GCC) region, particularly in Kuwait. To achieve this goal, this research employs the interpretivist approach to recognize the role ERM in a selected Kuwait-based petroleum corporation, Kuwait Petrol Company (KPC). The primary research data were collected and analysed within a qualitative paradigm, using a single-case study approach, which involves a sample of 30 respondents.

Based on the empirical findings of this research which is mostly supported by the existing literature, it is quite evident that there is a need for a strategic and aligned ERM framework that is specific in nature and purpose to the oil and gas industry. The empirical findings also have highlighted the significance and the criticality of the proposed framework factors, which is critical for organisations to prioritise their ERM related activities.

Along the development of strategic alignment framework that addresses the challenges and concerns of oil and gas industry, the key contribution of this research is the practical implementation guidance, which is intended to improve decision making, planning and prioritisation in oil and gas organizations by providing comprehensive and structured understanding of key ERM components.

This research recommends further investigation into the effect of ERM components identified in this research with performance management. Moreover, the research recommends that as ERM is growing rapidly, future studies should be conducted to reveal and capture new factors into the proposed framework.

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## Abbreviations

AIRMIC	Association of Insurance and Risk Managers in Industry and Commerce in the UK
ALARM	National Forum for Risk Management in the Public Sector
AS/NZS	Australia/New Zealand
BS	British Standards
CAS	Casualty Actuarial Society
CEO	Chief Executive Officer
CFO	Chief Financial Officer
COBIT	Control Objectives for Information and Related Technologies
COSO	Committee of Sponsoring Organizations of the Tradeway Commission
CRO	Chief Risk Officer
ERM	Enterprise Risk Management
FERMA	Risk Management Standard Evolved by Federation of European Risk Management Association
GAIN	Global Audit Information Network
GCC	Gulf Cooperation Countries
HAZID	Hazard Identification
HAZOP	Hazard Operability
ICFR	Internal Control over Financial Reporting
IFERM	Integrated Framework for Enterprise Risk Management
IIA	Institute of Internal Auditors
IARF	Research Foundation of the Institute of Internal Auditors
IMF	International Monetary Fund
IRM	Institute of Risk Management
ISO	International Standard Organisation
KOC	Kuwait Oil Company
KPC	Kuwait Petroleum Corporation
KPIs	Key Performance Indicators
KRIs	Key Risk Indicators
KUFPEC	Kuwait Foreign Petroleum Exploration Company
OPEC	Organization of the Petroleum Exporting Countries
PwC	PricewaterhouseCoopers
RIMS	Risk Management Society
RMM	Risk Maturity Model
US	United States of America
VUCA	Volatility, Uncertainty, Complexity and Ambiguity
WEF	World Economic Forum

## **Chapter 1 : Introduction**

This first Chapter serves as a road map for the research study, and the proposed framework presented in the research. The Chapter serves to contextualize the scope and objectives of the research. A broad overview of the challenges faced by the Oil and Gas sector nowadays, and the relevance of Enterprise Risk Management (ERM) in the 21st century global scenario are addressed. The novelty and contribution of the study to the specific field of applied research is also presented. The Chapter concludes with the presentation of the structure of the research.

### **1.1 The VUCA Scenario and the Need for Enterprise Risk Management (ERM)**

The 21st century economically-driven society is embedded in a rapidly changing, and increasingly complex environment, where risk has a multitude of forms and sources, and where adaptability resilience and forward-thinking innovative actions and plans are key. In this context, it is worth quoting Klaus Schwab, the founder and CEO of the World Economic Forum (WEF), when he wrote: “Our lives are changing at an unprecedented pace. Transformational shifts in our economic, environmental, geopolitical, societal and technological systems offer unparalleled opportunities, but the interconnections among them also imply enhanced systemic risks” (Schwab, 2014, p.7). The same author claims that “stakeholders from across businesses, government and civil society face an evolving imperative in understanding and managing emerging global risks which, by definition, respect no national boundaries” (Schwab, 2014, p.7). Given the present day scenario, and as pointed out by Beasley, Branson and Hnacock (2015), “Risk environments are changing rapidly and organizations are being surprised by unexpected risk” (Beasley, Branson and Hnacock, 2015, p.5).

The present global scenario is becoming increasingly volatile and unpredictable. In order to effectively cope with greater and widespread uncertainty, organizations have to manage risk efficiently. On the topic of how to address and manage systemic global risks, Richard Anderson’s words as the chairman of the Institute of Risk Management (IRM) are also noteworthy. Anderson (2014) claims that “managers and leaders of ‘extended enterprises’ (i.e. “today’s complex organisations, their value chains and networks of relationships”) need to “focus on the nature of complex 21st century organisations in a world of ‘VUCA’ (volatility, uncertainty, complexity and ambiguity) and how risk can be managed in that context” (Anderson, 2014, p.2).

These statements highlight the urgent need to address and manage systemic global risks, by involving and creating synergies among all stakeholders, particularly business and governmental leaders. This is particularly relevant for business organizations in the energy sector especially that the nature of operations is by default challenged by a diverse set of hazards and risks.

Even though the concepts will be detailed further in the next Chapter, it is essential at this stage to define 'risk'. The Institute of Risk Management (IRM, 2014) defines 'Risk' as "the combination of the probability of an event and its consequence", and highlights that the consequences of this combination can be beneficial or detrimental. All organisations have objectives at the strategic, tactical and operational levels, and therefore, any issue that makes achieving these objectives uncertain is a risk. As the world becomes increasingly volatile and unpredictable, business and governmental leaders and decision-makers must cope with greater uncertainty and the complex interactions that may act synergistically to eventually increase risk even further. This is particularly significant as the focus and pressure on organizations is to ensure they are key players and role models in addressing risk, whilst ensuring global sustainability.

The concept of 'enterprise risk' evolved from the concept of 'risk' itself, and is a term used for addressing "cumulative risks across the entire enterprise, which may be stemming internally from its operations, in its constituent entities or caused by the external factors; and directly or indirectly impacting upon the achievements of organisational objectives. Enterprise Risk is defined as the possibility that genuine outcomes will not relate to the anticipated outcomes (Hampton, 2009).

In this context, the emerging discipline known as 'Enterprise Risk Management' (ERM) is of particular relevance, and may be defined as "the systematic process of understanding, evaluating and addressing these risks to maximise the chances of objectives being achieved and ensuring organisations, individuals and communities are sustainable." (IRM, 2014).

ERM can, therefore, be described as being the set of activities undertaken in a holistic, strategic, and integrated manner to deal with all the diverse risks a business may face (COSO, 2013). These risks include all risks spanning the organisation, be it at the financial, strategic, operational, environmental or social responsibility and compliance levels. "Significant impact may be caused by such risks on the profitability, and effectiveness of business enterprises even leading to damaging its reputation" (ibid.).

Various industries will display distinct approaches to ERM, as highlighted by Heiligtag, Schlosser and Stegemann (2014), in particular, in terms of the organizational ERM function,

as well as its role within the specific organizational context. Heiligtag, Schlosser and Stegemann's report (2014) was concentrated on assembly and high-tech intensive industries on one hand, and on energy industries on the other hand; as such, their views are of particular value to the present research.

This is of particular relevance for business organizations in the energy sector, as mentioned earlier, as the nature of their operations is by default challenged by a diverse set of hazards and risk. They are faced with the urgent need to address and manage systemic global risks, and one way to do so, is by involving and creating synergies among all stakeholders, particularly, the complex business networks and governmental leaders. For instance, as mentioned by Mitchell, Marcel and Mitchell (2012), technologies are providing diverse, but uncertain opportunities for producing 'unconventional' oil and gas in many parts of the world, and these will involve cooperation, particularly, when applicable, with the state-controlled oil or gas organisations (ibid.)

Therefore, such organizations are among those most eager to succeed, in terms of implementing forward thinking and relevant ERM frameworks, as will be presented and discussed in further detail in the following Chapters of this research.

## **1.2 Current Trends in Enterprise Risk Management (ERM)**

The concepts below, and the related tools will be explored in greater detail in the next Chapters, but it is important at this stage to present them briefly, as they form the matrix on which this research is based. The recent global recession has triggered a widespread increasing focus on business risk management relating to all aspects of the organization, instead of dealing with specific operation or single-process oriented risk management. Such enterprise-wide risk management is broadly defined as 'Enterprise Risk Management' (ERM), as previously mentioned. ERM is a fairly recent emerging discipline, only about a decade-old, with its roots in the more traditional risk management field, and which may be defined as per the Committee of Sponsoring Organizations of the Tradeway Commission's (COSO) definition: "Enterprise risk management is a process, effected by the entity's board of directors, management, and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within the risk appetite, to provide reasonable assurance regarding the achievement of objectives." (COSO, 2004, p.2). COSO's approach to ERM is of particular relevance when addressing risk management in the oil industry where the resulting interactions among risks

and the potential risk synergies, are often certainly the most crucial to address. In their 2013 report, COSO considered that internal control is an integral part of enterprise risk management (ERM), but ERM is broader in scope, and suggested that Enterprise Risk Management and Internal Control should be considered as complementary (COSO, 2013). As stated in the same report, integrating ERM processes with internal controls system will improve an organisation's ability to achieve its strategic, operational, reporting, and compliance objectives (ibid).

Beasley, Branson and Hancock (2015) stated that “most organizations do not provide any guidelines or scales for management to assess risk probabilities or impacts” (Beasley, Branson and Hancock, 2015, p.31). Even though in their study no organisation in the energy sector was considered, it is interesting to highlight that the report contains observations, which are of extreme importance in the context of this research, and will be developed further in subsequent Chapters. They are clear indicators that there is a significant gap in this field, and therefore, help to confirm the interest and novelty of the key research question presented below.

### **1.3 Risk Management in the Oil Industry Sector**

“Oil has been the world's major commercial energy source for many decades and the consensus view is that it will maintain this leading role well into the 21st century” (Rahman, 2004, p.1).

Almost ten years later, the International Monetary Fund (IMF) stated that “the economic outlook of the Gulf Cooperation Countries (GCC), including ability to meet their major challenges, will be shaped most directly by factors influencing the demand for oil and oil products.” (IMF, 2013, p.1).

Five risks commonly face the energy and natural resource-based organisations, particularly those that deal with petroleum: i. Political Risk; ii. Geological Risk; iii. Price Risk; iv. Supply and Demand Risks; and v. Cost Risks (Euroinvestor, 2012). Investors dislike political/regulatory risk, as stated by Mitchell, Marcel and Mitchell (2012). These authors claim that “the overarching pressure on the [oil and gas] industry from governments' regulatory responses to the threat of climate change is the largest and most unmanageable risk for investors” (ibid, p.57). In terms of supply and demand, it is apparent that the energy security problem has moved to Asia, as Asian markets now absorb most of the oil the Middle East can supply, and will absorb more. This fact changes the security of supply problem,



especially for Western countries, to which the risk is now the price, not the supply. For most Asian countries, the continuity of supply is also a risk and there is no international effort to manage that risk (Mitchell, Marcel and Mitchell, 2012).

Despite the risks, a high real demand for energy exists, and oil and gas organisations fill part of that demand. Investors can still find rewards in oil and gas, but it helps to know the potential risks that go along with those potential rewards. And in view of addressing them, it becomes apparent that the lack of a sector-specific risk management strategy, or an ERM framework particularly for the GCC region, where the sector is one of the leading industries and a source of economic growth for some of the countries in that region, comes across as being a critical determinant of the success of risk response programmes in such organizations locally.

#### **1.4 The Research Problem**

Even though the extractive industries in general, and the oil and gas drilling and distribution organisations in particular, have consistently been faced with an ever-growing array of hazards and risks, no sector's specific Enterprise Risk Management Framework for Oil & Gas organisations is developed yet.

Therefore, the broad intended scope of this research is to identify the key drivers and challenges faced by oil and gas organisations, in order to develop a sector specific ERM Framework. The framework will help organisations to address and implement effective risk response as a critical determinant of organisational success, and to manage and decrease systemic global risks within the sector.

In order to critically evaluate and develop the core components of such a programme, the Researcher opted for a geographically and industry-specific case study, serving both, as a key primary research target, and an intended pilot focus: a Kuwait-based petroleum organisation, 'Kuwait Petroleum Corporation' (KPC), which is an enterprise operating in the oil sector in Kuwait, with the aim to later expand the proposed Framework to a broader context. This will be detailed further in Chapter 4 (Methodology), and the findings are discussed in subsequent Chapters.

## **1.5 Aims and Objectives**

Then main aim of this research is to investigate the main factors affecting the ERM implementation, and consequently, develop an implementation ERM framework that is applicable to Oil and Gas organisations.

The following objectives are developed to meet the above aims:

1. To review the current literature about ERM;
2. To analyse the current adaptation of ERM in Oil and Gas organisations;
3. To examine the existing risk challenges facing Oil and Gas organisations;
4. To evaluate the current ERM frameworks; and
5. To develop an implementational guidance model for the proposed ERM Framework.

The investigation to be carried out in this research is based on the premise that, an industry-specific GCC geographically-oriented ERM Framework may contribute as a critical determinant to effective risk responses in the local Oil and Gas sector organisations.

## **1.6 Research Questions**

In order to adequately tackle the research aims, the Researcher set five leading objectives, by means of addressing the following leading research questions:

1. How current ERM approaches are applied to the Oil and Gas sector?
2. What are the key risk challenges faced by Oil and Gas organisations in general, and in the Kuwait in specific?
3. How effective are the existing ERM frameworks?
4. How can a customised ERM framework be implemented for Oil and Gas organisations?

## **1.7 Value and Novelty of the Research**

This research focuses on Kuwait, a regional context of the Middle East. As a country, Kuwait provides a regulatory and institutional framework, in which the organisation KPC targeted is the main case study and pilot for the implementation of the intended framework. In the region, many other local enterprises also operate, which might impose a specific pressure on the level at which risks may be managed. Moreover, this region has a specific cultural context, which may add several other externalities that impact the operations of an enterprise.

The constellation of enterprises operating in Kuwait must be very diverse and large, as almost the entire Gross National Income of US\$ 132 Billion is sourced from the Industry and Service Sectors. In terms of Industry Significance, Kuwait Petroleum Corporation is amongst the lead players of hydrocarbon resource exploration, an active member of OPEC and a respected part of the global oil community. A pioneering research on finding the right elements of a successful ERM Framework is situated in KPC, as proposed in this study, has far wider relevance and significance for the whole array of organisations operating within this sector.

Findings of this proposed research would be significantly relevant in imparting necessary lessons to the aspiring national and regional enterprises looking to implement an ERM Framework. This research will contribute to the emerging (aggregated for all sectors) scholarship on the elements and drivers of success in implementing ERM Frameworks in this particular context.

Given the prevalence of evidence of the important benefits accruing from ERM implementation, this research anticipates to reinforce drivers for adopting an ERM programme throughout the sector. This research will also inform the prospecting adopters on the design parameters and driving forces/ factors of a successful ERM Framework, which may possibly add the degree of accrued benefits on various organisational dimensions.

And in terms of Regional Significance, the intended ERM Framework aims, therefore, to become the modest foundation, upon which, organizations may build their own new risk strategy for a secure and sustainable future. In fact, by focusing on ERM in the Oil & Gas sector in Kuwait, this research and its expected outcomes are in line with the most recent international developments and plans for 2020 and beyond, and open up a new field of applied research for scholars, alongside a set of industry-specific tools for practitioners that might contribute to future sustainability-focused organizational leadership in the Oil and Gas sector in the GCC region.

## **1.8 Research Structure**

The research is organised as follows:

Chapter 1: Introduction – This first Chapter serves as a road map for the research study, and the proposed framework presented herein. The Chapter serves to contextualize the scope and objectives of the research. A broad overview of the challenges faced by the Oil and Gas sector nowadays, and the relevance of Enterprise Risk Management (ERM) in 21st century

global scenario are addressed. The novelty and contribution of the study to the specific field of applied research is also presented. The Chapter concludes with the presentation of the structure of the research.

Chapter 2: Literature review – This Chapter is divided into two major sections: the first Section includes a critical analysis of the most relevant and updated literature on the concepts of Risk, Management of Risk, Management of Enterprise-wide Risk (ERM), and a review of the most relevant frameworks and standards for Management of Enterprise-wide Risk, with a special emphasis on the oil industry (both upstream and downstream), thus, providing a sound theoretical background for the research. The second Section contextualizes the identified research gap, and provides specific literature review sustaining the research topic. This will provide supporting evidence reflecting the pertinence of the research question, aims and objectives, as well as an overview of the leading challenges and models that are in use in the specific sector that this research focuses on. The proposed sector specific ERM Framework is also presented in this Section.

Chapter 3: Theoretical ERM Framework Development - Based on the findings of Chapter 2, and the gaps highlighted in the literature review, this Chapter introduces the proposed framework. In addition, it identifies the rationale behind its formulation, and the theory forming the basis for its development.

Chapter 4: Research Methodology – This Chapter describes the research paradigm and research design, and explains the research methodology used for data collection and analysis. In the concluding Section of this Chapter, some discussion of the pertinent ethical and cross-cultural considerations will be made.

Chapter 5: Data Collection and Analysis – This Chapter presents the results of the data analyses carried out in the primary data collected throughout the research, in order to critically evaluate the significance and pertinence of the intended ERM Framework.

Chapter 6: Results and Discussions - This Chapter offers useful insights into emergent patterns that were not predicted deductively, and elaborates on the theoretical contributions made by the research to the literature. These analyses form the basis for justifying the relevancy and novelty of the intended Framework as an outcome of this research.

Chapter 7: Conclusions and Recommendation - This final Chapter of the research summarises the study and its research limitations, highlights the theoretical contributions of the research, to the body of knowledge, the novelty, relevancy and value of the research and foresees potential further research streaming from this research.

## **Chapter 2 : Literature Review**

### **2.1 Introduction**

This Chapter reviews theories of risk and enterprise risk management (ERM) literature in general, and in the oil industry in particular, through two main sections. The first Section provides a critical analysis of the most relevant literature from the early 1960's to date. In addition, it includes a review of the existing frameworks and standards of ERM, with a special emphasis on the oil industry sector in the Gulf Cooperation Council (GCC) region, thus, presenting a sound theoretical background that will support the proposed framework in this research. . This Chapter starts by examining the evolution of silo risk management into ERM over the last two decades, followed by a review key literature on ERM, including existing practices, the alignment of ERM with key organisational factors, challenges and benefits of ERM, value creation and competitive advantage, enterprise risk culture and enterprise risk oversight. The second Section proceeds in evaluating this literature. Therefore, the Researcher will evaluate the current literature of ERM, identifying limitations and determining what gaps exist. Gaps will, thus, constitute the foundation for the alignment framework that will be devised in Chapter Three.

### **2.2 Reviewing the Literature**

#### **2.2.1 The Evolution of Enterprise Risk Management (ERM)**

The view of risk management has emerged after the World War II until 1956, when Snider noticed the shortage in academic books and courses covering the topic of risk management. Consequently, the oldest books regarding risk management were made public in 1963 and 1964, respectively by Hedges, and Williams and Hens. However, the concept introduced concentrated on absolute management of risks rather than organisational risks (Dionne, 2013).

Researchers did not reach an agreement on ERM composition, which is revealed clearly by the various definitions of ERM based on several perspectives (Bromiley *et al.*, 2015). One of the main sources for such disagreement is the researchers' view of risk with regard to organisational objectives, like the AS/NZS standard (1995) and Miccolis (2000) who argued of their independence, while COSO (2004) and IIA (2001) linked risk to the achievement of those objectives. Others like S&P (2000) and RIMS (2011) considered risk as an obstruction that needs to be alleviated, whereas Perrin (2001) and CAS (2003a) considered it as an opportunity for creating organisational value. From these different perspectives towards risk,

Power (2007) referred to ERM as an ‘umbrella concept’, warning managers from binding ERM to predetermined practices.

Organisations have continuously faced different types of risk and sought to manage each separately, which led to categorising risks according to the various functions carrying out risk management (Bromiley *et al.*, 2015). This eventually resulted with tools and techniques independent from each other. Thus, Bromiley *et al.* (2015) promoted the approach of having a coordinated and coherent risk management. Later on, Bannister and Bawcutt (1981) also advocated a risk management process that involves several disciplines for the purpose of managing arising uncertainties. Then, the concept of ERM began with Holton (1996).

Consequent discussions such as Doherty (2000), Harrington *et al.* (2002), and Meulbroek (2002b) about enterprise risk management focused on the significance of integrating risks, from insurance risk to financial risk, creating multiple risk strategies and responses (Bromiley *et al.*, 2015).

#### **2.2.1.1 Risk Classification**

Dey (2009) identifies risk as being either market, financial, economic, environmental and social, or technological and political in nature; in a business context, risks are often classified depending on whether their origin is internal or external. The Committee of Sponsoring Organisations of the Treadway Commission (COSO) (2004) suggests a classification of risks through compartmentalisation, where the focus is rather on processes, departments and organisational groupings. Further quite widespread classification of ‘risk’ distinguishes between avoidable and unavoidable risks (Coyle, 2004). Risk may also refer to uncertainty (or doubt): every organisational goal involves a certain degree of uncertainty, which presents risk and opportunity facing the ultimate goal of maximising the wealth of business shareholders (Liu, 2011). There is also the multi-level concept, where a risk is identified as residing at the enterprise, division, subsidiary, and/or business unit level (COSO, 2004).

According to the World Economic Forum (WEF, 2014), systemic risks may be classified under five categories, namely: economic, geopolitical, environmental, societal and technological risks. In the context of the present research, all these categories are significant, and will have to be taken into account when developing the intended Framework, and therefore, these categories will be referred to again in the subsequent Chapters.

Mehr and Hedges (1963), being nominated as pillars of risk management process, suggested 5 important steps for founding the process:

- Identification of loss exposures;
- Quantification of the exposures;
- Evaluation of the different risk tools;
- Selection of the most relevant method; and
- Monitoring of the outcomes (D’Arcy and Brogan, 2001).

The above steps became the core of the traditional risk management process. At that time, these steps focus mainly on minimising or reducing the likelihood of unfavourable events or potential losses. When the concept of risk management started to emerge, interest and foreign exchange rates were relatively stable and inflation was not a major concern for most organisations. Financial risks were not perceived as constituting a significant threat to business. At the beginning of the 1970’s, some significant economic changes occurred with the rise of oil prices and falling overall production levels, which caused a global domino effect, leading to volatility and the destabilisation of interest rates (D’Arcy and Brogan, 2001). Risk management became a tool for protecting insurers from potential financial losses, earnings’ volatility and negative surprises. It was intended to provide good insight for those wishing to strengthen existing controls and ensure regulatory compliance in the event of financial, geopolitical or climatic uncertainties (Doherty, 1985; Dickinson, 2001).

#### **2.2.1.2 Enterprise Risk Management (ERM): Development Stages**

The recent global recession increased the focus on a new approach to business risk management –various aspects of the organisation have to be scrutinised, which is the essence of the concept of ‘enterprise risk management’ (ERM). The latter comprises activities that a business may have to adopt in a strategic and integrated manner to manage uncertainty. This approach started over a decade ago, stemming from the traditional risk management approach with which most business managers are familiar. The concept has evolved from earlier traditional risk management, individual risk management and sectorial risk management approaches. This form of risk management becomes even more limiting, when the identified risk can often be as narrowly defined as impacting a single activity’s schedule or cost, as suggested by Akintoye and MacLeod (1997) in their classic work. This was often the case in the financial sector, with the metric being a monetary expression of the risk/reward associated with a particular investment strategy, according to Stulz (1996).

Barton *et al.* (2002) suggested that ERM integrates risks and adopts an enterprise-wide view of risk management for the whole organisation, by considering people processes and scopes. There seems to be a consensus among researchers that an enterprise-wide risk management



provides a more effective tool to lower costs, because it is coordinated across the entire enterprise. ERM, therefore, is perceived as offering a more holistic approach to lowering the overall risk and hazard and, in turn, increase the value of an organisation, by creating enhanced efficiencies, lowering costs and reducing turnover unpredictability (Hoyt and Liebenberg, 2003). In fact, ERM is often used synonymously with the terms holistic risk management, integrated risk management, and strategic risk management (Hoyt *et al.*, 2008). A holistic approach enables an organisation to manage a vast array of risks in an integrated, enterprise-wide fashion, where increased awareness throughout the entire organisation emerges, leading to better coordination and thus, improved decision making. To emphasise this point, Gates and Hexter (2005) defines ERM as a comprehensive approach for evaluating activities and assessing risks associated with conducting business. As opposed to management approaches that focus on a specific business function, project, or process, ERM is very broad in scope. It, therefore, places wide-ranging demands on the organisation, as is evident in ERM's definitions and supporting frameworks. This is very clear from the definition of Bailey *et al.* (2004), who defines ERM as a process involving rigorous and systematic approaches for managing risk comprehensively. It encompasses all forms of risk, and all segments of the enterprise. In addition, it aims for achieving the organisation's objectives, and increasing its value to stakeholders. Throughout the first decade of its existence, ERM matured, and is nowadays different from what the so-called Traditional Risk Management (TRM) (McShane *et al.*, 2011). The main difference between ERM and traditional risk management is the holistic view of enterprise risk, and the integrated analysis applied to manage the total risk (Rodriguez and Edwards, 2009). ERM is categorised as a comprehensive approach to risk management, while previous techniques aimed to manage risks from a silo-based perspective (Gordon *et al.*, 2009). The presumed function of ERM, in a way, is rather a combination of different individual risk management techniques. ERM interprets a profound change in the process that organisations contend with risk. With the adoption of a holistic method, ERM distinguishes and assesses various factors associated with risk, and organises activities of risk management across all functioning departments of an organisation; this is opposed to the conventional approach, whereby every business unit separately evaluates its specific risks and determines how to lessen them on its own (Lin *et al.*, 2011).

COSO (2004) framework's definition of Enterprise Risk Management is worded as: "Enterprise Risk Management is a process effected by an entity's board of directors

management and other personnel, applied in strategy setting and across the enterprise designed to identify potential events that affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives” (COSO, 2004, p.3). The concept of an ‘Integrated framework for ERM’ was first outlined by COSO in 2004, and defined as “a method, brought about by an organisation’s directorate, management and additional staff office, implemented in setting a strategy and across the organisation, planned to distinguish expected cases that could impact the organisation, and contend risk to be within its risk appetite, to furnish fair authority concerning the success of organisational targets” (COSO, 2004, p.4). An outline or overview of interlinked items (activities) can be defined as a framework, which serves as a guide to facilitate an approach towards achieving a specific goal (COSO, 2004).

In 2004, COSO puts forward its list comprising four types of risks dealing more with the internal scope of the organisation, namely strategic, operations, reporting and compliance risks. The COSO (2004) views on the overall matter of enterprise risk management (not specifically these risk categories hereby presented) are of particular interest to the current research, and will often be referred to, throughout this research. In 2009, The Institute of Internal Auditors and Research foundation’s Global Audit Information Network revealed that the most common framework to guide risk management efforts is COSO (2004) Framework. Having one important goal, COSO provides enterprise risk management and fraud deterrence, through leadership and guidance on internal control. The COSO (2004) ERM – Integrated Framework is one of the most widely recognised and applied risk management frameworks in the world.

The Framework provides guidance to boards and management for:

- Managing risks from strategy setting through execution; and
- Recognising the increasing importance of the connection between strategy and entity performance.

In a separate initiative, COSO released the updated Internal Control–Integrated Framework in May 2013. The 2013 Framework superseded the original 1992 Framework, and went into effect at the end of the transition period on December 15, 2014. COSO had some primary objectives for updating the Internal Control—Integrated Framework as to:

- Clarifying requirements for effective internal control;

- Addressing changes in business (e.g., globalization, use and dependence on technology, complexity) that introduce or elevate risk of achieving organisational objectives; and
- Encouraging users to apply internal control to monitor additional organisational objectives (such as regulatory reporting, operations and compliance) (COSO, 2013).

Two additional requirements for an effective system of internal control were added by the COSO's framework (2013):

- Each of the five components of internal control and relevant principles is present and functioning; and
- The five components of internal control operate together in an integrated manner (COSO, 2013)

The seventeen COSO principles set out in the 2013 Framework are fundamental concepts, associated with the five components of internal control. These concepts were implicit in the 1992 Framework. The 2013 Framework explicitly requires that each relevant principle be present and functioning (i.e. designed and operating effectively) to demonstrate that all five components of internal control are present and functioning. The Organisation has developed templates and guidance to help clients assess, and document how the organisation's Internal Control over Financial Reporting (ICFR) satisfies the seventeen principles.

The additional criterion does not fundamentally change what is required for an effective system of internal control over financial reporting. However, as management and internal auditors assess the design and operating effectiveness of the organisation's ICFR, in accordance with the COSO (2013) Framework, internal control deficiencies might be identified, which required remediation during 2014.

In June 2016, COSO released a draft update to its ERM-Integrated Framework, for an approximate 100+ day public comment period. The draft is the product of input from hundreds of business executives and risk professionals from across the world. The draft Framework update advances the 2004 version in ways that could make ERM even more effective. It recognises that boards and executives today have more awareness and oversight of risk management, and have asked for improved risk information to support strategic decision-making. Among the changes are four particular emphases:

- Consider risk explicitly in strategy;
- Reframe risk in terms of performance;
- Don't forget culture; and
- Integrate internal control.

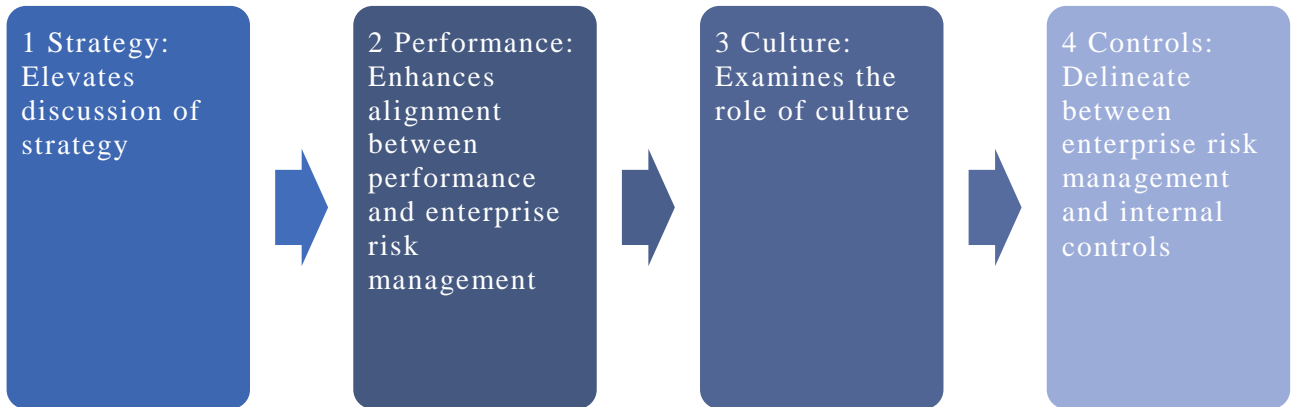


Figure 2-1: ERM evolution since 2004

Source: Richtermeier (2016)

Table 2-1 below presents and summarises the most important definitions of ERM, over the last two decades. Although the first definition in the table dates back to 1992, it's worth mentioning that Covello and Mumpower (1985) compiled an earlier list of risks, which contains natural disasters, epidemic disease, pollution, food contamination and adulteration, building failure, fire, transportation accidents and occupational injuries. Roberts' (2001) list is shorter and comprises only the personnel, the community, the environment, customers, and the physical assets. The latter coincides with the risks suggested by Trammell, Lorenzo and Davis (2004). Table 2-1 was compiled by Keith (2014).

Table 2-1: Definitions of ERM from 1992 to 2013

Author	Year	ERM Definition	Potential benefits/outcomes
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Committee of Sponsoring Organizations of the Treadway Commission (COSO) –Internal Control – Integrated Framework	1992	“a process, effected by an entity’s board of directors, management and other personnel, designed to provide reasonable assurance regarding the achievement of objectives in: 1) the effectiveness and efficiency of operations 2) the reliability of financial reporting and 3) Compliance with applicable laws and regulations”(COSO 1992)	<ol style="list-style-type: none"> <li>1) The control environment –the tone of the organisation that top management takes seriously in terms of its control responsibilities.</li> <li>2) Risk assessment –the identification and analysis of relevant risks to achievement of corporate objectives</li> <li>3) Control activities –the policies and procedures that ensure that management directives are carried out</li> <li>4) Information and communication –the information about internal and external events, activities, and conditions necessary to informed business decision making and external reporting</li> <li>5) Monitoring –assessing the quality of the system’s performance over time</li> </ol>
Lam	2000	“an integrated framework for managing credit risk, market risk, operational risk, economic capital, and risk transfer in order to maximize organisational value”(Lam 2000).	<ol style="list-style-type: none"> <li>1) Stabilisation of credit, market and operational risk by appointing a Chief risk officer and creating an ERM committee</li> <li>2) Establishing an integrated risk management framework to measure and manage all aspects of risks</li> <li>3) Optimising the return on risk management investments by linking risk management processes and risk transfer strategies</li> <li>4) Leveraging risk management to make better business decisions</li> </ol>
Institute of Risk Management (IRM)	2002	“Risk management is a central part of any organisation’s strategic management. It is the process whereby organisations methodically address the risks attaching to their activities with the goal of achieving sustained benefit within each activity and across the portfolio of all activities”(IRM 2002)	<p>Risk management protects and adds value to the organisation and its stakeholders through supporting the organisation’s objectives, by:</p> <ol style="list-style-type: none"> <li>1) Providing a framework for an organisation that enables future activity to take place in a consistent and controlled manner</li> <li>2) Improving decision making, planning and prioritisation by comprehensive and structured understanding of business activity, volatility and project opportunity/threat</li> <li>3) Contributing to more efficient</li> </ol>

			<p>use/allocation of capital and resources within the organisation</p> <p>4) Reducing volatility in the nonessential areas of the business</p> <p>5) Protecting and enhancing assets and organisation image</p> <p>6) Developing and supporting people and the organisation's knowledge base</p> <p>7) Optimising operational efficiency</p>
ERM Committee of Casualty Actuarial Society (CAS) - Overview of Enterprise Risk Management	2003	<p>"... the discipline by which an organisation in any industry assesses, controls, exploits, finances and monitors risk from all sources for the purposes of increasing the organisation's short- and long-term value to its stakeholders" (ERM Committee of Casualty Actuarial Society 2003).</p>	<p>1) Establishing context: Includes an understanding of the current conditions in which the organisation operates on an internal, external and risk management context.</p> <p>2) Identifying risks: Includes the documentation of material threats to the organisation's achievement of its objectives and the representation of areas that it may exploit for competitive advantage.</p> <p>3) Analyzing/quantifying risks: Includes the calibration and, if possible, creation of probability distributions of outcomes for each material risk.</p> <p>4) Integrating risks: Includes the aggregation of all risk distributions, reflecting correlations and portfolio effects, and the formulation of the results in terms of impact on the organisation's key performance metrics.</p> <p>5) Assessing/prioritizing risks: Includes the determination of the contribution of each risk to the aggregate risk profile, and appropriate prioritization.</p> <p>6) Treating/exploiting risks: Includes the development of strategies to control and exploit various risks.</p> <p>7) Monitoring and reviewing: Includes continual measurement and monitoring of the risk environment and performance of risk management strategies.</p>
Committee of Sponsoring	2004	<p>"a structured and disciplined approach: It aligns strategy, processes, technology, and knowledge with the purpose</p>	<p>Strategy - high-level goals, aligned with and supporting the organisation's mission</p> <p>Operations - effective and efficient use of resources</p> <p>Financial reporting - reliability</p>

Organisations of the Treadway Commission (COSO)		of evaluating and managing the uncertainties the enterprise faces as it creates value. ... It is a truly holistic, integrated, forward-looking, and process-oriented approach to managing all key business risks and opportunities—not just financial ones—with the intent of maximizing shareholder value as a whole.” (COSO 2004)	of operational and financial reporting Compliance - with applicable laws and regulations
Standards Australia/ Standards New Zealand - AS/NZS 4360:2004	2004	“Risk Management is the culture, processes and structures that are directed towards realizing potential opportunities whilst managing adverse effects.” (Standards New Zealand 2004)	1) Fewer surprises 2) Exploitation of opportunities 3) Improved planning, performance and effectiveness 4) Economy and efficiency 5) Improved stakeholder relationships 6) Improved information for decision making 7) Enhanced reputation 8) Director protection 9) Accountability, assurance and governance 10) Personal wellbeing

British Standards - BS31100: 2008	2008	“British Standard BS 31100 describes the risk management framework as a set of components that provide the foundations and organisational arrangements for designing, implementing, monitoring, reviewing and continually improving risk management processes throughout the organisation. The foundations include the objectives, a mandate and commitment to managing risk (strategy); the organisational arrangements include plans, relationships, accountabilities, resources, processes and activities (architecture). The risk management framework is embedded within the organisation’s overall strategic and operational policies and practices (protocols)” (BSI 2008).	BS 31100 describes risk management as the systematic application of management policies, procedures and practices to the tasks of communicating, consulting, establishing the context, identifying, analysing, evaluating, treating, monitoring and reviewing risk. However, it could be argued that the setting of policies, procedures and practices, together with the tasks of communicating, consulting and establishing that context are actually part of the risk management framework, rather than the risk management process itself.
International Standard Organisation - ISO31000: 2009	2009	Regulatory, Technical, Price/Market, Strategic, Physical Operations, Volume, Modelling/Valuation, Human Capital	ISO 31000:2009 gives a list in order of preference of how to deal with risk: 1) Avoiding the risk by deciding not to start or continue with the activity that gives rise to the risk 2) Accepting or increasing the risk in order to pursue an opportunity 3) Removing the risk source 4) Changing the likelihood 5) Changing the consequences 6) Sharing the risk with another party or parties (including contracts and risk financing) 7) Retaining the risk by informed decision



Hampton	2009	<p>“(ERM) is the aggregate risk from three components. The first is business risk, the possibility that the organisation will not compete successfully in its operations. The second component of enterprise risk is financial risk, the possibility that an entity will not have adequate funds for its operations. The third component (...) is hazard risk, exposures that can cause loss without the possibility of gain.” (Hampton 2009: 18)</p>	<p>1) To identify, mitigate, avoid, and treat risks 2) To provide stability in creating, distributing, financing, and selling products and services. 3) To add to confidence that the board and chief executive officer (CEO) are meeting fiduciary, community, social, and ethical responsibilities. 4) To help meet regulatory requirements.</p>
Beasley and Frigo	2010	<p>“ERM differs from a traditional risk management approach, frequently referred to as a ‘silo’ or ‘stovepipe’ approach, where risks are often managed in isolation. In those environments, risks are managed by business unit leaders with minimal oversight or communication of how particular risk management responses might affect other risk aspects of the enterprise, including strategic risks. ERM seeks to strategically consider the interactive effects of various risk events with the goal of balancing an enterprise’s portfolio of risks to be within the stakeholders’ appetite for risk. The ultimate objective is to increase the likelihood that strategic objectives are realized and value is preserved and enhanced.” (Beasley and Frigo 2010)</p>	<p>1) To integrate risk with strategic planning and execution processes and help organisation achieve its core objectives. 2) To increase the likelihood that strategic objectives are realised and value is preserved and enhanced</p>

McNally -COSO - Internal Control - Integrated Framework	2013	Technical, External, Environmental, Organisational, Right-Of- Way, Construction, Regulatory	Key ERM framework changes: 1) Reporting objective (a broader view considering changes in reporting information both within & outside the organisation) 2) Principles and points of focus (focus on 17 principles) 3) Accountability for internal controls (increased accountability and competence) 4) Fraud risk consideration (fraud assessed as part of internal control) 5) IT controls 6) Effective governance (improved corporate governance and organisational oversight) 7) Professional judgment 8) Compliance and operational objectives 9) Supplemental guidance on external financial reporting (guidance on how the 17 principles can be applied to external financial reporting) 10) Expanded relationships and globalization
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Source: Keith (2014)

### 2.2.1.3 ERM and Value Creation

Many researchers have consented on the value that ERM creates for the shareholders. Shimpi (2001; 2005) supports the implementation of an integrated risk management framework that involves the key core risks, without regard to the non-core risks. Such planning will enable organisations to maximize the creation of value for shareholders (Keith, 2014).

Nocco and Stulz (2006) have also focused on the interchangeable relationship coexisting among three major elements: ERM framework, competitive advantage and shareholders' value. To earn the most of this interaction, executives are required to view risks more comprehensively, and to consider the potential uncertainties as critical elements for the integrated risk framework. Furthermore, Nocco and Stulz (2006) considered that ERM assists organisations in quantifying risks and optimising responses, and consequently, choosing the most relevant strategy; this will contribute to aligning risks and internal decisions with organisational culture. On the other side, ERM, when effectively implemented, assists organisations in realizing long term competitive advantage. Thus, ERM will be creating values on two major levels: the macro level and the micro level. At the former level, organisations create value by managing quantified, strategic risks, which increases organisations' likelihood in achieving competitive advantage (Nocco and Stulz, 2006; Keith,

2014). From the micro perspective, ingraining ERM in culture, and across organisational divisions necessitates the complete commitment of senior management. The responsibility lies in implementing risk management framework that concentrates on reducing adverse impacts and their probability of occurrence rather, than eliminating them completely (Keith, 2014).

### **2.2.2 ERM and Culture**

Several researchers have considered the relationship existing between organisational culture and the effectiveness of ERM. Keith *et al.* (2013) highlighted the importance of culture for a comprehensive ERM that aims for accomplishing strategic goals. Developing a culture that embraces risk in all its aspects and processes is the most essential element for a successful risk management process.

The value creation generated by ERM improves the sustainability of organisations, and the achievement of competitive advantage as a result of the operative risk culture (KPMG, 2011; Paape and Spekle, 2012; Keith *et al.*, 2013). However, establishing and promoting such culture is not an easy task for organisations. Researchers like Lam (2003), Kimbrough and Compton (2009), and Brooks (2010) examined the shortage in ERM literature regarding risk culture, despite its relevance to the risk management structure, and to the adaptation process that organisations rely on for the external environment as well as the internal one (Hindson, 2013).

Creating such supportive culture lies at the heart of an effective ERM adoption without which, shareholders' value might not be optimized (Chapman, 2007). A clear risk culture is symbolised with informative communication and fostered risk awareness (Brooks, 2010). Yet, the ERM literature overlooked the cultural influence on the implementation of ERM frameworks.

### **2.2.3 ERM Frameworks**

In general terms, the objective of ERM framework is not to just oversee risks with unconstructive outcomes, but also to look at risk positively (i.e., as an attempt to raise value), because a disregarded opportunity is commonly more insecure than business interruption (Hampton, 2009). Studies on the subject of ERM indicate that the concept was quickly adopted by the business society, and consequently, scholarly concern in this regard was developing (Kleffner *et al.*, 2003; Fraser *et al.*, 2008).

Shortreed *et al.* (2003) describe a risk management framework as an organisation-specific set of functional activities, and stipulates the relationship between organisational system and risk management. ERM frameworks ought to identify and examine risks, to then, propose actions that facilitate the management of risk, in accordance with their potential impact (Kucuk and Yilmaz, 2008). According to Dafikpaku (2011), we enumerate four different scenarios:

- By aborting actions that contribute to risk that can be AVOIDED;
- By reducing the likelihood or impact of risk that can be REDUCED;
- By transferring or sharing a portion of the risk (impact) so that it can be SHARED or INSURED; and
- By taking no action as a result of a cost/benefit decision and risk can then be ACCEPTED (Dafikpaku, 2011).

The Institute of Internal Auditors (IIA, 2008) in North America and its Global Audit Information Network conducted ERM Benchmarking Survey. The survey revealed that the Integrated Framework for Enterprise Risk Management (IFERM) devised by COSO was the most commonly used framework, to guide efforts for enterprise risk management, followed by the standard ISO 31000. These two leading Frameworks will be presented and analysed in the next two sections.

### **2.2.3.1 Integrated Framework for Enterprise Risk Management (IFERM)**

COSO's (2004) Integrated Framework for ERM was found to be most widely used in the 2008 Benchmarking Survey, conducted jointly by the Institute of Internal Auditors (IIA) and the Research Foundation of IIA (IIARF) (GAIN, 2009). Earlier, in the mid-nineties, COSO had issued the Integrated Framework for Internal Control, so that businesses and other entities could assess and enhance their internal control systems. Thousands of entities have since used that framework, which has helped them achieve their objectives, by enabling better controls over activities in their forward progress (COSO, 2004).

Later developments and incidents created an increased concern and concerted attention on the management of risk, and the necessity to evolve a robust framework which would enable an effective identification, assessment, and management of enterprise-wide risks. COSO initiated the efforts with technical output from PricewaterhouseCoopers in 2001 through a project. These efforts culminated in the form of the Integrated Framework for Enterprise Risk Management and its documents. The framework incorporates, and expands upon the Internal Control Integrated Framework, so that organisations adopting this framework would not only

satisfy internal control needs, but would also initiate and implement a complete risk management programme/process (COSO, 2004).

This framework helps organisations to properly explore the following capabilities as inherent in Enterprise Risk Management (COSO, 2004):

- Aligning appetite for risk and risk handling strategy;
- Enhancing decisions of risk response;
- Reducing operational losses and surprises;
- Identifying and managing multiple and cross enterprise risks;
- Seizing potential opportunities; and
- Improving deployment of capital.

This is rather a broad definition providing not only the fundamental concept, but also, indicating the operational responsibility and broad parameters of an ERM programme/process (COSO, 2004). COSO framework stipulates that for the pursuance of an entity's established mission or vision, its objectives can be listed into the following four distinct, yet overlapping categories:

- Strategic;
- Operational;
- Reporting; and
- Compliance.

This categorisation helps in creating better focus on the separate and specific aspects of ERM. COSO framework mandates the Enterprise Risk Management to be comprised of eight interrelated components. These components have a direct relationship with the objectives of an organisation. A third dimension in the risk management process is the organisational structure of ERM within the enterprise, which is the focus of activity, i.e. the enterprise in its entirety or division, a business unit or subsidiary. So, entity's unit on one-dimension, categorised objectives on the second dimension and listed ERM components on the third, portrays the interrelations and the structure of ERM framework (COSO, 2004). COSO's document has a complete volume, expanding on all aspects of the Framework. The second volume provides illustrations of useful techniques to the application of various elements of the framework, and is entitled 'Application Techniques'. The Integrated Framework provides the foundations of mutual understanding, common language and the standards useful not only

for an individual enterprise itself, but also for benchmarking, and comparing achievement and mutual learning amongst organisations who implement/follow this framework.

COSO (2004) has portrayed its ERM framework to be a definitive guidance for building an effective Enterprise Risk Management-ERM. It envisions that managers at all levels of decision-making and planning can look at ERM as a supporting role. The framework is, also, perceived as a provider of guidance in the design and implementation of an ERM programme/process within an organisation. Its three-dimensional matrix has strategic, operational, reporting and compliance goals in one dimension, whereas the second dimension covers business entities within the organisation, namely: subsidiaries, business units, divisions, or the apex entity level. As for designing an ERM programme, its eight components are described in Table 2-2 below, preceded by Figure 2-2 which details the evolution of COSO Framework from 1992 to 2013.

As depicted in Figure 2-2, a relationship exists between objectives, components and organisational structure.

- The columns represent the objectives;
- The rows represent the components; and
- The third dimension represents the entity’s organisational structure.

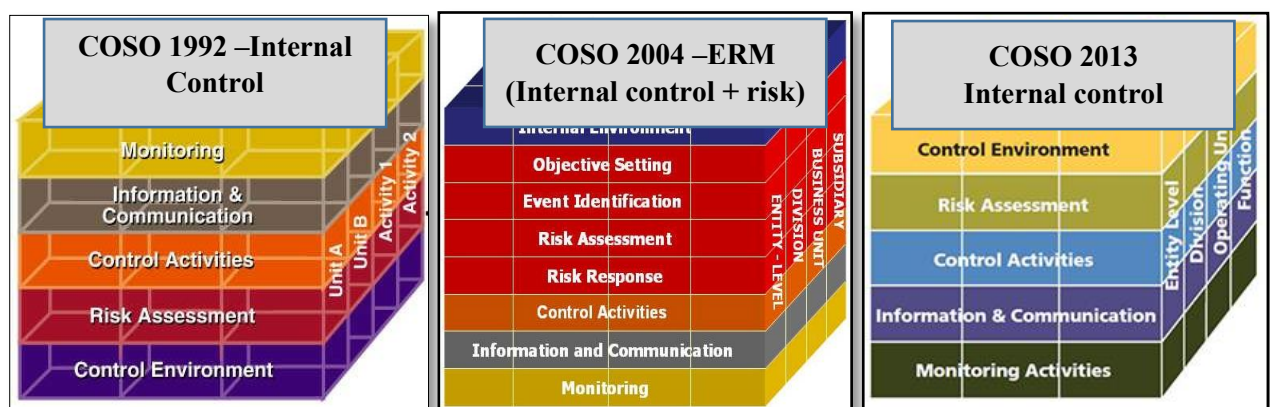


Figure 2-2: COSO ERM Framework Evolution

Source: COSO (2013)

The COSO-ERM report (2004) distinguishes between objectives as follows:

- Operations objectives: refer to the effectiveness and efficiency of the entity's operations, including operational and financial performance goals and safeguarding assets against loss;
- Reporting objectives: refer to the internal and external financial and non-financial reporting, and may encompass reliability, timeliness, transparency or other terms as set forth by regulators, recognizing standard setters or the entity's policies;
- Compliance objectives: refer to the adherence to laws and regulations to which the entity is subject; and
- Strategic objectives: These objectives are high level and are aligned with an entity's mission (Enterprise Risk Management Initiative, 2004).

The integrated components of the ERM Framework are detailed in Table 2-2.

ERM and related frameworks are not without critics. Even COSO states that its ERM framework is not a panacea and is a challenge to implement, and invites research-based studies to better understand the framework (Landsittel and Rittenberg, 2010). However, with appropriate planning and execution, COSO's (2004) ERM framework may be implemented by any organisation of any size (Chapman, 2003; COSO, 2004; Ballou and Heitger, 2005).

As risks continuously change and dramatically impact organisational success because of their increasing complexity, the updated version of COSO framework in 2017 highlighted the fact that, executive management and board of directors should concentrate their efforts on improving ERM processes and enhanced risk reporting mechanism. The updated framework takes into account ERM evolution stages, along with the rising organisational needs for upgrading risk management processes, to cope with the dynamic environment (COSO, 2017). Mary (2017) appreciated the update by stating that the framework provides organisations with updated perspectives on the fundamentals and implementation of ERM, for the purpose of surviving the changing business conditions. What distinguishes this Framework is its composition of five parts that can be adopted by various structures, while aiming for improving the decision making process and the implemented strategies. Such achievement is related to the framework's inclusion and consideration of the arising technologies, and changes in markets and demographics, all of which have evolved the managerial expectation of ERM (Mary, 2017). PwC, who has joined COSO in the update and review of the 2017 framework, argued that COSO 2017 assists boards of directors with their responsibilities in overseeing risks on the levels of organisational culture, governance, performance, reporting and communication,

setting objectives and strategies, and finally evaluating operations. So, to summarise, the updated framework has evidently connected the expectations of the various stakeholders with ERM, integrated risks in organisational performance, and facilitated risk forecasting, thus, promoting the notion that arising changes can be opportunistic rather than catastrophic (COSO and PwC, 2017).

Table 2-2: Interrelated Components of the COSO ERM Framework

<b>Component</b>	<b>Description</b>
Internal Environment	Reflects alignment of the organisation's risk philosophy, its appetite for risk, the risk management and ethical culture, human resource policies and practices, assignment of responsibility, and the organisational structure to manage risks.
Objective Setting	Identifies the organisation's competitive strategy or positioning (e.g., low cost, high quality, etc.) and related objectives in four areas: strategy, operations, reporting and compliance, which in turn drives objectives throughout the value chain.
Event Identification	Identifies possible internal and external events, and the potential interrelatedness of those events, that impact an organisation's ability to realise its strategy and objectives. Positive impact events are "opportunities" that are channelled back to strategic planning, while negative impact events are risks that should be managed through an integrated risk management process to help determine how such risks might be managed.
Risk Assessment	Examines the likelihood, frequency and the impact (e.g., financial, reputation, etc.) of events across a range (e.g., best to worst case) of possible outcomes associated with the events.
Risk Response	Identifies, assesses and selects risk response options that align with the organisation's risk tolerances and risk appetite. Options include avoidance (e.g., not engaging in the activity), reduction (e.g., rebalancing the risk, reallocating resources, robust business process, etc.), sharing (e.g., insurance, partnering, contractual agreements, hedging, etc.) and acceptance.



Control Activities	Establishes that risk policies and procedures are in place and properly executed, and that the risk management initiatives are effective. Such controls may include required authorisations, supervision, and segregation of duties, reconciliations and verifications for example.
Information and Communications	Requires that internal and external sources be used to provide appropriate and timely risk related information that enables people to execute their responsibilities. Such communications need to be integrated throughout the value chain and impacted organisations.
Monitoring	Ensures that an ERM is present and determines how well it is working so that it can be revised and/or expanded.

Source: COSO ERM (2004) and Sobel (2006)

### 2.2.3.2 ISO 31000: 2009

The definition of risk has changed from ‘the chance of something happening that will have an impact on objectives’ to ‘the effect of uncertainty on objectives’. While risk managers will continue to consider the possibility of risks occurring, they should now apply risk treatment options, to ensure that the uncertainty of their objectives will be avoided, reduced, removed or modified and/or retained. The standard starts by listing a set of risk management principles, then, using these principles to guide the establishment of the risk management framework; and finally, using the framework to guide the establishment of the risk management process. Together, these three sections make up what ISO 31000 calls the risk management architecture. Concerning the risk management principles, according to ISO 31000:2009, they ought to follow the rationale that:

- Risk management should create and protect value;
- Risk management should be an integral part of all processes;
- Risk management should be part of the decision making;
- Risk management should be used to deal with uncertainty;
- Risk management should be structured, systematic and timely;
- Risk management should be based on the best information;
- Risk management should deal with human and cultural factors;
- Risk management should be transparent, inclusive and relevant;
- Risk management should be tailored to your environment;

- Risk management should be dynamic, responsive and iterative; and
- Risk management should facilitate continual improvement (Purdy, 2010).

The International Standard ISO 31000:2009 (entitled Risk Management- Principles and Guideline) is widely applied. The complementary documents are ISO Guide 73:2009 which provides Risk Management Vocabulary, and ISO/IEC 31010:2009 on Risk Management. These standards provide a complete set of guidelines and benchmarks for Enterprise Risk Management Initiatives in any organisation. The ISO 31000:2009 describes the components of a risk management framework. The ultimate dedication and commitment by the board is the initial and supporting component, followed by the design of the framework. The next in the sequence are: implement risk management, monitor and review framework and develop an improvement framework. These components are sequential steps adopted for implementing the risk management process and for providing ongoing support. The risk management process takes place within the context of organisational mandate of risk management (AIRMIC, Alarm and IRM, 2010). Figure 2-3 sheds more light on ISO 31000: 2009 Framework and Process.

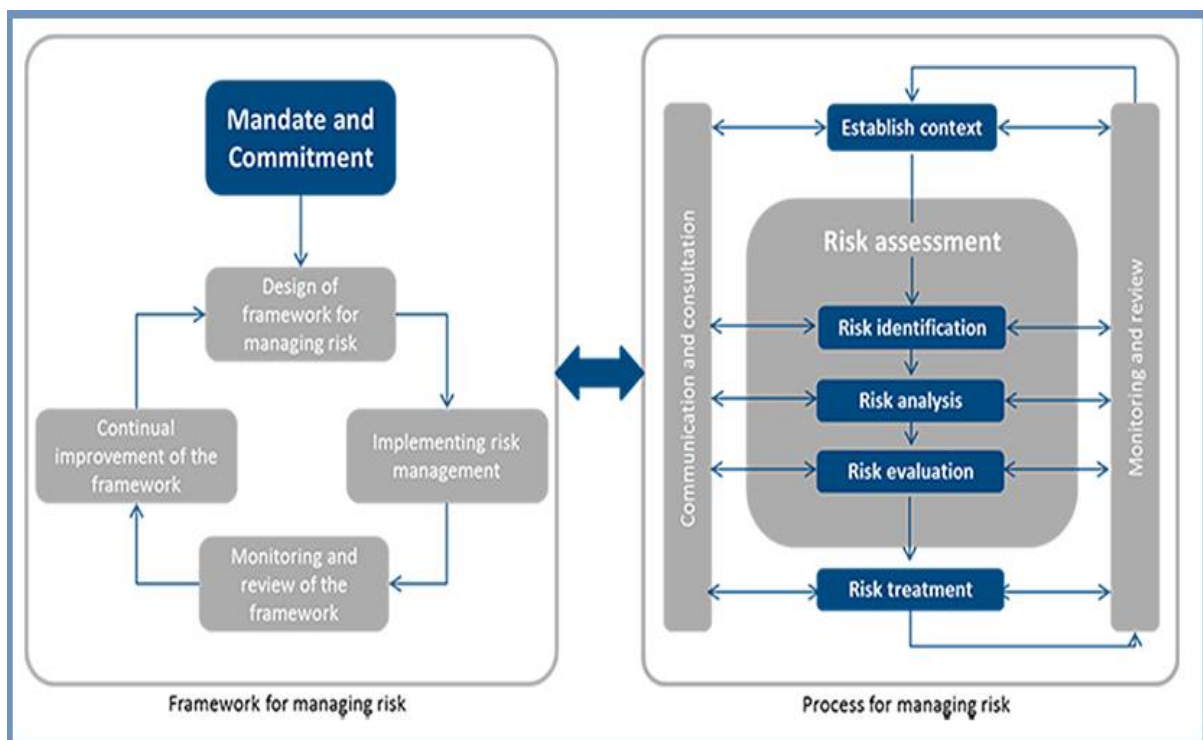


Figure 2-3: Managing Risk: Framework and Process of ISO 31000: 2009

Source: ISO 31000

The ISO 31000: 2009 standard has been developed to achieve multiple objectives. The standard helps organisations in increasing the likelihood of achieving objectives. It also encourages the management to be proactive, by becoming more aware of the need to identify and treat risk throughout the organisation. These standards enable improvements in identifying opportunities and threats. Furthermore, compliance with international norms and relevant legal and regulatory requirements is also facilitated. Using the toolbox of risk management, provided through ISO 31000, enables organisations to make substantial improvements in financial reporting, governance, and stakeholders' confidence and trust. Improvement in controls, operational effectiveness, and efficiency are also catalysed.

The International Organisation for Standardisations has emphasised that organisations, through the application of ISO 31000, would become more efficient and productive. These entities would be able to establish a reliable basis of decision-making, planning, effective allocation and usage of resources for risk treatment. Thereby, organisations can enhance the health and safety performance, as well as the environmental protection. These standards also help in minimising losses, and improving the loss prevention and incidence management. Improved organisational learning and increased organisational resilience are also anticipated outcomes (AIRMIC, Alarm and IRM, 2010). The latter is of particular interest to the oil and gas sector.

### **2.2.3.3 Risk Management Standard Evolved by Federation of European Risk Management Association (FERMA)**

Risk Management Standard was developed by a team of FERMA, jointly with the Institute of Risk Management (IRM) and ALARM: the National Forum for Risk Management in the Public Sector, as well as AIRMIC: the Association of Insurance and Risk Managers in Industry and Commerce in the UK. In this fast improving discipline of risk management, FERMA standards provide an agreed terminology of the words and terms used, and propose a concurred process to carry out risk management and a structure of the team made responsible to manage risk.

FERMA's document considers Risk Management as a central part in the strategic management of an organisation. It further recognises that "Risk Management is the process whereby organisations methodologically address the risk attached to their activities, with the goal of achieving sustained benefits within each activity and across the portfolio of all activities" (FERMA, 2003, p.2). Tailored as a continuous and developing process, Risk

Management reduces the likelihood of failures, and the uncertainty of achieving the overall objectives of the organisation. Factors external to an organisation, as well as internal, can lead to the emergence of risks, which can further be categorised by type as strategic, financial, operational, hazard, etc. (ibid).

FERMA conceives that the process of risk management stems from the strategic objectives of organisations. Risk assessment, as a first step, constitutes the overall process of analysing and evaluating risk. The risk analysis starts off with the identification of all significant activities within an organisation, and the definition of all risks, including strategic, operational, financial and those pertaining to knowledge management and compliance, emanating from these activities. It is important at this step to display the risks identified in an explicit structural format. Such risk descriptions should contain details, such as naming the risk, describing its scope and nature, listing the stakeholders, quantification of risk tolerance, the mechanisms for risk treatment and control, the recommendations for potential actions for improvement to reduce risk, as well as strategy and policy development (FERMA, 2003).

Depending upon the probability of risk occurrence and the possible consequence, risk estimation can be structured in quantitative (monetary value or stock size, etc.), semi-quantitative, and/or qualitative (high or probable, medium or possible and low or remote) formats. Risk evaluation is, then, applied in deciding as to how significant are the identified risks to the organisation, and whether each specific risk is to be mitigated or accepted (Curtis and Carey, 2012). The stage of risk treatment entails selecting and implementing measures to modify the risk. Major elements at this stage of the process are control/mitigation of risk, avoidance of risk, risk transfer and financing of risk, i.e. mechanisms for funding the financial consequences of risk (FERMA, 2003). Smooth internal communication within the organisation and prompt risk reporting are very vital to the process of risk management. The requisite information relevant to different tiers within an organisation, i.e. Board of Directors, multiple business units, and all individuals, have to be communicated, and strategic and operational reports should be generated for Risk Management. Most often, external reporting on risk management policies and their effectiveness is also required on a regular basis for the stakeholders of an organisation (FERMA, 2003). The administration of Risk Management requires devising a Risk Management policy that defines the role of the Board, assigns roles to different business units and to the risk management unit itself, and spells out the role of the Internal Audit in establishing resources for implementation. A follow up process has to be

established for continuous monitoring, feedback, review, and improvements, in the risk management process (FERMA, 2003).

#### **2.2.3.4 Risk Maturity Model (RMM) of the Risk Management Society**

In the 1980s, the Software Engineering Institute of the Carnegie Mellon University founded a methodology termed as capability maturity model. Risk Maturity Model is based on that model, which was originally applied to advanced software engineering processes. Later on, supply chain, human resource management, technology, finance, defence industries, and other corporate operations also embraced the model in their practices for the management of risk. This version of risk maturity model of RIMS (the Risk Management Society) for managing enterprise risk was developed by a group of Enterprise Risk Managers from various business sectors. Technical support was provided from Logic Manager, a leading developer of ERM solutions (RIMS, 2008).

Risk Maturity Model (RMM) is a planning and measurement resource to evaluate the effectiveness and efficiency of ERM process of an organisation. It has also the advantage of a benchmarking tool, providing organisations with standardised criteria for identifying the maturity level of their processes, its strengths and weaknesses, the next steps in their strategies for risk management and the evolution of their ERM processes (RIMS, 2008).

The basic premise of RMM is that organisations can move progressively on a maturity ladder (of ERM), from an initial 'ad hoc' mode or step, to an ultimate 'leadership' pinnacle. Each internal step of the ladder corresponds to the level of competency in risk management. The systematic progression on the ladder is driven by drivers/attributes categorised into seven variables, such as management of the ERM process, management of risk appetite, uncovering risks, resiliency of the business, and its sustainability. A set of twenty-five competency traits characterises these seven drivers/attributes. There is also a set of 68 key readiness indicators in the model. Together, the parameters and indicators of the model help individuals and leaders in the organisation to delineate a road map to the successful adoption of an ERM. The RMM also enables proper comprehension of risks across all means of business, so that it is possible to identify strategic opportunities and to curtail any arising uncertainty (RIMS, 2008).

A risk maturity assessment is the starting point in the application of RMM. This gives a picture of the current positioning of an organisation's ERM initiative. Then, there is a set of guidelines built into the model, which help organisations in developing a plan for process

improvement. These guidelines also help increase the thoroughness of the risk programme and its effectiveness (RIMS, 2008). Various organisations use different specialised frameworks and standards for ERM. These include the risk standard of Australian/New Zealand, ERM designed by COSO, COBIT, ERM of Standard and Poor and Sarbanes-Oxley, amongst others. RIMS risk maturity model is uniquely placed application in the context of its application, and in conjunction with other frameworks/standards already applied in the industry.

The Australian/New Zealand standard was prepared by the Joint Standards Australia/Standards New Zealand Committee OB-007, Risk Management as a revision of AS/NZS 4360:1999, Risk management. It provides a generic framework for establishing the context, identifying, analysing, evaluating, treating, monitoring and communicating risk. The risk management process set out in this standard is illustrated in Figure 2-4.

#### **2.2.4 Benchmarking ERM Practices**

The Institute of Internal Auditors (IIA) and the Research Foundation of the Institute of Internal Auditors (IIARF) conducted a benchmarking study in 2008, to ascertain the nature and extent of Enterprise Risk Management (ERM) practices across industries. The study covered practices with regard to ERM programme implementation reporting, application/implementation tools, and existing correlations and interdependencies. Two hundred and forty organisations participated through their chief audit executives or internal auditing heads, representing various industries and a multitude of countries (IIA and IIARF, 2008).

The study revealed that not many organisations had an ERM process in place. The importance of properly implementing ERM in improving business operations, while simultaneously reducing areas of inefficient use of resources or those leading to a potential fraud, had not been properly realised. Only 40.4% of the participating 240 organisations had implemented a formal ERM process. However, another 13.8% of CAEs (Chief Audit Executives), who had adequate perception of ERM, were also pursuing with their management on the necessity of setting in place an ERM, but still had not succeeded in getting an ERM programme initiated (IIA and IIARF: 2008). Amongst the various ERM standards/ frameworks available for application, the COSO devised integrated framework for

enterprise risk management transpired to be the most popular, followed by the application of the ISO 31000 standard for ERM.

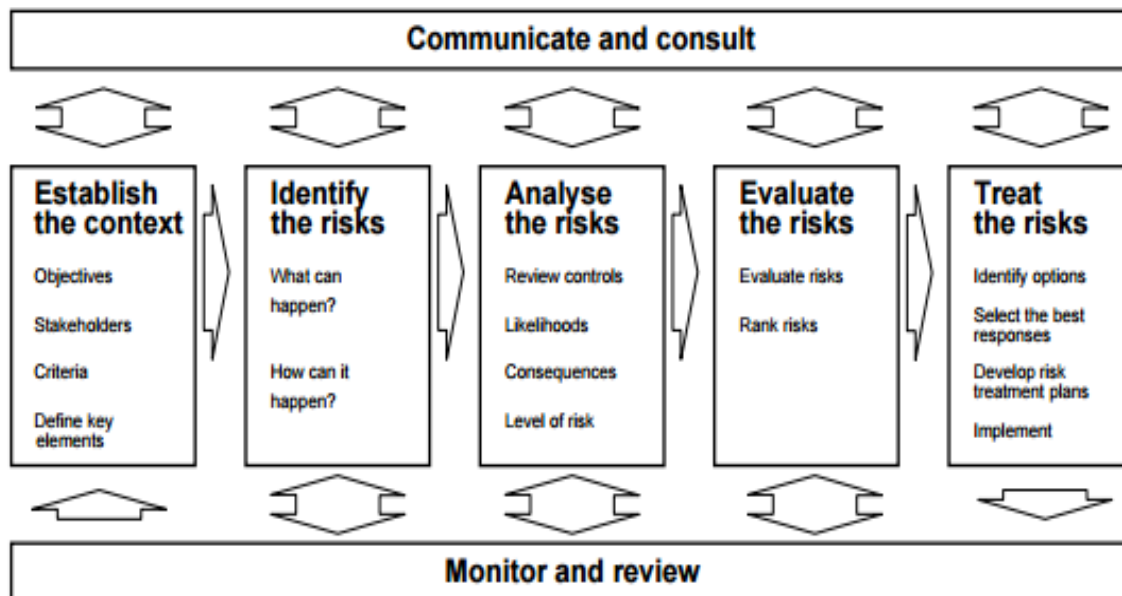


Figure 2-4: Risk Management Process according to the AS/NZ 4360:1999 Standard

Source: Cooper (1999)

Almost 39% of the respondents reported that these Frameworks have a moderate impact on risk management efforts, whereas 34% considered the impact to be substantial (IIA and IARF, 2008). Various factors had prompted these organisations from establishing an ERM process: 54.2% of the participants identified that such factors included regulatory guidelines, practices for sound risk management and recommendations of internal audit. Interests at the level of Chief Executive Officers and meeting board mandates were other major drivers with 38.1% and 35.1% responses, respectively (IIA and IARF, 2008).

### 2.2.5 Adopting an ERM Process

An important aspect of research in ERM is examining the number of adopting organisations, and the driving forces operating behind such adoptions. Many studies in different countries and regional contexts, and in various industry sectors have examined this dimension. ERM adoption also proceeds through stages. From the initial realisation to full-fledged implementation, the process goes through several stages. Before the adoption of any ERM framework, CEOs should recognise that some factors should be considered primarily, before proceeding with any implementation. Those factors that need to be taken into consideration are as follows: organisational size, organisational complexity, organisational industries, organisational headquarter and subsidiaries' country of domicile, having one of the Big Four

Auditors (i.e., KPMG, E&Y, PwC, and Deloitte), and the independency level of the BOD (Board of Directors). By considering these factors before deciding about ERM implementation, there is a higher chance that the real benefits of ERM will be understood within the organisation, and the effects of its pitfalls will be minimised.

Conducting their study in the Canadian context, Kleffner *et al.* (2003) examined the adoption status of Canadian organisations, and the drivers leading to adoption: the respondents concurrently indicated multiple factors. According to the results of the study, the respondents chose the followings as key factors leading to adoption of the ERM Process:

- The influence of risk manager (61%);
  - The encouragement of the board of directors (51%); and
- The compliance with the Toronto Stock Exchange (TSE) guidelines (37%) (Kleffner *et al.*, 2013).

In addition to the above mentioned factors, Liebenberg and Hoyt (2003) found that the appointment of a Chief Risk Officer (CRO) can be a catalyst/determinant of ERM adoption, hence, organisations with a CRO had a higher leverage for adopting an ERM process. Likewise, the strong support of senior management was noted as vital for the success of an ERM (Walker, Shenkir and Barton, 2002). Also, the size of the organisation was also found as a contributing factor in earlier studies, concluding that in comparison with smaller organisations, larger organisations were more likely to adopt risk management processes (Colquitt *et al.*, 1999; Walker *et al.*, 2002).

In later studies of embracing ERM frameworks, Gates and Hexter (2005) surveyed 271 financial and risk executives. Gates and Hexter (2005) reported that over one-half of respondents (56%) were making efforts to develop and implement some form of “enterprise risk management” strategies within their organisations, with another 35% who positively showed interest towards using ERM. Corporate governance, regulatory requirements, and increased understanding of strategic and operational risks motivated the ERM implementation in these organisations (Gates, 2006). Pagach and Warr (2007), with the help of an empirical analysis of senior risk officer engagements during the period of 1992 –2005, concluded that financial transactions act as a significant function in the emergence of ERM, with high-leverage organisations being more exposed to adopting ERM than organisations with low-leverage ratios.



An important contribution to the ERM literature as for the implementation of its process is attributed to Beasley, Pagach and Warr (2008), as well as Gates, Walker and Nicolas (2009), who examined the facets of ERM, as linked to the value creation concept. Their contribution had a significant contribution to the ERM literature, regarding the value associated with its implementation within organisations. Walker *et al.* (2009) “measured ERM value and assessed how it affected decision making and increased organisational profitability” (as Cited in Keith, 2014, p.82).

### **2.2.6 US and International Organisations context**

A relatively more comprehensive study was conducted by Beasley *et al.* (2005), in a wider universe of US and international Organisations. The universe was comprised of members of IIA’s Global Audit Information Network (GAIN), who are primarily Chief Audit Executives. Of the 1770 GAIN members invited to participate and received survey formats, 175 survey responses were received, though 52 with incomplete data on one or more observations, leading to a final sample of 123 US and international Organisations.

Beasley *et al.* (2005) explored organisational factors and their relationship to the stage of ERM implementation, based on surveys completed by internal auditors. Rather than using a dichotomous variable representing ERM adoption of yes or no, the authors used a dependent variable that ranges from 1 = no plans exist to implement ERM, to 5 = complete ERM is in place. Similarly to previous studies, the size of revenues was positively related to the stage of ERM. Organisation’s leverage was not included in the study. Additionally, the study found that organisations who had (1) a CRO, (2) more independent directors, and (3) explicit ERM calls from the CEO and CFO were more likely to be at a more advanced stage of ERM implementation. These results suggest that top management support for ERM is critical for ERM implementation. Organisations that outsourced one of the Big Four audit firms were also found to be further along in ERM implementation, than were organisations outsourcing smaller auditing organisations (Beasley *et al.*, 2005). The five stages in the ERM adoption were enumerated as follows:

- ERM STAGE = 5, if complete ERM is in place;
- ERM STAGE = 4, if partial ERM is in place;
- ERM STAGE = 3, if planning to implement ERM exists;

- ERM STAGE = 2, if management is investigating ERM, but no decision made yet; and
- ERM STAGE = 1, if no plans exist to implement ERM (Beasley *et al.*, 2005).

Regarding the stage of implementation, Beasley *et al.* (2005) discovered that 41% of the organisations were at stage four i.e. partial ERM in place, and 9% were at the final adoption stage, stage five, i.e. complete ERM in place. This 50% adoption rate, although encouraging, should be interpreted with caution, as the sample of the forthcoming participations does not represent the population without bias. Of the other 50%, 19% had no plans to implement ERM, 16% were investigating ERM yet indecisive, and 15% were almost on board, planning to implement ERM (Beasley *et al.*, 2005).

Beasley *et al.* (2005) found an association of several factors with the deployment stage of an Organisation's ERM. The extent of the ERM deployment was found to be positively associated with the existence of a Chief Risk Officer in the enterprise. This finding was basically consistent with earlier research by Liebenberg and Hoyt (2003). Researchers also found that there was a positive association of a more autonomous board of directors with an enterprise extending ERM implementation, as was also the case with the CEOs and CFOs explicitly calling for involvement of internal audit in ERM. This explicitly suggests that leadership factors are critical for the implementation of ERM, wherein the board and senior management set the tone towards ERM adoption programmes. This research also concluded that organisational personnel were also driving factors for ERM implementation. Relatively larger enterprises and clients of the Big Four audit organisations were more prone to and progressed in the ERM adoption process. Moreover, organisations in some sectors were found to be early and progressive adopters. These included banking, education and insurance industries, although this trend may have been dictated by industry regulators/leaders, explicitly stipulating more effective risk management. According to the respondents, US organisations were found as not well advanced in their ERM implementation, as compared with international enterprises (Beasley *et al.*, 2005).

### **2.2.7 The Netherlands/European Context**

Further evidence is coming forward on the factors that have an influence on the implementation extent of ERM. The European context is now being looked into, in addition to the Canadian context as researched by Kleffner *et al.*, (2003), and the US international

Organisations studied by prior researchers and detailed in the previous section. Paape and Spekle (2012) based their study on the Netherlands and collected a survey data from 825 Organisations headquartered in the Netherlands. Besides a different regional context, the composition of this sample has wider groups, including public sector organisations, not-for-profit organisations, as well as small- and medium-sized enterprises, Paape and Spekle (2012) explored a number of factors influencing the stage of the development of ERM practices across organisations headquartered in Netherlands, falling in five broad groups, namely: influences pertaining to regulations, internal influences, ownership, influences of auditors, and characteristics related to industry or organisation. In terms of the stages of ERM adoption, Paape and Spekle (2012) followed the progression sequence devised by Beasley *et al.* (2005), though for each stage, features of programme configuration were added as in the following:

- Stage 1: Risk management is mainly incident-driven; no plans exist to implement ERM;
- Stage 2: Managers actively control risk in specific areas (e.g. health and safety, financial risk); managers are considering implementing a complete ERM;
- Stage 3: Managers identify, assess and control risk in specific areas; managers are planning to implement a complete ERM;
- Stage 4: Managers identify, assess and control strategic, financial, operational and compliance risks; managers are in the process of implementing a complete ERM; and
- Stage 5: Managers identify, assess and control strategic, financial, operational and compliance risks; ERM is an integral part of the (strategic) planning and control cycle (Paape and Spekle, 2012).

Organisations participating in the study were at various stages of ERM implementation, as 14% were at stage 1, merely managing incident driven risks, 38.9% at stage 2, more active in some areas and considering to implement an ERM, whereas 23.5% organisations were at stage 3, namely active in specific areas and planning for a complete ERM. A quarter of the participating organisations were at advanced stages (stage 4 and stage 5), respectively in the process of implementing a complete ERM (12.5%), and wherein a complete ERM was an integral part of the (strategic) planning and control cycle (Paape and Spekle, 2012).

Correlation matrices developed by authors between the stages of adoption and identified factors showed positive and significant correlation. It was found that more mature ERM systems were in place in publicly traded organisations (Paape and Spekle, 2012). The

presence of a Chief Risk Officer (CRO) and an Audit Committee had contributed to the progression in ERM implementation. Furthermore, the size and sector of the enterprise were also influential in that larger organisations and financial sector organisations had more tendency to be more sophisticated in their ERM system (Paape and Spekle, 2012).

Several factors turned out to have less significance or no influence on the stages of ERM implementation. Institutional ownership demonstrated no effect; government codes (regulations and associated pressures) also had no effect. The auditor quality (Big Four factor) also had no effect on ERM development, a finding that is inconsistent with earlier studies, but explained by the authors that the high quality of the Dutch audit profession in general (not limited to the Big Four) is the attributed factor (Paape and Spekle, 2012).

### **2.2.8 ERM Configuration and Perceptions of Effectiveness**

ERM has one important distinctive feature i.e., its integrated approach. While configuring their ERM systems, organisations need to face numerous design choices. These same organisations can seek guidance in the design and implementation of their ERM, from various frameworks published by semi-regulatory bodies. As mentioned in an earlier section of this Chapter, amongst the various ERM standards/ frameworks available for implementation, the integrated framework for ERM devised by COSO (COSO, 2004; 2011, 2013 and 2016) is the best known example, which is also being most widely used. However, the framework suggests only key concepts and principles, thereby, providing guidance, whereas implementation details were left to the implementing organisations.

The companion volume of the COSO 2004 edition does provide some details of the eight components constituting ERM framework, as listed below:

- Internal Environment;
- Objective Setting;
- Event Identification;
- Risk Assessment;
- Risk Response;
- Control Activities;
- Information;
- Communications; and
- Monitoring (COSO, 2004).

It also provides several practical illustrations of the application of ERM techniques for the benefit of the organisation, while also cautioning that these may not be the best methods or practices. Further statistical analysis showed that the perceived effectiveness of risk management is a function of the extent of implementation: organisations which had already finalised ERM implementation were more positive than those yet in the process of implementing. The results also suggested that the quality of risk management had not improved through the application of COSO framework, thus, raising doubts as to whether COSO is a leading ERM framework, as generally proclaimed about its effectiveness.

Researchers, such as Collier *et al.* (2007) and more recently Paape and Spekle (2012), have recognised that there is generally a paucity of professional knowledge of the best ERM designs, based on a ground evidence of their effectiveness. Collier *et al.* (2007) explored the relationship between ERM design and effectiveness, while focusing broad categories of practice, rather than specific techniques or instruments. No substantial work so far is in sight, which demonstrates that certain organisations did achieve effectiveness, based particular design parameters. Comprehensive ERM theories do not exist, and as far as we know, there are no empirical studies that systematically document specific ERM practices and their contribution to ERM effectiveness (Paape and Spekle, 2012). It seems therefore that there is a lack of empirical research into the effectiveness of ERM in general, and the specific frameworks in particular, as suggested by Hoyt and Liebenberg (2011). Other critics, such as Khan (2005) and Ballou and Heiger (2005), have previously noted that implementing ERM requires a substantial commitment of resources (time, personnel, money) that are not likely to be available during lean times, and a cultural shift of the entire organisation without an appropriate return on such efforts.

Mikes (2005; 2009) and Power (2007; 2009) found substantial variations in ERM practices, regarding the level of adoption practices within organisations, and the significance of organisational cultures. For ERM to be effective, Bruno-Britz (2009) argues that organisations must “look beyond technology to establish a culture of risk management throughout the organisation” (Davila, Epstein, and Manzoni, 2012, p.281-282). A culture of risk management should run all across the entity and the mindset of its personnel. According to Standards and Poor (2008), “ERM must permeate existing practices and the individual behaviour of managers in everyday decisions” (Davila, Epstein, and Manzoni, 2012, p.282). Whilst the movement towards adopting ERM and risk assessment practices is definitely

emerging, there is an overall, general dearth of research on various aspects of this emerging, yet, very vital discipline of ERM. This is apparent from the contributions of researchers, such as Power (2009) and Gephart *et al.* (2009). According to Arena *et al.* (2010), there are as yet few critical contributions, exploring how ERM works in practice, and even fewer addressing how its organisational construction evolves and contributes to a risk management style. Gephart *et al.* (2009), as well as Power (2009), had in fact also shared earlier this same impression in respective studies. For others, such as Lounsbury (2007) and Nicolini (2009), both, theoretical and institutionally-grounded, internal analyses of the advantages and limitations of implementing ERM practices appear equally vital elements of learning from ground realities. The authors claim that attention has been also drawn to broader cultural paradigms, and other researchers, such as Lounsbury (2008), have raised the need for a more holistic approach to practice analysis of Enterprise Risk Management.

#### **2.2.8.1 Background of “Risk Responses”**

Various risk responses –avoiding, accepting, reducing, or sharing risk –are adopted for developing a set of actions, to align these same risks with the entity’s risk tolerances and risk appetite (COSO, 2004), as illustrated in Figure 2-5. For example, the risk of cash theft can be avoided, by simply not dealing with cash. The risk of malicious attacks from the internet can be avoided, by disconnecting the organisation’s network from the internet. Some risks can be transferred to or shared with other parties. For example, the risk of fire, theft and health can be transferred to insurance companies. Risk of doubtful debts can be transferred to a factoring organisation. With avoidance and transfer, the overall exposure of the organisation can be reduced. Other risks can be mitigated by implementing internal and external controls. The risks that cannot be mitigated will be accepted by the management. These accepted risks are also called “residual risks”. The organisation must perform cost-benefit analysis of each risk strategy, and select the ideal strategy for each risk (Gregory, 2015).

#### **2.2.8.2 Risk Response Strategies**

There is a large body of literature proposing risk response strategies (e.g., Christopher & Peck, 2004; Mullai, 2004; Elkins *et al.*, 2005). The proposed risk response strategies can be differentiated or classified, according to various criteria. Following their interviews with executives in the U.S, Elkins *et al.* (2005) developed a list of the 18 best risk response strategies that organisations can implement in their business operations. These are based on the initiatives that organisations had in place, or were working towards them in the year of

study. Some of these initiatives are to screen potential suppliers for risks, train key employees to improve real-time decision making capabilities, and conduct teleconferences with critical suppliers. For instance, frequent contact with suppliers reduces the risk of inaccurate assessment of supplier abilities (Christopher, 2005). Certification of suppliers is also part of process-oriented risk response strategies (Lockhart and Ettkin, 1993). Mullai (2004) developed a detailed taxonomy of risk mitigation strategies and categorised them as avoidance, reduction, transfer and acceptance.

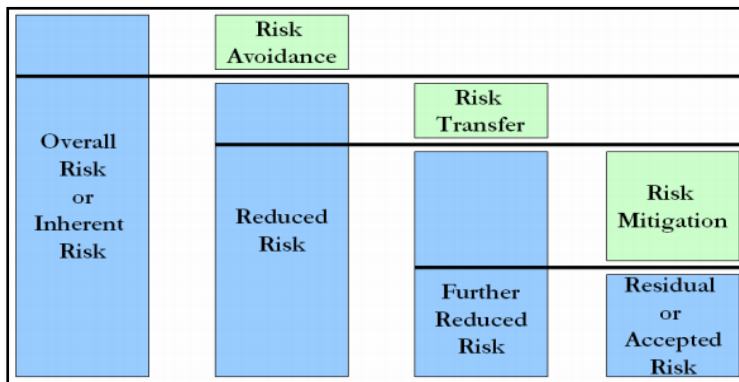


Figure 2-5: Risk Treatment

Source: Nazir (2007)

At this stage, the risk register of the organisation will be complete, as illustrated in Figure 2-6, which can be then used as a tool to track and monitor the organisation controls.

	Risk dimension: security	Risk dimension: financial	Risk dimension: legal/compliance
Serial no.	1	2	3
Risk description	Cybercrime, including virus damage, identity theft, spyware, general fraud	Costs associated with online transactions outweigh benefits associated with initiative	Breach of regulations within e-business legislation
Impact	Direct financial loss, reputation damage, equipment damage, system unavailability	Direct financial loss due to increased fees Customer loss due to increased costs	Possible fine and/or legal prosecution
Consequence	Significant	Moderate	Moderate
Likelihood	Likely	Likely	Possible
Level of risk	Extreme	High	Moderate
Risk priority	1	2	3
Treatment options	1. Update anti-virus software and check firewall viability 2. Review requirements to ensure secure online banking 3. Develop and test security policies 4. Develop disaster recovery plan	Develop business case to identify impact of increased fees	1. Review all legislation 2. Consult solicitor to seek advice 3. Develop and test compliance policies and procedures

Figure 2-6: Risk Register

Source: Nazir (2007)

Instead of focusing on the process, and reducing the likelihood and impact of a detrimental event, organisations normally employ buffers (Zsidisin and Ritchie, 2009). In manufacturing, the concept of buffering is defined as maintaining enough supplies, to keep operations running smoothly. The classification of the process of the buffering concept risk response strategies to business philosophy is not new and cannot be underestimated. Ishikawa (1985) advanced the process and buffer strategies idea into the management of quality. The author argued that quality cannot be treated as a trait inherent in the final product, but it is important to think of quality throughout the process route, to the final creation of that quality product. Wagner & Bode (2008) differentiated between process and buffer oriented risk management practices in an organisation's operation. Thus, this classification which started in quality management has withstood the test of time. A closer reading of the literature reveals that many authors have been more prescriptive in their recommendations, and tend to advocate more process oriented risk response strategies (Choi and Liker, 1995). In the reality of organisations' life, the mix of all those strategies is the most effective way to respond to risks and to protect the organisation from any negative consequences.

### **2.2.8.3 Risk Response by FERMA, ISO and COSO Framework**

Risk Response is an integral and vital component and step, in the sequential process of risk management in all the ERM frameworks/ standards, though the nomenclature of this stage differs, not having been worded 'Risk Response' in all cases. In FERMA risk management process, the term 'decision' has been used as a step subsequent to risk reporting, leading the process to treating risk. In the process of risk management based on ISO 31000, the risk assessment phase is composed of risk identification, risk analysis and risk evaluation, followed by the phase termed 'risk treatment' (Dafikpaku, 2011).

The ERM framework of COSO (2004) stipulates a three dimensional process with Framework for Enterprise-wide Risk Management organisational objectives (strategic, operational, reporting and compliance) on one dimension, and the organisation's tiers/ levels (subsidiary, business unit, division, entity) on another, with eight sequential components of the ERM process on a third dimension. The framework envisages mutual interactions, feedback and feed-forward links amongst all the elements exhibited on this three dimensional cube. 'Risk response', aptly worded as such, is one of the eight components, following the stages of event identification and risk assessment, and followed by control activities. Risk response has to be designed for each unit of the organisation, as well as for each of the four organisational objectives (Deloitte, 2014).



### 2.2.9 Risk Management in the Oil Sector

Risk can be managed successfully without reducing long-term profits, assuming an effort is made in terms of risk management (Leveson, 2011). Effective risk management system needs to offer solutions, tailored not only to the industry, but also, to the specific organisation and the sectors in which it operates. According to ABS Consulting (2015), an organisation specialised in providing guidance and advice to Oil & Gas organisations must deal with their own unique set of risks, whether natural, man-made or operational, as part of their daily operations. An example that is usually given is of an approach that works well at an offshore installation, but may not be the best option for a refinery which clearly summarises the obvious need for very carefully planned and designed risk management approaches that fully fit the purpose. Organisations that operate in the oil and gas sector need to have a system in place, to effectively address technical solutions, encompassing the full range of the risk spectrum relevant to the activities of the organisation to manage their risk in a prioritised manner, and to communicate their hazard and risk judgments in the best way possible. General risks apply to every stock, such as management risk, but, also exist more concentrated risks that affect that specific industry.

Among the hazards' and risks' analysis tools that can be implemented by organisations in the oil sector (variable depending on the exact types of operations the organisation manages), the followings can be identified: Hazard Identification and Operability Evaluation (HAZID, HAZOP), Security threat management; Construction management; Quantitative risk analysis (man-made and natural hazards); Pipeline hazard and risk analysis; fire blast and dispersion modelling; measuring and managing investment risk (Remesal *et al.*, 2015). The major five common risks faced by organisations operating in the Oil industry are: political risk, geological risk, price risk, supply and demand risk and cost risk, as detailed below (Euroinvestor, 2012):

- **Political risk:** A range of country specific regulations may limit where, when and how extraction and trading are done. To mitigate this risk, organisations that may be affected need to consider careful analysis of where, and with whom to trade, and build sustainable relationships with their international oil and gas partners (Euroinvestor, 2012).
- **Geological risk:** This risk refers to both the difficulty of extraction, and the possibility that the accessible reserves might be overestimated. Oil and gas geologists

work hard to minimise geological risk by frequent testing. In fact, they use the terms "proven," "probable" and "possible" before reserve estimates, to express their level of confidence in the findings. Exploration involves drilling both offshore and in land, with the consequent transportation and distribution issues involved. Also included in this category is the risk related to the wide variety of unconventional oil and gas extraction techniques (Euroinvestor, 2012).

- **Price risk:** Beyond the geological risk, the price of oil and gas is the primary factor, in deciding whether a reserve is economically feasible. Basically, the higher the geological barriers to extraction, the higher the risk (Euroinvestor, 2012).
- **Supply and demand risk:** The uneven nature of production is part of what makes the price volatility of oil and gas. However, additional economic factors, such as macroeconomic pressures and financial crisis, also have a significant part in this risk (Euroinvestor, 2012).
- **Cost risk:** Oil and gas is a very capital-intensive industry, and all of the risks stated above feed into the overall operational costs, which are the highest of them all. This industry covers an array of factors, in terms of regulation and extraction processes through uncertain prices, due to a worldwide production that is beyond any one organisation's control, as well as other issues such as to find, train and retain the qualified workers (Euroinvestor, 2012).

Besides, as pointed out by Leveson (2011), in the oil and gas sector, other risks must be considered; among them, is the system safety engineering, also called the process safety engineering (which should not be confused with occupational safety). This has been in existence as a system engineering discipline for at least 50 years, although the fairly recent accidents and subsequent investigations in the offshore oil industry makes it clear that, at least some players in this industry are not using basic and appropriate safety engineering technologies and practices. Among the factors that lead to accidents and should therefore, involve carefully designed risk management approaches, as suggested by Leveson (2011) are: flaws in the safety culture of the organisation, lack of real commitment to safety by leaders, lack of change management procedures, inadequate hazard analysis and design for safety, flawed communication and reporting systems, inadequate learning from prior events, confusion between occupational and system safety, and the belief that process accidents are

low probability. There are many changes that would be useful in strengthening the enterprise risk management and safety control structure in Oil-related organisations (Leveson, 2011).

The oil and gas industry undergoes weak consideration of the real risks surrounding it (Zuofa and Ochieng 2014, as cited in Agbonifo, 2016). According to Lambrechts & Blomquist (2016), the political risk associated with the oil and gas industry has been surging recently, due to the frequent terrorist attacks, which reveals the fact that this risk is not limited anymore to its association between governments and organisations. The world, being increasingly interconnected, is imposing new levels of risks on oil and gas organisations on transnational, regional or security levels. Therefore, further investments necessitate for their success effective risk management processes. Consequently, the study conducted by Lambrechts & Blomquist (2016) deduced that the political risk on the security level was not focused significantly in the oil and gas industry. And even though organisations operating in this industry aimed to securing the petroleum sites, a comprehensive risk management approach was always lacking.

In addition to the general risks discussed above and associated with the Oil and Gas industry sector, further overlooked risks emerge, and can place significant influence over the industry in the next few years. Osabutey, Obro- Adibo, Agbodohu, and Kumi (2013) commented on the real existence of Peak Oil. As more than 51 countries around the world witnessed peak oil in their territories, the oil, having limited supply, will decline in production sooner than expected. Given that geologists cannot expect the actuality of oil peak, countries depending on the Oil and Gas industry should pro-act to lessen the impact of oil peak ahead of its occurrence. Yet, the smart movements that economies might take might not be too effective, especially with the current international conflicts going on.

Another risk associated with the Oil and Gas industry is the health and safety of all the workers in this field. Inherently, this industry holds many risks, and is considered to be one of the riskiest in terms of health and safety. The occurrence of accidents while producing gas or oil results in great losses and more risks to both, the people and the environment. The environmental and health risk associated with the usage of chemicals and radioactive equipment. The exclusion of these risks by organisations is mainly related to the fallacies that management believe in and would rather follow than building sound risk management system: the fallacy that any risks minor to the risks usually accepted should be also accepted; the fallacy that all natural risks must be assumed; the fallacy that risks not detected

previously should be also accepted; and the fallacy that no decisions should be made until full information is available about risk (Osabutey, Obro- Adibo, Agbodohu, and Kumi, 2013)

#### **2.2.10 ERM in the Context of Oil Industry of the GCC region**

The ERM rose significantly as a strategic component of organisations' management, operating in the oil and gas industry in the GCC. Since 2003, oil prices have increased, GDP of the GCC countries also improved dramatically, the political and social environment became more volatile, and infrastructures witnessed higher investments. All of these factors constituted a motive for organisations, to recognise more importantly the need and significance of risk management. But, realising a way through which management would be more capable to identify, prioritise and mitigate risks comprehensively, focused organisational attention to ERM, aiming into aligning risk management activities with organisational risk appetite, as well as organisational objectives. However, such environment was not the sole catalyst for the recognition of ERM in the GCC region. The political environment that the region witnessed, as well as the economic consequences in terms of projects' privatisation, promoted rigorous reporting and controlling. Moreover, the fact that GCC organisations were listed beyond their national securities markets, and that GCC countries are continuously signing international agreements, increased the need to have a systematic process for managing risks (Randevea *et al.*, 2011).

Researchers, such as Muralidhar (2010), addressed the current status of ERM in the GCC's oil and gas entities, and looked into developing a practical, region-specific, and systematic action plan, to enact existing ERM models to a mature and robust framework for the GCC oil and gas industry. Muralidhar's (2010) research empirically investigates the GCC oil industry through six case studies, encompassing the six countries in the GCC (comprising Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and United Arab Emirates). This research focused on exploring the ERM system *per se*, through comparative case studies to answer the research questions set, and provide a valuable source for identifying the determinants of ERM adoption and the most significant challenges for its implementation in the region and within the Oil sector, as well as the basis for the best practice approach for successful ERM implementation in the GCC oil and gas entities.

Prior to Muralidhar's (2010) paper, a study by Saif (2009) had set the basis for research into risk management, in the hydrocarbon industry across the GCC area. Saif's (2009) findings examined issues around governance, the need for economic diversification, reducing high oil dependency and the problems arising from over-dependence on cheap foreign labour, at the

expense of GCC nationals, which negatively influenced productivity. Saif (2009) also analysed governance indicators and identified them as weak, whilst improvement in public finance performance required enhancing accountability and the rule of law, both of which at the time were markedly absent. Saif (2009) suggested that the GCC countries needed a strong and consistent commitment towards an economic reform, and stated that the global financial crisis has reminded policymakers in the GCC that structural challenges must be addressed at a time, when macroeconomic conditions are favourable, and not when the economies are slowing down.

According to the same author (Saif, 2009), the GCC are facing two different challenges: the first is of structural nature - the need to diversify the economy and the labour market; and, the second is of political nature and is related to issues of global market inflation and local governance. The author puts forward a set of suggestions that the reader might want to explore further (Saif, 2009). Recently, further unseen risks respective to the nature of Oil and Gas industry in the GCC region have attracted the attention of researchers and regional governments, due to the relevance of these risks on the industry and the national economies, similarly. These risks were previously disregarded by related parties due to some common fallacies as already mentioned in the previous Subsection, especially the ones that accept risks simply because of their naturalness and risks that were not detected earlier (Osabutey et al., 2013). Narrowing these risks down to the context of the GCC countries, Abi-Aad and Panzer (2013) considered that technological risk is becoming a serious issue for the Gulf countries, as the current installations and technologies are becoming aged and closely reaching the end of their usage. In parallel, planning to exploit new oil and gas fields and to efficiently exploit the current ones also require further sophisticated technology. As already mentioned, the limited supply of oil and gas is also a major risk for GCC countries including Kuwait. The GCC region is constantly challenged to satisfy the national demand for gas while exporting this resource to worldwide markets. Predictions state that more of the Gulf countries will be soon importing gas as the increasing rate of nationals is imposing greater national demand on gas (Abi-Aad and Panzer, 2013). Therefore, the supply risk as already mentioned above will impose new revenue generation models, probably substituting the limited energies for gas and oil with more renewable resources such as technology. This risk in the supply and demand also threatens prices, due to fierce competition in the region. Lower prices mean economic struggles while higher prices induce greater need for substituting with technologies (Abi-Aad and Panzer, 2013).

One of the unseen political risks is the transport of oil and gas exportations through the Strait of Hormuz. The GCC countries, including Kuwait, rely on this strait to export their oil and gas production to the world. However, this narrow Strait does not only create safety risks in terms of potential accidents among ships but also poses further risks in case of its closure by the neighbouring countries like Iran. The resulting impact will be enormous in terms of supply and revenues (Abi-Aad and Panzer, 2013).

The current conflicts even among the Gulf countries are posing further pressure on exporting organisations, and therefore, any strategic and economic alliances or struggles among countries will greatly impact the quantity exported from a particular country (Seznec, 2018), therefore, the potential relationship between Iran and Kuwait (Kalehsar, 2019).

### **2.2.11 Section Summary**

ERM consists of policies, procedures and an organisational structure with clear roles, responsibilities and accountabilities, aimed at risk identification, risk assessment, risk treatment and risk monitoring and reporting. More generally, enterprise risk management consists of aligning the risk appetite with organisational strategy, through management's consideration of the entity's risk appetite, in evaluating the strategic alternatives, setting related objectives and developing mechanisms to manage related risks. Consequently, ERM enhances the risk responses decisions taken by management, as the latter will identify first the available risk responses and choose the best response for the arising risk (avoidance, reduction, sharing or acceptance). Another benefit for implementing ERM is that ERM reduces operational surprises and losses, as entities gain enhanced capability to identify potential events and establish responses. Nevertheless, ERM assists executives in identifying and managing multiple and cross-enterprise risks; though every enterprise faces a myriad of risks affecting different parts of the organisation, enterprise risk management facilitates effective response to the interrelated impacts, and integrated responses to multiple risks. Finally, ERM promotes seizing opportunities, by assisting management in considering a full range of potential events to be positioned, identifying and proactively realising opportunities, as well as improving deployment of capital, and exposing management to robust risk information that allows for effective assessment of overall capital needs and enhances capital allocation.

Risk management refers to an interactive process consisting of steps, which when undertaken in a sequence, enables continual improvement in decision making. The aim of risk management is to obtain understanding by all parties and agreement, around what the risks

really are, and how they will be managed to improve the performance, increase the value of organisations and reduce financial distress. Those objectives and principles are applicable across sectors and in particular, in the Oil and Gas industry.

As reflected in the Chapter, ERM has been an issue of argument for several organisations who attempted to build effective and relevant risk management processes. Each of the processes, such as COSO, ISO, and FERMA, has specific guidelines behind their theory, along with detailed description of their steps. COSO (1992, 2004, 2013, and 2016) was judged by several researchers to be the most widely applied framework, even though studies have reflected that not many organisations had an ERM system in place. Yet, and despite the spread of the existing frameworks, all of these frameworks lack the implementational guidance needed for a successful application. The current frameworks, as presented in the next Chapter, hold the prescriptive and theoretical nature, rather than the implementational side. Next, the Researcher will thus, evaluate the current literature about ERM, as well as the current frameworks to identify the existing gaps forming the basis for this research. From the identified gap, the alignment model will be formulated, after introducing the theories deemed relevant for the formulation.

## **2.3 Evaluating ERM Literature and ERM Frameworks**

### **2.3.1 Matrix of Literature Evaluation**

This Section will identify the gaps existing in the current literature, as presented in the first Section, by evaluating the academic, as well as the professional contributions, by researchers and organisations. For the purpose of evaluating the literature, the four quadrant matrix developed by Althonayan (2003) will be adopted. This tool widely used in assessing the existing academic literature will assist in identifying the shortcomings in the field of ERM, and set apart the research gap that this study aims to address effectively. Whereas several approaches and evaluation matrices were implemented in evaluating the various literatures and theories of ERM, this matrix is specifically judged to be the most relevant to this research, accordingly adopted.

The four quadrant matrix evaluates the literature over two dimensions: the nature of its purpose, and the nature of its results. As for the purpose, the research can either address the vision of ERM and its underlying concepts (vision), or consider the implementational procedures relating to ERM adoption (implementation). On the other side, the results of any academic research can be categorized, as either descriptive or prescriptive. Consequently,

combining these two dimensions and the aspects of each leads to the four appraisal quadrants or categories: visionary-descriptive (quadrant I), visionary-prescriptive (quadrant II), implementational-descriptive (quadrant III) and implementational-prescriptive (quadrant IV).

As presented in Table 2-3, the four quadrants will evaluate the literature by categorizing it, in order to determine the quadrant that each one relates to.

Table 2-3: ERM literature evaluation matrix

		Research Philosophy	
		Visionary	Implementational
Research Outcomes	Descriptive	<p><b>Quadrant I</b></p> <ul style="list-style-type: none"> <li>➤ Describes the basic definitions of ERM and its underlying concept as a risk management tool</li> <li>➤ Describes the link of ERM to the significant organisational factors</li> <li>➤ Describes the several approaches of ERM and their evolution</li> </ul>	<p><b>Quadrant III</b></p> <ul style="list-style-type: none"> <li>➤ Describes the practice of ERM implementation and its benefits over organisational performance</li> </ul>
	Prescriptive	<p><b>Quadrant II</b></p> <ul style="list-style-type: none"> <li>➤ Prescribes the importance of ERM integration with critical organisational factors</li> <li>➤ Evaluates the significant shortcomings of ERM existing frameworks</li> <li>➤ Prescribes the organisational factors deemed as critical for ERM</li> <li>➤ Prescribes the vision for an ERM adoption process</li> </ul>	<p><b>Quadrant IV</b></p> <ul style="list-style-type: none"> <li>➤ Prescribes ERM alignment framework according to sector specificities and provides practical guidelines</li> </ul>

Source: Adopted from Althonayan (2003)

Both academic and industry literature is classified, accordingly, to every quadrant and evaluated, in order to identify the limitations in each. Such categorization serves this research



by illustrating the gap addressed herein. Thus, the gap will be focused in the quadrant that involves the least supporting literature associated within this quadrant.

Research regarding ERM has surged since 2000, after the increased consideration by the firms' board of directors and executive management of having in place an effective risk management technique (Dickinson, 2005; Power, 2009; Tysiac, 2014; Sadgrove, 2016). After evaluating the existing literature, most of the research and studies conducted on ERM are still of theoretical nature and visionary, thus, describing the ERM approaches, rather than examining the effective adoption of the risk management tools in the complex environment of business (Kleffner *et al.*, 2003; Chapman, 2011; Paape and Spekle, 2012). In this Chapter, the COSO framework was stated as the most universal framework, in terms of guidance and standards for managing risks. Yet, no significant evidence was proved to exist as to the positive correlation between the implementation of COSO framework, and any increased effectiveness in managing organisational risks (Paape and Spekle, 2012).

Having investigated the current and the previous literature, the Researcher concluded that the majority of this literature actually falls respectively in the 3<sup>rd</sup>, 2<sup>nd</sup> and 1<sup>st</sup> quadrants. Among the numerous researchers evaluated, Walker, Gate and Nicolas (2009) considered the adoption side of the ERM system more closely, and investigated the means that might lead to an improved implementation of ERM, which relates to the 4<sup>th</sup> quadrant of Althonayan's Matrix shown in Table 3-1. ERM literature was widely described and investigated, and the contributions of researchers embraced the concepts of competitive advantage, the challenges faced during ERM implementation, the value creation of ERM, as well as the strategic association between business and risk management.

Table 2-4, presented below, groups researchers in quadrants in line with the type of their research. The literature classified in each quadrant was discussed thoroughly in the previous Section.

Table 2-4: Evaluation of the existing literature

		Research Philosophy	
		Visionary	Implementational
Research Outcomes	Descriptive	<b>Quadrant I</b> Mehr and Hedges (1963), Akintoye and MacLeod (1997); COSO (1992; 2004; 2013); D’Arcy (2001); Barton <i>et al.</i> (2002); FERMA (2003); Chapman (2003); Ballou and Heitger (2005); Gates and Hexter (2005); ISO (2009); Rodriguez and Edwards (2009); AIRMIC (2010); ALARM (2010); IRM (2010); McShane <i>et al.</i> (2011); World Economic Forum (2014); Beasley <i>et al.</i> (2016).	<b>Quadrant III</b> Liebenberg and Hoyt (2003); Beasley <i>et al.</i> (2005); Elkins <i>et al.</i> (2005); Collier <i>et al.</i> (2007); ISO (2009); COSO, (2004; 2011, 2013; 2016) ; Paape and Spekle (2012); Dafikpaku (2011) Gatzert and Martin (2015); Mahadik (2016); Mysuoki and Komo (2017).
	Prescriptive	<b>Quadrant II</b> Lam (2000); COSO (2004); Keith (2014); Landsittel and Rittenberg (2010); Khan (2005); Ballou and Heiger (2005); Beasley <i>et al.</i> (2005); Smadkhan, (2005); Purdy (2010); Landsittel and Rittenberg (2010); Leitch (2010); Purdy cited in Marks, (2011); Bonisch, (2012); Paape and Spekle, (2012); Leech, (2012); Seaton, (2012); Duoja and Xiaohong (2013); Keith (2014); Padro (2015); Bromiley <i>et al.</i> (2015); Gatzert and Martin (2015) Mahadik (2016);	<b>Quadrant IV</b> Liebenberg and Hoyt (2003) Mullai (2004); Christopher and Peck (2004); Christopher (2005); Lounsbury (2007; 2008); Power (2009); Gephart <i>et al.</i> (2009); Arena <i>et al.</i> (2010);

Source: Adopted from Althonayan (2003)

### 2.3.1.1 Quadrant I: Visionary-Descriptive

This quadrant includes the studies and researches that described the concepts of ERM and its theoretical aspects.

ERM literature started first with the definition of risk. Several researchers have defined it differently: Dey (2009) identified six types of risk that could face any organisation: political, environmental, financial, economic and market. Coyle (2004) further distinguished between avoidable and unavoidable risk. And, according to Liu (2011), the risk is a level of uncertainty or doubt that is associated with any goal, aiming into maximizing the wealth of shareholders. The World Economic Forum (2014) classified risk as economic, geopolitical, environmental, societal and technological.

Dickinson (2001) concluded that risk management became a tool that protects insurers from any potential volatility and uncertainty, which leads into strengthening the internal controls and systems already in place. Furthermore, Barton *et al.* (2002) suggested that ERM integrates risks and constitutes a holistic approach as it involves people, processes and scope.

Gates and Hexter (2005) defined ERM as a comprehensive approach for evaluating activities, and assessing risks associated with conducting business; and McShane *et al.* (2011) found that throughout the first decade of its existence, ERM matured, and nowadays, it is clear that it differs from what the so-called 'Traditional Risk Management (TRM)'. Also, Rodriguez and Edwards (2009) argued that the main difference between ERM and traditional risk management is the holistic view of enterprise risk, and the integrated analysis applied to manage the total risk.

The previous Section discussed thoroughly the different ERM approaches established worldwide, presenting their underlying concepts, their benefits and their procedural steps.

The COSO framework (1992; 2004; 2013; 2016) was discussed in the majority of that Section, as being the most commonly recognized framework in the context of business. Ballou and Heitger (2005), and Chapman (2003) argued that with appropriate planning and execution, COSO's ERM framework may be implemented by any organisation of any size.

ISO 31000:2009 was also discussed in depth, where AIRMIC, ALARM and IRM (2010) stated that this standard would establish a reliable basis of decision-making, planning, effective allocation and use of resources for risk treatment. Thereby, organisations can enhance health and safety performance as well as environmental protection.

FERMA standards (2003) as well were introduced, and considered that the process of risk management stems from the strategic objectives of organisations. Thus, tailored as a

continuous and developing process, Enterprise Risk Management reduces the likelihood of failures, and the uncertainty of achieving the overall objectives of the organisation.

The AS/NZ 4360:1999, reviewed in 2004, provides a generic framework for establishing the context, identifying, analysing, evaluating, treating, monitoring and communicating risk.

As discussed above, researchers discussing the ERM approaches focused mainly on the significance and the benefits of each one, in relation to organisational factors. These researches in their theoretical nature fell in Quadrant I.

### **2.3.1.2 Quadrant II: Visionary-Prescriptive**

In this quadrant fall the researches that have a visionary philosophy and a prescriptive outcome. This kind of literature illustrates the importance of integrating ERM with organisational factors.

COSO (2004) refers to the necessity of aligning ERM with processes, knowledge, strategy and technology for the purpose of assessing and managing arising uncertainties, while creating value. Landsittel and Rittenberg (2010) argued in conformity with COSO that its ERM framework is not a panacea and is a challenge to implement, and it invites research-based examination to better understand the framework.

ERM approaches have failed for several reasons, as discussed by Smadkhan, (2005), Purdy, (2010); Leitch, (2010); Purdy cited in Marks, (2011); Bonisch, (2012); Paape and Spekle, (2012); Leech, (2012); Seaton, (2012); Duojsia and Xiaohong, (2013); Padro, (2015). Section 2.3.2 will discuss into details the limitations of the most widely known frameworks, as well as their shortcomings.

### **2.3.1.3 Quadrant III: Implementational-Descriptive**

In this quadrant, the studies related to the benefits of ERM approaches over the organisational performance are investigated and interpreted.

Researchers, such as Collier *et al.* (2007) and more recently Paape and Spekle (2012), have recognised that there is generally a paucity of professional knowledge of the best ERM designs, based on ground evidence of their effectiveness. Collier *et al.* (2007) explored the relationship between ERM design and effectiveness, although focusing was on broad categories of practice rather than specific techniques or instruments. No substantial work so

far is in sight, which demonstrates that certain organisations did achieve effectiveness, based on so and so design parameters.

Liebenberg and Hoyt (2003) addressed the benefits of ERM, arguing that it can increase the value of an organisation, by creating enhanced efficiencies, lowering costs and reducing turnover unpredictability.

ISO 31000 standards, as discussed in the previous Section, help organisations in increasing the likelihood of their achievement of objectives. They encourage the management to be proactive, by becoming aware of the need to identify and treat risk throughout the organisation. These standards enable improvements in identifying opportunities and threats. Furthermore, compliance with international norms and relevant legal and regulatory requirements is also facilitated. Using the toolbox of risk management provided through ISO 31000 enables organisations to make substantial improvements in numerous avenues, including financial reporting, governance, stakeholder confidence and trust. Improvement in controls, operational effectiveness, and efficiency are also catalysed.

As discussed earlier, amongst the various ERM standards/frameworks available for application, the integrated framework for ERM devised by COSO (2004; 2011, 2013 and 2016) is the best known example, which is also being most widely used. However, the framework suggests only key concepts and principles, thereby, providing guidance, whereas details were left to the implementing organisations.

As for the implementational side of ERM, the previous Section has addressed the risk response strategies. The proposed strategies can be differentiated or classified according to various criteria. Elkins *et al.* (2005) developed a list of the best 18 risk response strategies that organisations can implement in their business operations. These are based on the initiatives that organisations had in place, or were working towards them in the year of study. Some of these initiatives are to screen potential suppliers for risks, train key employees to improve real-time decision making capabilities, and conduct teleconferences with critical suppliers.

Dafikpaku (2011) concluded that, in the process of risk management based on ISO 31000, risk assessment phase includes risk identification, risk analysis and risk evaluation, followed by the phase termed “risk treatment”.

### 2.3.1.4 Quadrant IV: Implementational-Prescriptive

It seems, therefore, that there is a lack of empirical research into the effectiveness of ERM in general, and the specific frameworks in particular, as suggested by Hoyt and Liebenberg (2011). According to Arena *et al.* (2010), only few contributions explored how ERM would work in practice, and fewer studies addressed how the organisational progress develops and contributes to a risk management technique. Gephart *et al.* (2009), as well as Power (2009), had in fact also shared earlier this same impression in relevant research. For others, such as Lounsbury (2007) and Nicolini (2009), both theoretical and institutionally-grounded internal analyses, of the advantages and limitations of implementing ERM practices appear equally vital elements for learning from ground realities. The authors claim that attention has also been drawn to broader cultural paradigms, and authors, such as Lounsbury (2008), have raised the need for a more holistic approach to analyse Enterprise Risk Management.

Consequently, this quadrant employs the implementation of ERM frameworks processes with respect to prescriptive guidelines, which seems to be under-researched, thus, constituting the gap for this research.

Table 2-5: Literature Gap

ERM Area	ERM Gap	Research Author (Year)
<b>The progression evolution of ERM</b>	<ul style="list-style-type: none"> <li>- The approach of silo risk management</li> <li>- Immature ERM concept</li> <li>- Weak apprehension of customizing ERM specifically for an organisation</li> <li>- Senior management overreliance on the existing risk management strategies</li> <li>- Considering ERM simply as an additional process for risk management</li> <li>- Weak comprehension of the basic concept of ERM and defining it</li> <li>- Weak understanding on the way ERM should be integrated in the organisations' structures</li> </ul>	<p>Schneier and Miccolis (1998); Colquitt, Hoyt, Lee (1999);</p> <p>Power (1999; 2004); Fraser and Simkins (2007);</p> <p>Mikes (2007); Moody (2009; 2012);</p> <p>Beasley, Branson and Hancock (2009);</p> <p>Beasley (2010); Sadgrove (2016)</p> <p>Leech (2012); FERMA (2012); RIMS (2013)</p>

<p><b>The support provided by management &amp; board</b></p>	<ul style="list-style-type: none"> <li>- Lack of intensive support by the management and the board</li> <li>- Lack of meaningful risk reporting to the managing board</li> <li>- Unclear understanding of the board's responsibilities in his oversight role on risk management</li> <li>- The boardroom is lacking adequate set of skills in risk management</li> </ul>	<p>Spira and Page (2004); Beasley, Pagach and Warr (2008); Power (2009; 2011); Walker (2009); Manab, Kassim and Hussin (2010); Beasley, Branson and Hancock (2010); Pagach and Warr (2011); Beasley, Branson and Hancock (2012)</p>
<p><b>ERM integration with strategy &amp; processes</b></p>	<ul style="list-style-type: none"> <li>- Weak understanding of the significance of aligning ERM with organisational factors</li> <li>- Managerial low skills in aligning risk appetite with long term strategies and objectives</li> <li>- Unclear understanding of the link between aligning ERM with strategy and decision making</li> <li>- Weak understanding of the effective integration of ERM with the prevailing processes</li> <li>- Absence of a dynamic framework that is strategic as well</li> <li>- Lack in the adequacy of data quality</li> <li>- Low consideration of the changes occurring in internal and external environments</li> <li>- Low ability in aggregating risk data when reporting risks</li> <li>- Lack of consistency in the risk standards throughout the organisation (also procedures and controls)</li> </ul>	<p>Bansal (2003); Liebenberg and Hoyt (2003); Bowling and Rieger (2005); Mikes (2005); Chapman (2006; 2007); McWhorter, Matherly, Frizzell (2006) Mestchian and Cokins (2006, 2010); Gates (2006); Frigo (2008, 2010); Killackey (2008; 2009); Paladino (2008); Hofmann (2009); Beasley (2010); Cokins (2010); Rizzi (2010); Wade (2010); Govindarajan (2011); Mikes and Kaplan (2013) Kaplan (2009); Rizzi (2010); Althonayan, Keith and Misiura (2011a; 2011b); RIMS (2011) Paape and Speklé (2012)</p>

<b>ERM structure</b>	<ul style="list-style-type: none"> <li>- Ambiguity regarding the effective structure of an ERM framework</li> <li>- Overlooking the influence of CROs and risk committees</li> <li>- Ambiguity in determining the effective structure for risk ownership</li> <li>- Scarcity of adequate resources and their proper allocation</li> <li>- Incomplete transparency regarding risk issues with shareholders</li> </ul>	<p>RMA (2006); Mikes (2007; 2008);</p> <p>Fox (2009); rena, Arnaboldi and Azzone (2010);</p> <p>Hwang (2010);</p> <p>Rizzi (2010); Hull (2010);</p> <p>Shortreed (2010);</p>
<b>ERM benefits</b>	<ul style="list-style-type: none"> <li>- Imprecise comprehension of the long run benefits of ERM</li> <li>- Deficiency in effective measures of ERM benefits</li> <li>- Undervaluing the upside risks</li> <li>- Ambiguity regarding the full capability of ERM</li> </ul>	<p>Nocco and Stulz (2006);</p> <p>Chapman (2007);</p> <p>Fraser and Simkins (2007);</p> <p>Mikes (2007); Frigo (2008); Gates (2009)</p> <p>Beasley (2010); Friedman (2010); Jaffer (2010);</p> <p>RIMS (2011); Mikes and Kaplan (2013)</p> <p>Olson (2015);</p>
<b>ERM challenges</b>	<ul style="list-style-type: none"> <li>- Legal requirements as well as compliance drive ERM application</li> <li>- The ERM is still guided by the global perspectives</li> <li>- Lack of readiness to alternate the current practices</li> <li>- Unclear understanding of the values driven by ERM</li> <li>- Lack of practical guidance regarding ERM implementation and potential issues</li> </ul>	<p>Kleffner, Lee, and McGannon (2003);</p> <p>Liebenberg and Hoyt (2003);</p> <p>Banham (2004);</p> <p>Barnes (2006);</p> <p>Martin and Power (2007);</p> <p>Lam (2007); Rasmussen <i>et al</i> (2007);</p> <p>Fraser, Schoening and Simkins (2008); Stulz (2008); Kaplan (2009); Moody (2009); COSO (2010a);</p> <p>Arena (2010); Lam (2010); Mikes (2011);</p>



		Paape and Speklé (2012); Mikes and Kaplan (2013)
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Source: Researcher

Table 2-5 above highlighted the existing literature contributions, as well as its limitations in the following areas of ERM: the evolution of ERM, the support provided by management and the Board of Directors, the integration of ERM with strategy and processes, its structure, benefits and challenges. To summarize the most reflective gaps in these areas, the Researcher has concentrated on the following as they will be addressed by the alignment framework:

- Unclear risk culture running throughout the organisations;
- Unclear understanding of the link between aligning ERM with strategy and decision making;
- Lack of consideration and understanding of both external and internal environments;
- Lack of implementational guidance and practical direction;
- Ambiguity in the ERM concept which leads to insufficient allocation of resources and lack of support from senior management and the board; and
- Managerial confidence in the existing practices of risk management.

The gaps identified in Table 2-5, as well as in the four quadrants matrix developed for this purpose, constitute the basis for this research, setting the ground for developing an alignment framework that is sector specific in Chapter 3. .

### 2.3.2 Existing Frameworks

In this Section, the limitations of the most widely known frameworks are presented for the sake of identifying the shortcomings of each framework.

Deloitte (2008) has conducted a focused study, regarding the benefits and challenges of implementing ERM, as well as the aspect of practical guidelines. The study concluded that the ERM’s value, as perceived by respondents, was increasing concurrently with their attestation of enhanced understanding of controls’ processes, and of the balance between risks and benefits, improved risk culture and communication skills with executive management. Furthermore, the study found that organisational objectives and compensation schemes are gradually incorporating risk management accountability (Deloitte, 2008). In parallel with Deloitte’s study, KPMG and the Economic Intelligence Unit (2007) included further in their study the risks arising from dynamic environment, and concluded with a

future vision of risk management. The surveyed organisations aimed to strategise their risk management process, for the purpose of generating greater value. More than half of the respondents associated the directed focus on risks with organisational increased analysis of controls and risks. And regarding the dynamic external environment, the study found that its factors impacted the way management perceive and assess risk management operations, especially that the silo risk management approach triggered functional superseding (Keith, 2014).

### **2.3.2.1 Limitations of the COSO Framework**

Being the most widely known ERM frameworks does not eliminate the existence of shortcomings for each of them. As for the COSO frameworks (1992; 2004; 2013; 2016), presented in Subsection 2.2.3.1, many researchers have addressed the main pitfalls of these frameworks, in managing risks. First of all, the COSO framework (2004) overlooks the operational risks for the sake of organisational risks, in order to support organisational objectives. Therefore, COSO (2004) undergoes the real area of risks by focusing on the areas that might be, in most circumstances over-controlled, while ignoring those that really need effective risk management, due to fewer controls (Samadkhan, 2005). Leech (2012) targeted the weaknesses of COSO ERM frameworks (1992; 2004) as not considering both, objective setting and risk communication; and Bonisch (2012) concluded that the COSO framework's focus lies in lessening disasters, while also ignoring the upside risk. Second, all COSO frameworks necessitate an annual review for every process in the sequence of risk management, which results in a waste of time (it requires long time to review all processes) and monetary values (it requires a significant number of staff to undertake it). And last, executive managers, as being responsible for the awareness of risk information, might not be encountered with the sufficient knowledge and expertise to identify the most significant risks challenging the organisational objectives. Therefore, specialized managers with skilled background should be assigned for such responsibility.

In parallel, Purdy (2010), as cited in Marks (2011), criticized the COSO frameworks (1992; 2004) as being complicated, and does not provide practical guidance for organisations to implement ERM. He considered that the COSO framework disregards the effect of external factors, like the environmental business, governments and others, and rather, concentrates on the internal factors' reflection on the firm's success and creates a mismatch with organisational objectives. Moreover, Purdy (2010) criticizes COSO (1992; 2004) for considering the origins of risks only as sudden events, and thus, neglecting the risks that

might arise from the slow paced events. Another shortcoming of the COSO framework (2004) is that it relies on measuring the consequences of risks that, when assigned to the probability of occurrence, changes each time the risk occurs. From this perspective, risks are disregarded as opportunities to be viewed by this framework as mere losses. Finally, Purdy (2010) indicated one structural weakness in the COSO (2004) framework: it combines between the process of managing risk and the framework for managing risk. The framework involves the organisational structure that assists in improving risk management, through particular methods that constitute the process for achieving organisational objectives.

As mentioned earlier, COSO frameworks require consecutive revisions on yearly basis, which raises concerns about its methodology and association with controls, as issues of weaknesses affecting the framework's effectiveness. The COSO framework (2013) involves impractical assumptions of deep insight sought by professionals (Bonisch, 2012). Moreover, the framework fell short in combining the several factors operating concurrently, in an unpredictable but interactive way (IIA, 2013 as cited in Keith, 2014).

#### **2.3.2.2 Limitations of the ISO 31000:2009 Framework**

As for the ISO framework, presented also under Subsection 2.2.3.2, several researchers have criticized it and identified its shortcomings. For example, Purdy (2010), Leitch (2010), Dali and Lajtha (2012), Lalonde and Boiral (2012), Leech (2012), and Duojsia and Xiaohong (2013) consider that ISO 31000:2009 does not provide comprehensive description on how to establish the organisational tools to be used in the process performance, and thus, it disregards the existing dynamic between process and risk framework. As a result, this framework lacks the practical guidance for implementation. Moreover, the ISO framework is not applicable generally across the various diversified organisations, unless they had already planned on investing in their human capital and in risk management, in a way to integrate the latter in their organisational processes. A further critic goes into the discounted comment of ISO on distinguishing between risk appetite and risk tolerance, as well as concentrating on establishing specific objectives, in order to perform risk assessments. ISO 31000 disregarded the alignment that should be existing between the significant organisational components, and the practice for managing organisational risks (Seaton, 2012).

#### **2.3.2.3 Limitations of the AS/NZS 4360 Standard**

The AS/NZS 4360 standard, presented in Chapter 2 under Section 2.3.4, has also been the subject of evaluation by various researchers, like Barton *et al.*, (2002), Beasley *et al.*, (2008),

and Seaton (2012). These researchers argue that this standard is limited, as it lacks consistency and cannot be considered as such as risk management framework. Thus, they consider that it should be rather classified as one tool that assists in managing risks on the individual level, which results in ignoring complicated risks by adopting this standard. And as referred in the quadrants matrix, the literature including the AS/NZS 4360 does not provide any guidance on aligning the organisational factors with organisational risk management techniques.

#### 2.3.2.4 Common Limitations

As presented in Subsection 2.2.3.4, Lam (2000) has clearly confirmed the significance of incorporating the business processes and strategy with ERM, and has further provided application advices.

Other critics from researchers, such as Khan (2005) and Ballou and Heiger (2005), had previously noted that implementing ERM requires a substantial commitment of resources (time, personnel, money) that are not likely to be available during lean times, and a cultural shift of the entire organisation without an appropriate return on such efforts.

Beasley *et al.* (2005) found an association of several factors with the deployment stage of an Organisation’s ERM. The extent of the ERM deployment was found to be positively associated with the existence of a Chief Risk Officer in the enterprise. This finding was basically consistent with earlier research by Liebenberg and Hoyt (2003).

Paape and Spekle (2012) found that more mature ERM systems were in place in publicly traded organisations. The presence of Chief Risk Officer (CRO) and Audit Committee had contributed to progression in ERM deployment. Furthermore, the size and sector also had influence in that, larger organisations and financial sector organisations had a tendency to be more sophisticated in their ERM system. Furthermore, Beasley *et al.* (2005) explored organisational factors and their relationship to the stage of ERM implementation, based on surveys completed by internal auditors.

Table 2-6: Best Practices of ERM and Potential challenges

Best practices of ERM	Future ERM Challenges
The tone at the top and Integrated ERM	Integration of ERM as ERM must align with organisation’s key business processes/strategies
Top-down governance And	ERM policy with explicitly defined risk-tolerance

Independent ERM function	levels as the latter and risk appetite should be discussed by the board of directors and executive management earlier
Risk aware culture	Risk culture is a significant component of ERM implementation due to its deep influence over employees behaviour
Policies with specific risk limits	Among the objectives of risk management is to reduce future unexpected volatility of earnings thus eliminating uncertain sources of volatility
ERM dashboard	Reporting risk to the board and the continuous governance by this body remains a critical element of ERM
Robust risk analytics tools	Measuring risk only in case of a certain uncertainty level rather than tail risk will expose organisations for highly unlikely but influential events.
Established ERM framework And Optimisation of risk-adjusted profitability	Establishing incentive programmes would lead into long-term earnings growth and better risk effectiveness, at the same time diminishing excessive short-term risks, which might lead in most cases to future losses.

Source: Keith (2014)

## 2.4 Chapter Summary

Through the last 20 years, enterprise risk management had progressed significantly, impacting the differentiated identity of each organisation by affecting the particular governance process. And despite this progress, all contributions made to the literature relating to ERM have only descriptive nature that is mainly visionary, rather than implementational; which leads us back to the gaps identified. And as organisations continuously aim into managing risks arising from the operating environment, management are in greater need for implementational guide that will direct the practical steps of ERM. Furthermore, even if this guidance exists, if it's not tailored to the specific industry, it won't be of much use with the expected benefits to be ripped of the ERM implementation. Consequently, management must, prior to implementing the ERM, understand comprehensively the underlying concept of this process, and how their organisations can develop, and improve consequent to such implementation.

To summarise, the gaps identified in this Chapter, by critically reviewing the existing literature, involve: a) the lack of a clear risk culture running throughout organisations; b) an

unclear understanding of the link between aligning ERM with strategy and decision making; c) a lack of consideration and understanding of both external and internal environments; d) a deficit of implementational guidance and practical direction; e) an ambiguity in the ERM concept which leads to insufficient allocation of resources and lack of support from senior management and the board; and f) a lack of the managerial confidence in the existing practices of risk management.

Consequently, organisations, especially in the Oil and Gas industry, need to integrate the influence of culture within a comprehensive framework that recognises the alignment of risk management with organisational objectives and strategies. Decision makers in this particular industry lack a strong ground, based upon which they can create greater value for the sake of improved organisational performance. Stated otherwise, managers do not believe in the current risk management approaches which reflects in less commitment and support, as proved through the majority of studies of this particular component of ERM. Therefore, if these issues of the ERM were not successfully tackled, the ERM will not fulfil its benefits, and would not unleash the value creation that can be added to the organisational performance. And as the ERM literature is still falling behind, in terms of the needed practical guidance, the Researcher will therefore recommend the development of a holistic ERM framework, tailored to the Oil and Gas industry, as an attempt to overcome the shortcomings of the current literature, as identified in this Chapter.

Through this Section, the Researcher was able to analyse the existing frameworks in the current literature, detailing the limitations of each existing framework, and concluding with the need to have a comprehensive practically guiding framework for the Oil and Gas industry. In summary, the existing frameworks and the majority of the studies conducted in the field of ERM still lack the practicality nature and hold a visionary perspective in essence. This theoretical nature of the existing contributions to ERM highlight the urgency to develop a tailored comprehensive and implementational framework that will allow executives to manage risks in the most effective and efficient way.

In Chapter 2, the Researcher focused on evaluating the literature presented in the first Section, and identifying the limitations existing in the current frameworks, as well as the gaps bounding the current contributions of academic and industrial researchers, using the matrix developed by Althonayan (2003) in the second Section. The Chapter emphasized the various gaps that should be addressed, and highlighted the most important gaps, deemed as the foundation for the development of the alignment framework established in Chapter 3.

## **Chapter 3 : Theoretical ERM Framework Development**

### **3.1 Introduction**

Based on the findings of Chapter 2, and the gaps highlighted above in Sections 2.3, the Researcher developed the alignment framework in Chapter 3, by identifying first the rationale behind its formulation, and the theory forming the basis for its development.

This research has focused on the contributions made to date into the ERM literature, while presenting the main challenges for the various risk management frameworks adopted by organisations throughout industries. Each one of the most notable frameworks was defined deeply in the body of the literature in the first Section of Chapter 2, and then, evaluated in the second Section to identify its shortcomings, as well as its limitations. The concept of risk management has evolved recently to embrace the perspective of enterprise-wide thus, leading researchers to develop several conceptual ERM frameworks. However, these frameworks, and according to the analysis presented in Chapter 2 (Sections 2.3.1, 2.3.2 and 2.3.3), retain their theoretical nature, thus, lacking the needed alignment with organisational strategies, which necessitate the development of a strategic alignment framework (Meulbroek, 2002, Archer *et al.*, 2010; Keith *et al.*, 2012).

This Chapter aims into presenting the basis for the strategic approach of the ERM alignment framework developed in Section 3.5 that would be derived primarily from the shortcomings of the existing ERM frameworks. Consequently, the Researcher will discuss the basis for deriving the components of the proposed ERM Alignment Framework from the literature gap as explained in Section 2.3.2.

### **3.2 Rationale for Developing an Alignment Framework**

As argued in the literature review, the managers' awareness of the limitations of the silo concept of risk management has increasingly prospered in the last 20 years (Mikes, 2009; Leech, 2012; Paape and Spekle, 2012; Power, 2009). Thus, executives have agreed on the significance of implementing ERM as a fundamental step for managing organisational risks effectively (Ping and Muthuveloo, 2015). Yet, management is challenged with setting ERM effectively in place, in order to achieve the desired objective (Banham 1999; Nocco and Stulz, 2006; Arena *et al.*, 2011; Brustbauer, 2016).

Consequent to the financial Crisis that stroke the world in 2007 and 2008, organisations increased their focus on implementing effectively risk management strategies, by switching from the traditional silo concept of risk management to the ERM approach. For this purpose, some organisations rely on their board of directors, who meets regularly to review and evaluate their ERM, while others report regularly to the Board of directors to keep them informed continuously of the ERM position (Hampton, 2009; Pagach and Warr, 2011).

According to RIMS (2011) Palm (2012) and AON (2013), the risk management's concept was developed as a response to the dynamic and rapidly changing business environment, where organisations seem to comprehend the competitive advantage that can be achieved through effectively implemented ERM (Ernst & Young 2009; Elahi 2010).

The continuously volatile business setting emphasized and contributed to the importance and awareness of ERM, where market survival depends on retaining the organisation's image and reputation (Doherty, 2000). But, it's considerably important to emphasize that implementing ERM is a complex process that requires ahead of its application, a comprehensive identification of the values that need to be derived from aligning ERM with the organisation's strategic direction (Berenbeim 2005; Gates, 2006; Francis and Richards, 2007; Ashby, 2011).

The literature gap identified highlights the fact that organisations recognize and need ERM as a strategic tool, for managing risks and sustaining their current market positioning. However, organisations operating in the oil and gas industry lack the guidance and the framework that would align strategies, processes and sector specificities. Accordingly, this research aims into developing an aligned framework that is specific in nature and purpose, to the oil and gas industry, thus, supplementing organisations with practical advice intended to achieve and sustain competitive advantage and improved organisational performance. The next Section will detail the development of this proposed aligning framework.

### **3.3 Derivation of the Alignment Framework**

This section discusses the basis of derivation of the proposed ERM alignment framework. The framework will be based principally on the evaluation of the existing literature of ERM approaches, and the gaps identified in Chapter 2.

The proposed framework will stand as a differentiated framework, as it seeks into integrating the implementational guidance of ERM with its theoretical aspect, thus developing the strategic alignment. The literature presented in Chapter 2 has been classified using the four



quadrants matrix as shown in Table 2-5 and Table 2-6 (Section 2.3), to categorize the existing research, and identify the literature gap. Evaluating the literature has revealed that executives aspire for implementing ERM in the most effective way that allows organisations to benefit the most from such implementation over the long run. Additionally, the existing literature has in fact partitioned the comprehensive perspective of the successful ERM framework, addressing only some areas of it while failing to meet others (Frigo, 2008; Power, 2009; Wisuttee Wong and Rompho, 2015). The lack of complementarity between implementation and theory has waived the opportunity for organisations, to earn the full potential of ERM approach. Consequently, this proposed framework will seek to address the gaps identified in the existing literature, providing organisations with implementational guidance on the equivalent alignment between strategy and ERM framework.

The findings of Chapter 2, confirmed that, despite the development of the existing several ERM conceptual frameworks, organisations are still facing challenges in implementing ERM effectively and successfully. Each framework's theory lacks practical direction that guides executives, in their attempt to manage risks effectively. The different risk responses presented by these frameworks lack the needed alignment with objectives, culture and strategy. Therefore, evaluating these frameworks and the literature already existing regarding ERM in Chapter 2, identified the major organisational factors influencing significantly the stage of ERM implementation along with the deficiencies of the current ERM frameworks:

- The need for a strategic alignment between ERM framework and the organisational environments, both internal and external;
- The need for senior management support and commitment;
- The need for relevant guidance for implementing ERM framework;
- The need for allocating sufficient resources;
- The need for an alignment framework that integrates with processes, objectives, strategy and culture the practice of ERM; and
- The need for recognizing the potential benefits arising from the ultimate implementation of ERM practice.

The Researcher will, consequently, develop an alignment framework that addresses the above needs, by validating the significant framework factors supporting the success of ERM practice.

The next Section will discuss the most relevant theories deemed significant by the Researcher for the development of ERM alignment framework.

### **3.4 Relevant Theories**

During this research, several theories were examined, like the Contingency Theory, the Organisational Theory, the Chaos Theory and the System Theory. For the purpose of developing the proposed alignment framework, the contingency theory is deemed to be the most relevant.

Contingency theory, according to Fisher (1998), lies in the middle of two opposite theories: the situational specific theory, and the scientific management theory. Whereas the scientific management theory argues that one management technique fits all types of organisations, the situation specific theory considers that organisations' control systems are determined by specific factors. Thus, according to the latter, it's not practical to implement general standards and guidelines to the numerous types of organisations. From this point, the contingency theory is derived, where it argues on customizing the management techniques as per the situational contexts, while generalizing the control systems of organisational statistics (Fisher 1998; Donaldson, 2001). This theory does not hold any one way that is mostly appropriate to manage an organisation, across the different circumstances and situations. In contrary, every organisation makes its decisions, according to the individual assessment of the internal (strategy, culture...) and external (uncertainties...) environments (Otley, 1992; Kaplan and Mikes, 2014). Thus, it constitutes the basis for the proposed ERM framework that aims into aligning practice with organisational factors, in correspondence with Chenhall's argument (2006) that the most appropriate management design depends to a great extent on analysing the organisational contexts.

Risk management process is still emerging in the world, and has been the study subject of several researchers. The most popular frameworks, like AS/NZS 4360, ISO 31000 (2009) and COSO (1992; 2004; 2013; 2016) have generalized standards that could be risky to implement to all kinds of organisations (Beasley *et al.*, 2010).

Kaplan and Mikes (2014) conducted a study on three organisations implementing risk management, where the process was reinforced by senior management and the board of directors. The study concluded that, every sampled organisation had its own approach to ERM, and thus, researchers could not predict which ERM would be the most effective

technique. Each framework was considered successful in the context of the organisation adopting it. Therefore, the Researcher won't recommend one framework over others to be the most appropriate for implementation in all situations and in all types of organisations.

As a result, the SWOT analysis was adopted for the proposed framework, allowing managers and executives to identify their organisations' internal weaknesses and strengths, as well as their external opportunities and threats (Kaplan and Mikes, 2014). As for the external environment, several researchers investigated the impact of technological changes, and arising uncertainties on the design of control processes adopted by organisations (Woodward, 1965; Lawrence and Lorsch, 1967; Ahuja and Carley, 1999). Strategy, structure and organisational size were examined among other factors to influence the control design and decision making process (Chandler, 1962; Child, 1973; Burton *et al.*, 2003).

The next Section will discuss the proposed ERM framework, including its relevance and the steps followed for developing the framework's components.

### **3.5 ERM Alignment Framework**

Developing an alignment framework that is targeted for the oil and gas industry specifically, represents the foundation for this research, due to the lack of such aligning frameworks, which takes into consideration the needs and nature of the organisations operating in this industry. Chapter 2 has presented the several contributions made by researchers in the field of risk management, and the different frameworks established. COSO alone has issued one basic framework developed in 1992, and then, updated its features and components (2004, 2013, 2016, 2017) in accordance with the dynamic, complex business environment. The updates released recovered the shortage in the components of internal controls, strategy, performance, business environment dynamics, fraud and risk reporting. Yet, the COSO framework calls for reactive strategy, rather than a proactive strategy that supports organisations prior to the occurrence of losses and risks.

Furthermore, the framework, in parallel with the other generalized frameworks, such as ISO 31000 and AS/NZS 4360, ignores the specificities required by every industry, and the constraints limiting particular applications in this industry in specific. As for the ISO 31000 and AS/NZS frameworks, and despite their adoption in various organisations in the world, they need to be reviewed and updated, in order to involve the changing factors of both external and internal environments. Special contexts of ERM facilitate the process of

implementation and the flow of the relevant steps, as these contexts will be directed for particular situations and provisions. The Finance Sector, for example, implements exclusive alignment framework that views the specific circumstances and characteristics of this sector, for the purpose of more effectively managing evolving risks. All of the widely frameworks, and as evidently presented in the body of Chapter 2, lack the practical guidance needed by senior management and the board, to effectively manage their organisational risks, beside the several shortcomings for each of these frameworks. After all, organisations are in need of implementational direction as to the practical aspects of ERM, and how to fully benefit of the effectiveness of the framework. As such needs are inexistent in the current frameworks for the oil and gas industry, the Researcher has developed the alignment framework for the fulfilment of the following objectives, with respect to the Oil and Gas industry:

- Addressing the changing factors of the internal and external organisational environment in the ERM process;
- Integrating the organisational culture and strategy in the concepts of comprehensive ERM;
- Guiding management in the implementation process of the ERM framework;
- Addressing the specific risks encountered by organizations operating in the Oil and Gas industry;
- Addressing the specific needs of organizations operating in the Oil and Gas industry; and
- Formulating a comprehensive framework that aligns organisational objectives and processes with ERM functions and practices.

### **3.6 ERM Alignment Framework Components**

Previous research focusing on ERM Alignment Frameworks defines the dynamic interaction of the different components of ERM, and the ways organisational consistency can be achieved. This research aims to identify the key gaps in the literature, and to develop a theoretical framework for ERM Alignment Framework. Additionally, the best practices for ERM across different Oil and Gas organisations will be utilised when developing the strategic focus of the ERM Framework. This will help in ensuring business effectiveness, throughout achieving business competitive advantage. The principal focus of the ERM alignment Framework comes from a review of the literature, which has been important to identify weaknesses in ERM research, thus, determining possible gaps in the literature.

This framework will work as a tool to reveal the important organisational dynamics with both internal and external environments. The Researcher believes that the framework should have certain characteristics, such as: simple but comprehensive, consistent, well-defined, transparent and clear in providing guidance for implementation, driven by data, and properly aligned with strategic direction of the organizations in the Oil and Gas industry.

According to the suggested ERM Alignment Framework (see Figure 3-1 below), it comprises of 4 strategic (interrelated with each other) ERM alignment components, elaborated in the next Sections of this Chapter. These components are: inputs, core, integration and outputs. These elements are composed of key factors that are usually impacted by changes in the financial, economic, political and cultural factors that surround the outside environment.

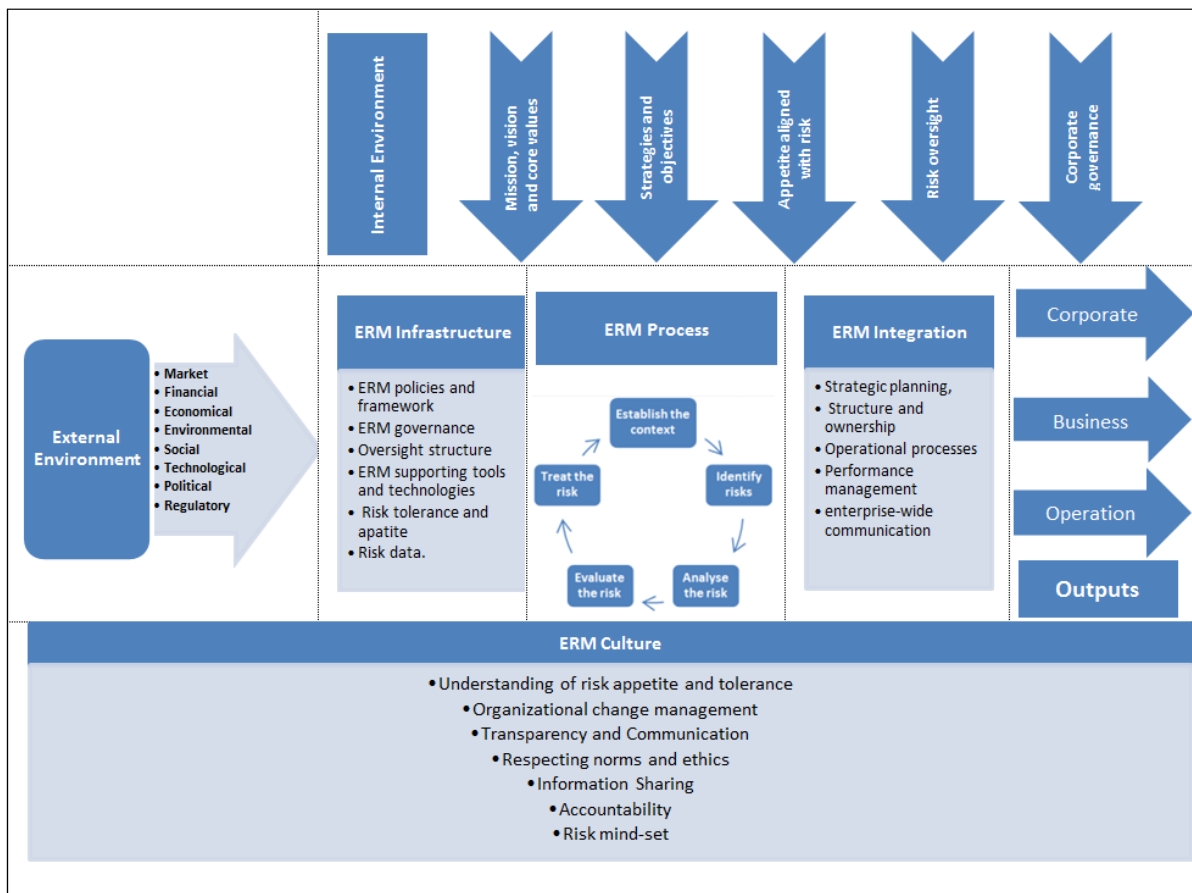


Figure 3-1: Theoretical Strategic ERM Alignment Framework

Source: Researcher

A comprehensive ERM framework should have the ability to identify core possible risks with an organisation, and offer an effective way to manage key risks faced by organisations operating in the Oil industry (e.g. political, geological, price, supply and demand and cost

risks). ERM is mainly focussing on putting together a reliable and coherent enterprise-wide communication (Shimpi, 2005). Hence, top management can be only able to communicate their decision making mechanism and actions, if reliable risk information exists on a timely manner and when needed (Miller, 1992).

The proposed framework emphasises the strategic nature, through considering key ERM issues and how they are applied at wider enterprise level. Leaders within organizations usually struggle to apply a consistent risk management plan (Mandelbrot and Hudson 2006; Deloitte 2008). The proposed ERM alignment Framework motivates business leaders and managers, to embrace a positive and constant attitude towards ERM standards across the enterprise, and to emphasise that this behaviour is reflected on the enterprise risk culture. The framework will eventually lead to a transparent and clear approach to risks that ensures sufficient level of consistency within the organization. The ability to explain the ERM process clearly is a key attribute of this framework to ensure its simplicity and applicability (Engle, 2009).

Oil and gas organisations face different types of risks, whether at the corporate, operational or strategic level. As a result, ERM processes used should be aligned with the organisational strategies, and address keys risks that face key enterprise operations (Althonayan *et al.*, 2011a). At the time top management puts together the organisational strategic vision, efforts should be made to develop matching business objectives (Noy, 2003). Consequently, ERM should be highly aligned with the strategy development, to the extent that they become much attached to each other (Althonayan *et al.*, 2012a).

ERM should become closely aligned with business strategies and strategies; so that, when formulating mission, vision or objectives, risks can be transformed from being an individual hazard into risk at strategic level (Oldwisk, 2012). Of importance though, attention should be focused towards incorporating ERM into business and strategic plans, in such a way that it could lead to achieving the organisational goals, thus, contributing towards maximizing shareholder value and return on investment (Monahan, 2008).

According to Stulz (2009), what can lead an organisation towards achieving its informed goals and objectives, is clear corporate and business strategy, which aligns properly to well-defined ERM processes. Meanwhile, if the framework associated with managing risks does not properly align with strategies, the organisation could undertake business activities that could pose a high level of unjustified risks (Simkins and Ramirez, 2008). Such unjustified

risks motivated KPMG (2011) and Mikes and Kaplan (2012) to recommend different types of risks, and how they can affect corporate business activities that should be taken into consideration when designing strategies.

What is highly important, when putting together an efficient ERM alignment framework, is to identify the possible major risks that the organisation could face. Mikes and Kaplan (2012) and Tysiac (2012) indicate that understanding the correlation between risks and vulnerability, can be tackled in a more efficient manner, if these risks are identified and classified. Consequently, leaders within business will have better ability to categorise these risks, assess their impact and identify how they can be managed (Fraser *et al.*, 2008).

In order to integrate ERM with corporate and business strategies, cooperation between different parties and at different levels within the organisation should occur (i.e. senior executives, managers, consultants, and employees). A clear and in-depth understanding of ERM strategies by senior management and all other employees increases their commitment to fulfil the ERM processes (Teuten, 2005). Furthermore, in order to motivate positive actions, ERM and corporate strategies should be aligned with each other, and the interconnection between them should be well-understood and defined (Beasley *et al.*, 2010).

The importance of having a framework with a dynamic and adaptable nature lies in the fact that it allows top management to monitor any emerging trends or volatility, within the oil and gas market. It also allows top management to respond to any risk, and therefore, to minimise the impact these risks may have on the business. In addition, top management bears the responsibility to review risk analysis and risk reports, to be able to determine any factors (with no regards to their nature or type) that could affect business performance (Von Känel *et al.*, 2010). Furthermore, and most importantly, top management should be responsible about how risk assessment is interpreted and translated into practical actions, and how the organisation can benefit from these actions (Chapman, 2006).

The proposed ERM framework should cover all main organisational functions and the key roles in management process integration. This is necessary to end or limit the isolation of several silos in the organisations. The isolated silo risk management tend to negate or reject how effective ERM can be. Meanwhile, identifying major risks is crucial for management, to properly determine the type of risk that can cause negative impacts exceeding the organization risk tolerance (Mylrea and Lattimore, 2010). Accordingly, top management need to have the ability to ensure that the flow of information with regards to major risks is

transparent and sufficient, to eradicate and overcome silo reporting. Within an environment surrounded by complexity and risk, leaders in oil and gas organisations have the duty to fully understand how different units within their respective business interact and relate to each other, and how particular risks can cut across the silos (Shenkir and Walker, 2006). In the following Sections, focus will be on input factors crucial to the ERM Alignment Framework.

### **3.6.1 Input Factors to the ERM Alignment Framework**

The ERM alignment framework recognises its input factors as ones that arise from the organisational vision and mission (see Figure 3-1). These inputs have an important influence on determining the main characteristics of the ERM Framework. Moreover, these inputs contribute to initiating the direction of the organisation in such a way that would help align it with overall strategic risk view (AON, 2007).

Each oil and gas organisation tends to have different input factors for their strategic ERM alignment. Wilson (2009) argues that suitable input factors for an organisation can only be defined, if the senior management is able to define and understand the strategic and risk objectives. According to the literature review and the gaps of the literature presented in Chapter 2, the key input factors include:

- Organizational mission, vision and core values;
- Key organisational strategies and objectives;
- Risk appetite aligned with risk tolerance;
- Risk oversight; and
- Corporate governance.

Since risk has become an integral part of the current business environment, businesses are forced to put in place a comprehensive risk-oriented organisational strategy, to react to unexpected and unforeseen market volatilities (Althonayan *et al.*, 2011a). This principle encourages organisations to adopt carefully-defined risk components, when setting business strategies to become better prepared for risk, upon making business related decisions.

In order to be able to align the risk appetite of the organization with its risk tolerance, the organisational strategy is made to be an input to the ERM Framework. The Researcher views that the relation between ERM and business strategy is important, in identifying high priority



risks (RIMS, 2012). This would lead the ERM and corporate strategy to integrate risk awareness across all units within the business (Noy, 2003). Knowledge and awareness of the limitations that guide risk appetite and tolerance assist management leaders to control unforeseen risks. Hence, balanced alignment of risk appetite and risk tolerance is seen as very crucial, in producing effective ERM alignment (Konarsky, 2010).

Althonayan et al. (2011) pointed out that, ERM, corporate and business strategies need to be aligned together, to bring organizational balance into the strategic equilibrium. This alignment is important to motivate and encourage risk management initiatives and strategies in one direction; which, as a result, would make the organisation more able to fulfil its strategic objectives. The alignment of ERM and strategy execution can lead to balanced risk appetite and exposure (Lam, 2010). A popular approach of integrating risk into strategy planning is through defining it within a wider enterprise risk appetite statement. Organisations should rather focus on assessing the amount of risk relevant to achieve their objectives, than focusing only on implementing the strategy that goes in line with their strategic objectives (Beasley *et al.*, 2010).

An important factor of the ERM framework is the support provided by senior management. Senior management engagement is very crucial to establish an effective and sustainable programme (Beasley *et al.*, 2010). Top management is challenged to demonstrate full understanding of ERM, and is usually difficult to align measured value of ERM with the financial return on investment (Deloitte, 2011). Yet, to ensure a more active participation and involvement of top management, Beasley *et al.* (2010) suggest few recommendations:

- ERM should be seen as a priority by management leaders;
- Senior management should be committed to ERM;
- Incorporate ERM success in financial compensations made to senior managers;
- Highlight success stories ERM has led to; and
- ERM should be utilised as an opportunity for development (Beasley *et al.*, 2010).

Communication between multi-level management is augmented by the ERM Alignment Framework. On one hand, it supports communication between top management and middle management, and on the other, it supports communication between middle management and

employees (AON, 2007). This, as a result, motivates employees by making them more engaged in discussions across the organisation (Arena *et al.*, 2010).

Some sort of alignment exists between corporate governance and risk management, as both are interrelated subjects in the context of ERM alignment. Strategies are usually developed for the sake of fulfilling a set of goals, yet, each strategy tends to have particular risks that are associated with it; and these risks should be carefully addressed and managed, in order to meet these goals (Manab *et al.*, 2010; Aven, 2010). In this context, principles associated with corporate governance can be applied on risk management, which will eventually contribute to helping the organisation achieve its goals. Manab *et al.* (2010) suggest that sound governance will provide a clear definition for the roles played by different stakeholders within the organisation (i.e. management, employee and shareholders), while bearing special attention to ERM.

There are three main foundations for corporate governance that should be taken into consideration, when formulating the ERM Alignment Framework: first, the support for corporate governance from the board; second, the integration of a culture of performance reward by the management; and third, shareholders needs for long-term business perspective (Richard Anderson & Associates, 2010). Moreover, top management should promote consistent ERM processes, and a proper level of internal control to be carried out by experts. Furthermore, corporate governance should be integrated with organisation's strategy, in order to be more transparent in risk-taking, which would lead to a more informed decision making process (Beasley *et al.*, 2010). According to Tonello (2007), there are a few strategic benefits that result from integrating ERM with corporate governance: first, reduced cost and reduced aggregation of risks, when risks are quantified, which creates business synergies and better response to risks; second, interdependencies between risks are properly interpreted and identified; and, third, higher potential for risk-oriented decisions for profitable investment (Frigo and Anderson, 2011).

### **3.6.2 ERM Alignment Framework Core Components**

This Section looks at the core components of the ERM alignment framework. The main aim of this Framework is to create long term and sustainable focus for risk-oriented decision making. This focus would contribute to increasing the value of the organisation's financial and non-financial positions. Efforts made by the organisation to foster competitive advantage amongst other organisations are highly supported by the ERM Alignment Framework. This

crucial focus is discussed in the next Subsections, as it will be looking at the key components of the ERM Alignment Framework (see Figure 3-1). The discussion will, accordingly, focus on some of the key components of ERM, for instance, framework, processes, infrastructure and risk culture.

### **3.6.2.1 ERM Culture**

The enterprise risk culture is considered to be a key factor for the ERM alignment foundation (Ashby *et al.*, 2010). The reason is that culture is seen to be the most critical component of the ERM (Ashby *et al.*, 2012; Hindson, 2013), and is perceived as dominant and very influential, in a market characterised by a high level of competitiveness (Deloitte, 2012a). Enterprise risk culture, in the context of ERM implementation, was further discussed in Subsection 2.2.2.

According to Borge (2013), the key to ERM Alignment Framework is the existence of an enterprise risk culture. Recognising the main drivers and motivations that lead to taking risk is the most efficient in managing risk effectively (Deloitte, 2012b). The importance of culture lies in the fact that it is crucial for making organisation become risk-intelligent, in the sense that management leaders and employees become more liable to taking responsibility for risk-management, thus, protecting and achieving value for the business (Deloitte, 2011). Thus, it is important for the board and senior management to be directly involved in the ERM support (Deloach, 2012b).

According to Schein (1990), the organisation's culture has also a significant role in identifying the best ways to manage a market environment, characterised by a high level of stress. The lack of a well-developed risk culture can lead to creating instability, and probably, a lack of confidence in the business' standing. In contrary, a high level of solidity and competitive advantage can be achieved, when a solid organisation's culture exist (Deloitte, 2012b). Yet, in order to transform risk into what becomes competitive advantage, the organisation has to enjoy a significant level of accountability. The reason for this is that a fully consistent risk approach cannot be maintained, if risks are not well-identified and understood on behalf of the organisation's leadership and employees.

Transparent communication, culture and proper understanding of risk appetite and tolerance are key pillars to achieving the transparency and communication components of ERM culture. Communication at all management levels (top and bottom) is significant for developing an ERM culture. Regular discussions of risks can also contribute to establishing

an environment free of pressure, when discussing risks surrounding it. Moreover, the flow of information is seen by results-oriented organisations as key principle, for maintaining solid governance and culture inside the organisation (Althonayan *et al.*, 2012a). This enhanced level of communication would help all organisation members, to better understand what risk appetite and risk tolerance are inside their organisation (DeLoach, 2012a).

Respecting norms and ethics which illustrate major characteristics (i.e. respecting rule, collaboration, assessing risk performance and rewarding it) enhances decision making within an organisation (Pagach and Warr 2010). Responsiveness to risks comes in the next level of ERM culture. This entails prompt response to dealing with risk, and accurate assessment of risk concerns across the enterprise, at the same time, demonstrating constructive risk action and encouraging interest in risk. This process involves defining stakeholders and assessing their commitment and establishing solid communication channels. This indicates that the existence of a solid ERM culture plays an important role, in promoting top-down and bottom-up communication (Althonayan *et al.*, 2012b).

Risk mind-set is another important element of ERM culture. Risk mind indicates the importance of issues, like risk insight, information sharing and awareness. This is due to the fact that some organisations tend to face problems, with executive team lacking crucial information needed to manage risk effectively, which results in hindering vital information necessary to decision making under the fear that it could affect their performance negatively (Bloomberg Business Week, 2010). A wider impact is that organisations miss the opportunity to assess or react to internal or external risk, in a timely manner.

### **3.6.2.2 ERM Process**

ERM process is at the heart of the core components of the ERM alignment framework, and it is consistently needed to identify, assess, quantify, suitably mitigate, monitor and report risks across the organisation (ISO, 2009). By definition, risk management refers to the process that aims to develop the organisation's ability, in order to meet its desired business and operations objectives (COSO, 2012). In relation to this, outputs from ERM have a core role of ensuring that senior management and board have sufficient information that helps in the decision making processes. Hence, it is very important that ERM is aligned with all strategies, plans and processes that the organisation adopts. This is important, in order to achieve the highest possible benefit from ERM (Smart and Creelman, 2009). Thus, planning involves the

formulation and implementation of decision and ensuring the existence of proper monitoring mechanism.

Figure 3-2, below, illustrates the ERM alignment with strategic and operational planning. This alignment can be highly useful for improving the organisation’s performance, and can facilitate proper implementation of the organization’s strategies, as well as achieving its objectives (Frigo, 2008). As shown in the figure, the links between planning process and ERM process is core to ensuring continued communication of risks, objectives and planning.

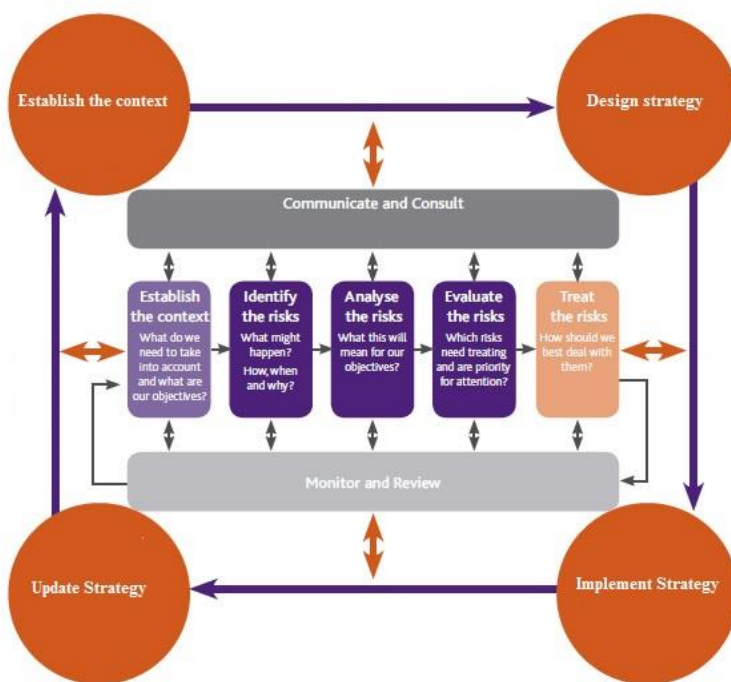


Figure 3-2: Aligning ERM with strategic planning processes

Source: AS/NZS Committee (2004)

In order to set its objectives, an organisation needs to formulate solid strategies, and then, ensures that they are implemented within the organisational structure. Dealing with risk is a core element of the ERM, thus, should be directly aligned with risk identification and assessment. Hence, implementing strategies should be in direct alignment with risk management. The organisation can start utilising feedback resulting from ERM, only when it is finished from formulating its strategies. This would help an organisation to review both, risk and strategies, and to be more prepared for internal and external changes.

### **3.6.2.3 ERM Integration**

The integration of ERM is a core part of the Alignment Framework. In Figure 3-1, there are five core elements of ERM Integration: strategic planning, structure and ownership, operational processes, performance management and enterprise-wide communication. ERM must be incorporated in the management processes, in order to strengthen the risk profile for an organisation (Lam, 2010). Additionally, when ERM is aligned with strategies, it will facilitate the integration of ERM. Importantly though, a critical element of an effective development of ERM is ensuring the existence of a clear structure of risk ownership and communication, between ERM risk events and resources (IRM, 2012).

Brainstorming and fully engaging in discussions will contribute to adding value to ERM (Beasley *et al.*, 2003). Meanwhile, risk-oriented pricing provides an additional opportunity for ERM integration, and helps to show the actual cost and value of ERM. It is obvious that many management leaders are willing to undertake a level of risk, in order to fulfil their organisation's objectives; and in the pursuit of achieving this, they tend to modify their model of pricing risk (Lam, 2010). A stable and well-balanced culture that contributes to achieving organisational and risk objectives can lead to an effective ERM integration (Archer *et al.*, 2010). However, in order for this to happen, ERM integration has to become a target for the daily activities within the organisation (i.e. it has to become part of the mind-set of management and employees) (Dafikpaku, 2011).

### **3.6.2.4 ERM Infrastructure**

The last component of the ERM Alignment is a consolidated risk infrastructure at the wider enterprise level. ERM Infrastructure receives low attention in research, which is why it is addressed in the ERM alignment Framework. There are six core elements in this component: 1) ERM policies and framework, 2) ERM governance, 3) Oversight structure, 4) ERM supporting tools and technologies, 5) Risk tolerance and appetite and 6) Risk data.

It is usually difficult for organisations to create a fixed enterprise risk platform, due to the complex nature of oil and gas market and organizations. Yet, risk data of an integrated and transparent nature are necessary to produce robust risk reporting strategy, and stable risk information flow to the top management (Hofmann, 2009).

Upon developing organisational and risk strategies, it is important to define risk tolerance and risk appetite. What is meant here by risk tolerance, as a term, is the amount of risk a particular organisation can afford to bear (IRM, 2011); meanwhile, risk appetite refers to the

ability and willingness of an organisation to take the risk (IRM, 2011). It is the responsibility of the organisation's management to determine the type and amount of risk the organization can take on, without jeopardizing the performance of the business (Pagach and Warr, 2010). Subsequently, taking into consideration how complex and volatile the Oil and Gas market can be, it is important for the Strategic ERM to have some sort of flexibility and adaptability, as this would allow constant evaluation of risk. This, as a result, will support the dynamic and strategic nature of the Framework.

Effective and proper implementation of ERM alignment requires timely generation of data and reports. Althonayan *et al.* (2011a) emphasise that a risk structure that facilitates a transparent gathering, processing and storage of data is highly important. Bensal (2003) suggests that, risk caused by failures in technology or operation, should be carefully controlled. This is important to safeguard and enhance value for shareholders, and to enhance risk management. This is the reason why identifying risk factors associated with technology or operation has become a priority, to avoid or overcome negative impacts on an organisation's performance (Power, 2005b).

Another important element of ERM infrastructure is the existence of a mature and dynamic framework that has the ability to encourage effective framework implementation across the organisation. The risk framework works to establish an outline of all the interrelated activities that intend to accomplish particular goals, such as the implementation of ERM. According to Doherty (2000), this framework can expedite and construct an approach that is measurable and repetitive. As shown in Figure 3-3, the Researcher indicates the process, through which the different stages of developing the framework.

### **3.7 ERM Alignment Framework Connectivity and Implementation**

There are four stages for the implementation of the Framework: 1) requirement analysis and assigning the current state, 2) design and specifications, 3) implementation, and 4) monitoring and improvements (see Figure 3-3). Each stage needs certain steps to be accomplished, in order to ensure an effective ERM integration.



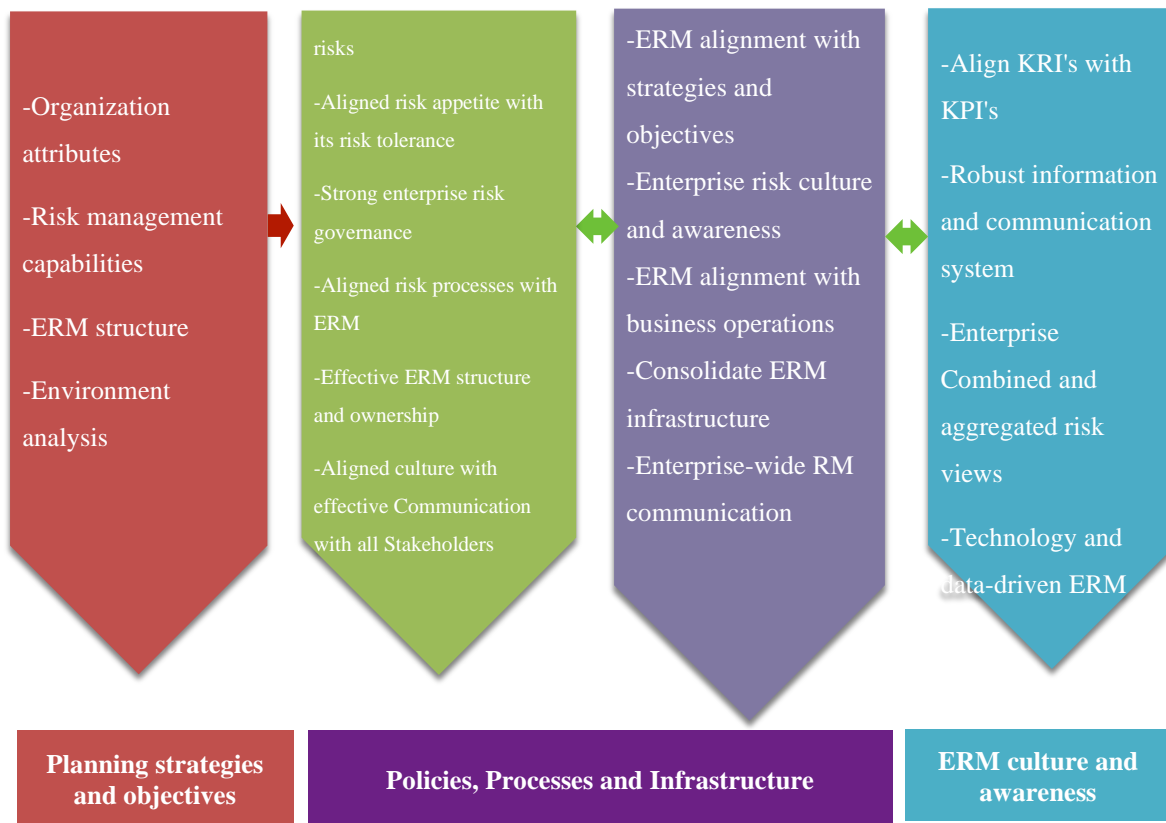


Figure 3-3: ERM Alignment Framework Implementation Stages

Source: Researcher

The first step toward putting together a risk management framework is achieving clear understanding of the organization's attributes and the current state of ERM in the organization. In addition, this stage required assessing current ERM structure and risk management capabilities. Finally, this stage includes an internal analysis (i.e. strengths and weaknesses analysis) and an external analysis (i.e. opportunities and threats analysis) (Ciorciari and Blattner, 2008).

The second stage toward putting together a risk management framework is achieving sufficient understanding of the key risks, and what can delay or stop the organisation from achieving its objectives. Hence, Oldfield and Santomero (1997) indicate that outlining the key risks is a precondition to an integrated ERM in the business plan. Having a clear picture of the type of risks strengthens the ability to identify the limitations of risk appetite, and the way to govern risk (Knowledge at Wharton, 2009). When potential risks are clearly identified, they become part of the management's plan for risk management. Additionally, risk management cannot be separated from the decisions influenced by and associated with them.



According to Figure 3-3 above, risk culture and communications are aligned to provide more flexible adaptation to changes in the internal and external volatile environment (Lam, 2010). However, in order to achieve this, the enterprise should be equipped with knowledge of risk resources that would potentially help in examining assumed future risks. Organisations should also develop comprehensive databases for risks and systems that measure them (Oldfield and Santomero, 1997), as these would allow the management to evaluate the business performance in a consistent manner (Frigo, 2008).

Monitoring comes as the fourth stage for the framework development, as it allows room for improvement. According to Lam (2010), monitoring gives an opportunity for feedback, thus, ensures that effective risk management is taking place. Previously achieving quantified milestone was enough to determine the effectiveness of risk management; yet, it is needed more important than ever to establish performance metrics and feedback. It helps identify unexpected sources of risk, thus, managing them better (Lam, 2010). Additionally, an organisation should take into consideration the fact that, its framework is characterised by a certain level of transparency, in order to control the impacts resulting from internal or external factors (Rizzi, 2010). After all, sufficient data related to potential risks that is integrated in a reliable Management Information System (MIS) would ensure sufficient input necessary for a risk-oriented decision making (APQC, 2007).

### **3.8 The Outputs of the ERM Alignment Framework**

The outputs of ERM are a reflection of the organisational standing; and, in that context, the ERM Alignment Framework develops into a driver that motivates the achievement of these outputs. A key indicator that reflects the success of the aligned ERM is measured by how much success it can achieve, at the level of gaining competitive advantage (Frigo, 2008; Elahi, 2010). ERM outputs can be divided into three key categories. These categories are derived from the literature (see Chapter 2). These categories are: corporate, business and operation. Figure 3-4 shows in details the most important elements of the framework outputs.

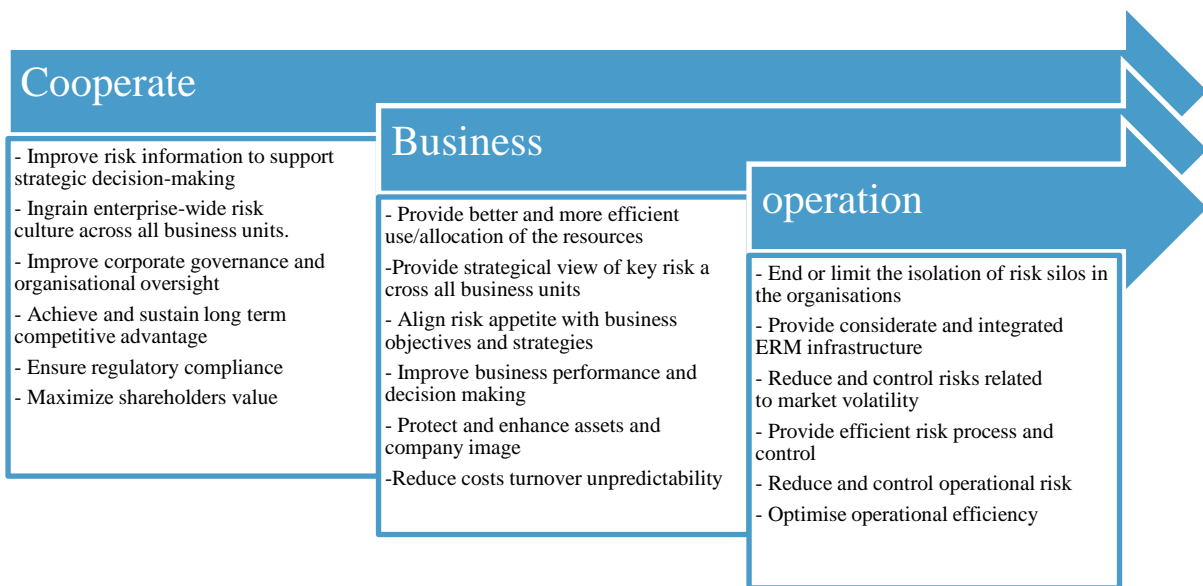


Figure 3-4: ERM Alignment Framework Outputs

Source: Researcher

Figure 3-4 above illustrates the benefits generated from the incorporation of the ERM Alignment Framework. Yet, there are two key challenges that management leaders should overcome: first, they have to demonstrate in-depth understanding of what enterprise-wide risk is, and second, they have to align risk with business objectives (Deloitte, 2011).

The main focus of the ERM Alignment Framework is to define distinctive values for the organisation; which can increase shareholders' values. For instance, it can reduce risk and increase share price (Wade, 2010). Hence, the ERM alignment can do two tasks: first, creates value, and second, tackles potential risks, which can have negative impacts on the performance. Of importance though, the framework helps management in identifying efficient risk management practices, which would prompt the management from extending to other areas within the business (Fraser and Simkins, 2007). This, in particular, can decrease the disagreements amongst management leaders about the level of risk tolerance (Frigo and Ramaswamy, 2010). All the outputs of the ERM Alignment Framework will be investigated further in the next Chapters, and the results of a practical case study conducted in Kuwait Oil Company (KOC) will be presented.

### **3.8.1 Key Risk Indicators (KRIs) and Key Performance Indicators (KPIs)**

Organisations should avoid relying on performance indicators that examine events happened in the past (i.e. KPIs). This is seen to be very ineffective, and would result in an ill-risk management strategy (Kaplan, 2009). For instance, KPIs tend to ask questions like “are we achieving our desired levels of performance?” Meanwhile, risk indicators involve a much dynamic and risk related issues, such as how risk profile is changing and whether it is within the acceptable risk tolerance. Additionally, KRIs have the potential to provide insights on possible risks (Taylor and Davies, 2003), and this is done through predicting the downside of risk of performance (Smart and Creelman, 2009).

KRIs are necessary for any risk management framework; that is, if an organisation uses self-assessment instrument to identify and control risks, KRIs have the ability to monitor this process at different stages. KRIs, also, have the ability to determine the level of risk appetite (Immaneni *et al.*, 2004). In addition, KRIs, if used properly, have the potential to give insights that are necessary to examine the in-work business strategies, and induce necessary changes (Frigo, 2002). However, Althonayan *et al.* (2011a) suggest that KRIs have an increased efficiency, only if developed alongside KPIs. KRIs have the ability to point exceeded level of risk tolerance, to warn management as such, and to introduce recommended actions (Beasley and Frigo, 2010; COSO, 2012).

The importance of developing a number of KRIs lies in helping executive managers, to produce certain measures that would give the data needed, to identify risks that could hinder the organisations from achieving their objectives. In order to do this, executive managers and overall management teams have to demonstrate strong understanding of the organisation’s objectives, before proceeding to creating KRIs. Developing effective KRIs can be a difficult task, which is why some organisations tend to focus on indicators that are less relevant to their area of speciality (Lam, 2005). In this context, Lam (2005) suggests several sources from which KRIs can be derived: 1) policies and regulations, 2) strategies and objectives, 3) previous losses and incidents, 4) stakeholder requirements and 5) risk assessments. Figure 3-5 shows some common sources of KRIs.

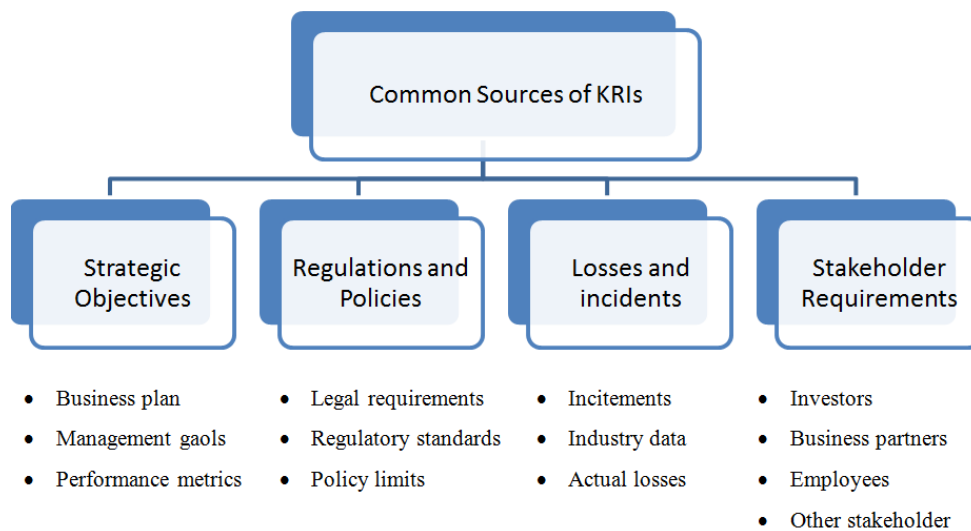


Figure 3-5: Common sources of KRIs

Source: Researcher

KRIs can be structured through either top-down, or bottom-up approaches (Immaneni *et al.*, 2004). Each of these approaches has a different role. For instance, the top-down approach can assess general objectives and risks, and initiate risk indicator to be reported downwards. Meanwhile, the bottom-up approach can do this by initiating a single process for individual areas in the business. The bottom-up approach seems to achieve better and more effective results, as it leads to creating unique KRIs; yet, it can be a challenging process to the fact that it entails aggregating indicators at the corporate level. Immaneni *et al.* (2004) suggest that, to overcome this challenge, the organisation should select measures over the limit. Then, it can transform them into an index.

However, to ensure the dynamic nature of the ERM Alignment Framework, it is important to keep constant monitoring and analysis of any threats that could develop both internally and externally. This would encourage management to review its ERM strategy at the time. KRIs and KPIs are perceived as core components of the strategic ERM alignment (COSO, 2010b). It is important here to refer to the most important five ways, according to which, the use of key indicators can be beneficial for the alignment: first, making the process of aggregating and reporting risk simple; second, making objectives, risk and standard risk categories aligned; third, providing support for decision making; fourth, contributing to reducing cost through decreasing losses and identifying risks; and fifth, improving monitoring over indicators. Consequently, it is expected that the value for shareholders and the overall effectiveness will witness significant improvements.

### **3.9 Chapter Summary**

Organisations continue to lack awareness about the strategic value of ERM, particularly Oil and Gas organisations. Therefore, the main focus of senior management should go towards the full adoption of ERM, to ensure sustainable positive business performance.

Findings in the literature review (Chapter 2) indicated that the key obstacle that organisations face until now, is the development of a practical guidance, clear enough to develop strategic ERM. Once achieved, senior management would be able to concentrate on putting in place a sustainable structure at the enterprise level, which is aligned with the organisation's strategies and risk culture; all incorporated in the business processes.

The Chapter looked at ERM Alignment Framework from a theoretical perspective, and how to develop it (Section 3.5). This framework is mainly developed to cover gaps currently existing in the literature (Section 2.3, Chapter 2). The framework will assist organizations in upgrading risk management processes, to cope with the dynamic environment by aligning the key factors with the strategic risk approach. The key aim of this Framework is to ensure a consistent organisational performance, through reducing volatility of their portfolios and increasing predictability of profitability. It also aims to manage possible risks that could have negative impacts on the organisation's performance, by improving methods used to achieve business goals and objectives.

## **Chapter 4 : Research Methodology**

### **4.1 Introduction**

Defining the appropriate methodology can be considered a difficult and a critical element in any research study. The study of social science is a multidisciplinary field; thus, the nature of such research is challenging, and the selection of the appropriate research methods is not straightforward. Therefore, identifying the most appropriate methodology is important not only to ensure that the research objectives are met, but also, to establish the credibility of work undertaken.

Generally speaking, no single approach will fit all studies, and a diversity of research approaches, methods and techniques can be employed according to the nature and aim of the research. Therefore, Collis and Hussey (2009) believed that the methodology represents the main approach through which the entire research will be conducted. The research methodology focuses on investigating the research problem, and therefore, varies with its nature (Remenyi *et al.*, 2003).

The previous Chapters have reviewed various definitions, concepts, approaches and models associated with enterprise risk management (ERM), while this Chapter presents the research approach adopted in this particular study. The first part of the Chapter will highlight the research problem and the main research approaches, in relation to the research questions and objectives, as outlined in Chapter 1. The second part will explore the development of the research design, the selection of research methods, the research process and its steps. Subsequent Sections will discuss the various methods of data collection and analysis, as well as the sample composition and size. The Chapter ends eventually with a summary.

### **4.2 Research Philosophy**

As stated by Creswell (2015), “we all bring a worldview (or paradigm) to our research, whether we make it explicit or not.” (Creswell, 2015, p. 16). The author also argues that the set of beliefs or values that constitute how we undertake a study “may relate to what type of evidence we use to make claims (epistemology) or whether we feel that reality is multiple or singular (ontology)” (ibid.). Before answering the research question, the Researcher had, therefore, to define the relevant research philosophy (epistemology). Research philosophy may be divided into three types:

- Positivism, which emphasises the importance of the research aim. It allows the researcher to separate oneself from that objective (scientific method) (Mangan *et al.*, 2004);
- Realism, which focuses on the belief that nature and social sciences can, and should, adopt the same approach to the collection of data (Ntseane, 2012); and
- Interpretivism, which is concerned with attaining an understanding of the world, based on the researchers’ objectives, through understanding individuals’ perceptions of the world, allowing them to see a social phenomenon, as a product of shared understanding and meaning that is not always predictable or even formally rational (Blaxill, 2008).

However, there are limitations to this approach:

- Dealing with complexity;
- Leaving an unanswered question as to why facts are as they are; and
- Problems of categorization.

According to Myers (2008), “interpretivism, as the name implies, involves researchers to interpret elements of the study, thus, interpretivism integrates human interest into a study.” (Myers, 2008, p.38). Interpretivism allows the researcher to associate the person with the subject matter of the research, as being a part of society. Accordingly, “interpretive researchers assume that access to reality (given or socially constructed) is only through social constructions such as language, consciousness, shared meanings, and instruments” (ibid, p.38).

Therefore, this research will adopt an interpretivist view, because risk is subjective and socially constructed.

The opposing stance by positivists and interpretivists are summarized in table 4-1. The difference in the basic beliefs and assumptions have numerous implications for how researchers should conduct research.

Table 4-1: Positivism and interpretivism comparison

	<b>Positivism</b>	<b>Interpretivism</b>

<b>Basic principle</b> <b>View the world</b>	The world is external and objective	The world is socially constructed and subjective
<b>Involvement of research</b>	Research is independent	Research is part of what is observed and sometimes even actively collaborates
<b>Researcher's influence</b>	Research is value free	Research is driven by human interest
<b>Assumptions</b> <b>What is observed?</b>	Objective, often quantitative, facts	Subjective interpretation of meaning
<b>How is knowledge developed?</b>	Reducing phenomena to simple elements representing general law	Taking a broad and total view of phenomena to detect explanations beyond the current knowledge

Source: Adopted from Blumberg (2005, p 25).

Considering the diversity of research paradigms, the selection of the appropriate approach for the present study is a challenging task. The Researcher's efforts have been concentrated on:

- Obtaining the necessary knowledge of the existing research;
- Accommodating ethical decisions, by making more pragmatic choices given time, cost and other resource limitations;
- Depending on the Researcher's intuitiveness, to match the research problem to a particular research approach; and
- Being aware about the research question and the nature of the phenomenon, when choosing between the interpretive and positivist approaches.

From the above considerations, and for the purpose of the research of ERM in the oil sector (applied on the case of Kuwait-based Petroleum Corporation, KPC), the Researcher has identified the fundamental epistemology of interpretivism, as the most suitable research philosophy. Interpretivism brings the Researcher's work closer to an understanding of the ERM practices in the oil industry, and to the development of a new ERM Alignment Framework, enabling practical recommendations to be made to industry practitioners and

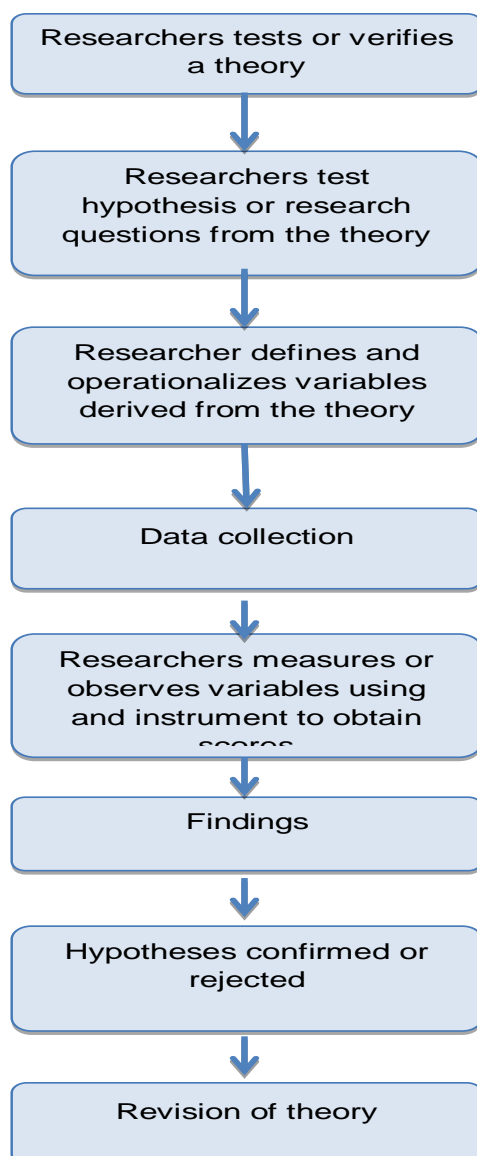


academics. Moreover, the Researcher’s business and management background, along with the practical knowledge of the risk management field, pull towards the selection of a more interpretivist research approach.

Having justified the reasons for selecting the interpretivist research philosophy, the discussion turns next to the foundation research approach of this study, in order to identify the implications for the design of this research. In the next Section, deductive and inductive approaches are compared, and the nature of deductive and inductive approaches is described, in order to justify its relevance to the study.

### 4.3 Research Approach

In this section, the Researcher discusses two main methods of logical reasoning, deemed as the most appropriate basis for this research. Creswell (2007) stresses the importance of illustrating the research approach as an effective strategy, to increase the validity of social science research. Therefore, this Section describes the deductive and inductive approaches, and the benefits of combining them.



#### 4.3.1 The Deductive Approach

Blaikie (1993) stated that the deductive approach is, originally, about establishing a hypothesis, or postulate that must be, later, empirically verified. The hypothesis is designed, depending on what is already known about a particular phenomenon, and of the theoretical constructs related to it. Bryman and Bell (2007), having described the last step in the deductive approach, show a movement in the opposite direction, as researchers use the individual findings of the empirical study, to justify or reject the hypotheses. Thus, Figure 4-1 indicates the various steps involved in the deductive approach to research.

Figure 4-1: The deductive research process

Source: Creswell (2003)

To summarise, the deductive approach extends what can be known about the phenomenon under study. For these reasons, Bahari (2010) suggests that the deductive approach is majorly about testing and verifying the theories in research.

### **4.3.2 The Inductive Approach**

The inductive approach moves in an opposite direction to that of the deductive approach. Pathirage et al. (2008) described that, under the inductive research, theories are formulated following the collection of data. In addition, Partington (2000) believed that the inductive approach neglects speculation and the apriori nature of the deductive approach. It is the outcome of empirical studies, and hence, more likely to be plausible compared to the deductive research, as it reflects the opinion or outcome of the researcher's mind. The numerous steps involved in inductive research are outlined in Figure 4-2, below:

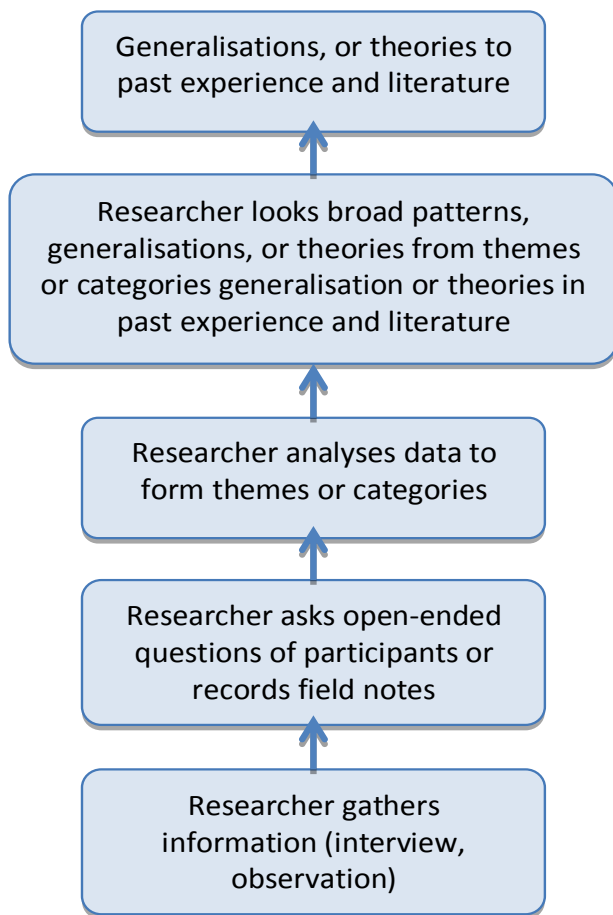


Figure 4-2: The inductive research process

Source: Creswell (2003)

Based on the above steps, the researcher gathers data on the given phenomenon, when conducting inductive research. This data is, then, organised into themes that form the basis for larger patterns and generalisations. These patterns are consequently compared with personal experience or secondary data on the subject being analysed. Thommas (2006) summarised the main objectives of inductive studies as: (1) converting larger masses of raw data into summaries; (2) establishing transparent, justifiable links between the objectives of the research and the summaries derived from raw data; and (3) developing models or theories about underlying structures, emerging from the data that is analysed. Numerous researchers as Silverman (2001) Denzin and Lincoln (2000), Blumberg (2005), Thommas (2006), Creswell (2009) and Yin (2012), have highlighted many differences between deductive and inductive that the Researcher has illustrated in Table 4-2 below:

Table 4-2: Differences between the deductive and inductive approaches

Deductive	Inductive
Deductive start from theory to data	Inductive start from data to theory.
The collection of quantitative data	The collection of qualitative data
Common with natural science	Its Common with social science, gaining an understating of the meaning humans attach to events
Highly structured approach	Flexible structure to permit changes
Explain causal relationship variables	Understanding of meanings human attach to events. A more flexible structure to permit changes of research emphasis as the research progress.
Select sample of sufficient to generalize conclusion	Less concern with the need to generalized
Deductive analysis, refer to approaches in which data analysis sets out to test to whether the data are consistent with prior assumption, theories or hypotheses identified or constructed by the researcher investigators.	Inductive analysis refer to approaches that primarily use to detailed reading of raw data to derive concepts and themes, or model through interpretations made from raw by an elevator or researcher.
<p><b>Criticism:</b>                      The main defect of the hypothetical deductive scheme, considered as formulary of scientific inquiry.                      Concerned with problem of using data to test a theory.                      The problem of the relationship between the theory and the reality.                      The last criticism has to do with intellectual and social context within which science is practiced.                      The tendency to construct a rigid methodology that not permit alternative explanations of what is going on.</p>	<p><b>Criticism:</b>                      The first difficulty is how the principle of induction can be justified.                      Also, the number of observations that need to be made before generalization is possible.                      The last criticism to the inductive strategy concerns the activity of observing.</p>
<p><b>Strength:</b> deductive research can be quicker to complete, although that time must be devoted to seating up study previous to data collection and analysis.                      Deductive can be lower risk strategy.</p>	<p><b>Strength:</b> inductive research can be more protected. The original from induction used to develop knowledge about the world. The inductive strategy corresponds to popular conception of the activities of the scientists.</p>

Source: Researcher

Based on the table above (Table 4-2), from an inductive point of view, the Framework has been derived on the basis of different theoretical assumptions, investigated in the existing literature reviewed and the literature gap examined in Chapter 2. In other words, the Framework is deduced from theories and literature. Therefore, for the topic of this research, the ERM in the oil sector (Kuwait-based Petroleum Corporation, KPC), the inductive approach is deemed most appropriate for this research, benefiting from the Researcher’s experience as a management professional. The inductive approach leads to the formulation of the various theoretical assumptions underlying risk leadership and ERM.

## **4.4 Research Method**

In the following Section, the various research methods used in research are examined and evaluated.

### **4.4.1 Qualitative and Quantitative Methods**

The two main research methods, available for the researchers to choose from, are qualitative and quantitative. Both methods come with their own specific advantages and disadvantages. Researchers can adopt either one, or both, the qualitative and quantitative, depending on the requirements of their research. Researchers have called this approach, as the mixed methods approach. According to Wegner (2008), qualitative research is used whenever there is a requirement to derive, or identify patterns contained in raw data, and where hypotheses are to be formulated. Wegner (2008) stated that qualitative research is used for the understanding, analysis and interpretation of social phenomena, and for examining the human behaviour as it occurs in its natural environment. According to Yin (2009), qualitative methods are often the only methods that can effectively evaluate human behaviours or social occurrences that are complex and impossible to quantify. Bryman and Bell (2007) point out that qualitative methods are used when researchers need to assess and evaluate subjective attitudes, opinions and behaviour, and where insight and impressions are needed for the interpretation of data that have been gathered.

On the other hand, the quantitative method is used to establish and identify statistical relationships amongst variables (Zikmund, 2009). It develops empirical processes of measurement and experiments, to identify these relationships and to make predictions based on the outcomes. Zikmund (2009) stated that the decision to follow the quantitative method is motivated by the need to conclude with results that are as objective as possible. Here, the tools used for the collection and analysis of data are validated. Miles and Huberman (1994) explained that quantitative methods examine cause-and-effect relationships and test hypotheses.

Therefore, the Researcher illustrated the advantages and disadvantages of qualitative and quantitative approaches, as indicated by methodology researchers such as Silverman (2001), Guba and Lincoln (1994), Kaplan and Duchon (1988), Amaratunga and Baldry (2002), Denzin and Lincoln (2005), Creswell (2009) and Yin (2012), summarised in Table 4-3 below:

Table 4-3: Advantages and disadvantages of quantitative and qualitative research

	<b>Qualitative Research</b>	<b>Quantitative Research</b>
<b>Advantages</b>	<ul style="list-style-type: none"> <li>-Methods enhance descriptions and theory development</li> <li>-Describes theories and experiences</li> <li>-Allows for deep understanding and insight</li> <li>-Holistic and humanistic</li> <li>-Exclusion of meaning and purpose</li> <li>-Flexible methods</li> <li>-Value placed on participants' views and empowerment</li> <li>-Inductive data analysis</li> <li>-Subjective dimensions are explored</li> </ul>	<ul style="list-style-type: none"> <li>-Allows for the accurate measurement of variables</li> <li>-Methods are structured and standardised</li> <li>-Provides wide coverage of a range of situations</li> <li>-Inclusion of a large sample of the population</li> <li>-Used more commonly in IS studies</li> <li>-Allows for statistical analysis</li> <li>-Does not allow for generalisation of the findings Can be time-saving and economical</li> </ul>
<b>Disadvantages</b>	<ul style="list-style-type: none"> <li>- No hard data or clear measuring</li> <li>-Subjective, 'non-scientific'</li> <li>-Deep involvement of researchers increases risk of bias</li> <li>-Small samples</li> <li>-Generalisation is limited to similar contexts and conditions</li> <li>-Analysis and interpretation of data may be comparatively difficult</li> <li>-Policymakers may give low credibility to results</li> </ul>	<ul style="list-style-type: none"> <li>-Use of inflexible methods</li> <li>-Deterministic character</li> <li>-Disregards certain important factors</li> <li>-Misses subjective aspects of human existence</li> <li>-Assumption of objective truth</li> <li>-Generates incomplete understandings</li> <li>-Inapplicable to some immeasurable phenomena</li> <li>-Does not aid in generating theories</li> </ul>

Source: Researcher

#### **4.4.2 Adopting the Qualitative approach**

A qualitative approach that collects all the required data through interviews will be adopted for the purpose of this research. As the Researcher is interested in investigating deeply the participants' perspectives through collecting narrative data, the interviews will be more appropriate according to Kvale (1996). In parallel, interviews assist the researchers in examining the concepts in their natural settings, in order to investigate deeper their meanings (Cohen and Crabtree, 2006). In other words, researchers during interviews will have the chance to interact with participants, while collecting the data needed for their research (Blaxter, Hughes and Tight, 2006). Hence, the interviewer can probe on particular points and even clarify points that the interviewees misunderstood or failed to understand properly (Dörnyei, 2007), resulting in more accurate sets of data (Alshenqeeti, 2014). As already stated above regarding the advantages of the qualitative interviewing, both parties, the interviewees and the interviewers, will have the opportunity to engage in a more friendly setting, where the interviewees can elaborate on particular points as directed by the interviewer, which is not really applicable in quantitative methodology. In this context, interviewers will be more able to tailor the following questions, according to the information already stated by the interviewee (Mack et al., 2005).

#### **4.5 The Chosen Case Study**

This research will focus on one organisation, in a specific sector, and a specific geographic region, given the dearth of such research, as indicated earlier. The adoption of case studies in research has been recently more accepted than before, as case studies assists the researcher in exploring and comprehending complex subjects. Furthermore, "it can be considered a robust research method particularly when a holistic, in-depth investigation is required" (Zainal, 2007, p.1). The great adoption of the quantitative method by a significant number of researchers did not eliminate the limitations imposed by this method, and its contribution in explaining deeply the social as well as the behavioural issues. Thanks to case studies, researchers will possess the ability to look further than statistics, in order to investigate the conditional behaviours as perceived by the agents themselves. Therefore, following a qualitative approach through interviewing data collection method, and by concentrating on a single case study, the Researcher will be able to understand the data in its natural environment, and investigate the complications as captured in real contexts, while missed by

statistical studies. Such examination can be described as a viable alternative at the micro level, especially when reaching a big sample is not practical (Zainal, 2007).

Under case studies, the researcher does not impose the procedural limitations usually associated with quantitative methodology, hence, subjects under study can be examined naturally. Later, after the formulation of hypotheses, empirical testing can be carried out, highlighting the significance of case studies. However, it is critical to mention here that case studies do not allow for generalisations (Nock, Michel and Photos, 2007). Teegavarapu, Summers, and Mocko (2008) argued that case studies can be used for the study of a 'contemporary' issue, where it is important for the researcher to refer to the aspects of the phenomenon in its real context. This type of methodology is usually helpful when the research aims into answering research questions of the How and Why nature (Teegavarapu, Summers, and Mocko, 2008).

The entity of choice is Kuwait Petroleum Corporation, located in Kuwait, Middle East, but with world-wide operations and standing amongst the top ten global energy conglomerates.

Kuwait Petroleum Corporation (KPC) is an entity owned by the state of Kuwait. It is responsible to oversee hydrocarbon interests of Kuwait, spread throughout the world. KPC explores, produces, refines, transports and markets precious natural resources of oil and gas. KPC operates in Kuwait, as well as worldwide. KPC is a respectable member of the global energy community. The world looks to KPC for the vital supplies of its oil and gas needs.

Kuwait Petroleum Corporation (KPC) proudly stands, amongst the top ten oil energy conglomerates, providing to the global markets safe and clean energy. All the state-owned elements of the oil sector in Kuwait have been brought under one corporate umbrella of the KPC. KPC has operations spanning six continents, performed by a fully-integrated industry. KPC supplies hydrocarbon energy direct to the consumer. Subsidiary organisations have been formed under KPC for specialized operations. Supplies are sourced from its own domestic reservoirs, and its upstream interests abroad. A Board of directors, chaired by Kuwait's Minister of Oil, manages the Corporation, whereas, the Supreme Petroleum Council is the commanding upper tier body to which KPC reports. With regards to organisational structure, at the apex of KPC, sits Chief Executive Officer. The next tier is that of Managing Directors, with currently include four incumbents, holding Human Resources, Planning and Finance, Corporate Relations and Information Technology, and International Marketing portfolios.

Eleven subsidiary organisations operate under KCP for upstream, midstream and downstream operations in the hydrocarbon sector. For upstream exploration and production, four



organisations are active, namely Kuwait Oil Company (KOC), KGOC, ODC, and KUFPEC (the Kuwait Foreign Petroleum Exploration Company), and ODC. KNPC, KPI, PIC (Oil and Gas sector) and KAFCO are engaged in the downstream of Refining and Industry. Midstream Transportation is the business of KOTC and IM, whereas OSSC provides supporting services to the Corporation.

KPC claims to have made substantial progress with respect to designing and implementing an Enterprise Risk Management system. According to Al-Gharabally (2012), the Corporate Risk Management Department had been formed in 2002, which was essentially an insurance buyer of standard energy policies. An Enterprise Risk Management (ERM) Strategy was defined in 2005, based upon the principles of COSO ERM Integrated Framework in 2004 and the Australia New Zealand Risk Management Guidelines AZ/NZS 4360 (2004). The first phase of the strategy was implemented through 2006 and 2007 with the following achievements:

- ERM Policy created;
- Subsidiaries implemented policy at the subordinate level;
- ERM Framework and procedures introduced;
- Semi qualitative risk matrix and risk register developed;
- Integrated processes adapted and deployed;
- Early risk quantification of some key risks;
- Resource growth and capability building;
- ERM Information System from Avanon introduced; and
- Insurance programmes continue to be adapted (Al-Gharabally, 2012).

#### **4.6 Data Collection**

To recognize the role and impact of implementing ERM in KPC, a comprehensive data collection and analysis was conducted using an inductive approach. Data collection for this research was performed using a qualitative paradigm using a single-case study approach, as described by Yin (2003). Semi-structured interviews were also used to collect the data. This method is chosen because it allows a powerful structure with headings and key questions (Robson, 2011). As stated before, the research epistemology will be interpretive, which involves the thematic-analysis of answers collected through interviews. As highlighted in the next section, all 30 interviewees were middle level managers, and therefore, the interviews were conducted in their respective office, within the organisational premises across the

country. Each interview actually lasted between 50 and 60 minutes, all depending on the participants' level of knowledge about ERM. All interviewees were asked about their consent to record the interview. Therefore, when applicable, the interviews were recorded, otherwise, notes were taken during the interviews. The interviews were mostly in English, however, when they wanted to elaborate on a certain point or emphasize it, the interviewees were using Arabic words.

#### **4.6.1 Research Sample**

In this research, the respondents were selected from professional, managerial and field staffs of KPC, who form an integral part of the Risk Management System in the organisation. All those directly involved with managing the risk, and those exposed to impact and be impacted by the enterprise risk will be included in the research universe, from which 30 respondents were selected through stratified sampling.

Stakeholders from the three different strata were included. The first group was based on the organisational entity level i.e. subsidiary, business unit, division, and enterprise-wide entity. Secondly, those involved in pursuing strategic, operational, and reporting and compliance objectives of the organisation were included. The third group comprised of major actors i.e. strategic policy makers, managers and on-ground implementers of the eight sequential stages of risk management process (internal environment, objective setting, event identification, risk assessment, risk response, control activities, information and communication, and monitoring).

#### **4.6.2 Sampling Techniques**

The sample for this research was identified by deploying the non-probability sampling technique, specifically, the 'judgment sampling'. Under this technique, the sample is chosen by the Researcher on his total discretion. Accordingly, the Researcher chose the participants from selected members of the various strata of KPC. The necessary information was first obtained from KPC management, after properly explaining the objectives of the research and its prospective utility for the Researcher, the organisation itself, and the enterprises in Kuwait at large.

Issues expected to arise from the execution of sampling were objectively and amicably handled. The response rate to interviews was adequate, otherwise, despite a well-planned sampling, the study will not meet its objectives, as cautioned by Israel (1992). A possible non-response was expected due to several reasons. The chosen respondents probably felt they don't have the sufficient knowledge on the subject, or were busy earning a livelihood, or the contact address may have become temporarily or permanently invalid. Remedies available to handle

such problems were utilized. Efforts were increased to reach contacts, as well as calls afresh were made.

#### **4.7 Data Analysis**

The collected data was analysed, following the extraction of results. Therefore, an original qualitative research was conducted in this study, creating a qualitative database that is based on the inductive approach. Furthermore, research and scholarly contributions as discussed in the Literature were compared to responses collected from respondents (Liebermann and Stashevsky, 2002). A better sense of risk environment and its treatment in the selected enterprise was obtained, by combining the scores obtained from research tools of interviews.

Qualitative research is based on small samples. Semi-structured interviews are used for understanding and gaining insight on the problem setting which was achieved. The Researcher involved a sample of 50 respondents from the KPC. Open-ended and semi-structured questions were made. This gave the respondents an opportunity to share views on the posed topic extempore. The responses remained confined to the pre-developed thought of possible answers. Then, the Researcher looked to elaborate on the opinions of interviewees. This will only be possible, when the process is semi-structured and the responses do not get constrained to pre-conceived choices. Therefore, in this research, more rational choice was adopted, and an ERM index was developed based on the scores assigned to each question in the interview. All scores will be combined in a form of single score to generate ERM index.

The qualitative data was thematically analysed and coded as will be shown in the next Chapter. The thematic analysis followed the six steps as suggested by Braun and Clarke (2006). For each interview, the Researcher was reading and listening several times to the statements made by the interviewees in response to the questions probed, in order to be more familiar more with the data collected. Then, for each question, the Researcher coded the data text that was deemed relevant to the analysis, such as a particular feedback that was common across the majority of the respondents or that the respondents have stressed consecutively. For this purpose, open coding was followed as these codes were being modified through the process (Braun and Clarke, 2006). Then, the Researcher examined the codes developed from the answers, looking for a theme that assembles a group of codes together. While searching for themes, the Researcher was closely assessing the relation of themes to the research objectives, as will be detailed in Chapter 6. Accordingly, the themes identified were carefully reviewed by the Researcher to confirm the support of data to themes (Maguire & Delahunt, 2017). The themes identified were distinct and not overlapping and that for each theme, sufficient data is collected

and support it. Finally, the Researcher, being satisfied with the initially developed themes, refined and finalised them, by identifying the essence underlying within each (Maguire & Delahunt, 2017). Under this step, correlations between the themes are identified by plotting a draft thematic map. Subsequent to the thematic analysis, the Researcher then finalised Chapters 5 and 6.

#### **4.8 Supporting Secondary Data**

In order to focus the research issue, Malhotra and Briks (2006) have recommended collecting first all possible secondary data, before embarking into the phase of primary data collection. Data from both, primary and secondary sources, are vital to meet the objectives of research. The nature of the research eventually dictates the way data should be collected (Eriksson and Kovalainen, 2008).

Printed academic literature and computerized databases are the source of secondary data (Malhotra and Briks, 2006). Relatively inexpensive, the secondary data is generally trustworthy and credible. The researcher can benefit from numerous sources including academic literature contained in text books, journal articles and teaching materials, while being at the stage of literature review (Lee and Lings, 2008). Journal articles are an excellent source of concise information, to get relevant insight before developing theories, to devise methodologies, and to find appropriate research and interpretation tools.

For this research, the secondary data base of other universities of the UK has also been searched. Background information on KPC over aspects relevant to management structure, policies and oversight in general, and enterprise risk management practices in particular, were obtained prior to situating the research in the context of KPC.

#### **4.9 Ethical Considerations**

Ethical issues pose severe challenges for contemporary academic researchers, who are engaging in projects requiring primary data. The Researcher has to exercise foresight in anticipating issues that may arise after the publication of research outcomes. This would provide an opportunity to address them beforehand, not letting them weaken the credibility of the Researcher. Staying unbiased in the research process is also vital. Any prior conception, preference or expectation about the nature of findings brings subjectivity to the interpretation process. Same response from a conversation or interview may be interpreted differently, which some scholars attribute to human nature and diversity (Kerlinger and Lee, 1999). Several

individuals may make different deductions from the same interview transcript. All necessary caution and care should be exercised to avoid such a bias in research.

The Researcher intended to record the interviews, during the primary data collection for this research. It was, therefore, vital that adequate understanding and trust is inculcated amongst the study participants. The Researcher will always ensure that their responses remain anonymous, so that avoiding any future jeopardy in the interviewees' life. Only after such assurance, the interviewees can be expected to open up, and give their best possible response, not merely the politically or socially expected answer. Personal assurances can be given on this behalf by means of a binding a confidentiality document, should the participants require additional peace of mind. Confidentiality, oral or written, must be respected with utmost seriousness. Goodwill and long term reputation of the Researcher will be at stake, especially that the research is situated in the scholar's homeland. Trust, once built, will also reward in any future follow up of research with the same audience.

Collection of primary data was undertaken by the Researcher, with no outsourcing at all. Therefore, keeping the value neutral throughout the endeavour is very crucial. Every conscious effort was made, so that personal opinions do not tint the interpretations and reflect on the research outcomes, though it was challenging. The Researcher wrote down personal opinions and preferences, at the outset as a self-reminder to stay vigilant about not letting those themes resonate in the research outcome. Ultimately, the responsibility was and will be on the researcher to ensure ethical, accurate, valid, and reliable conduct of the research process, and its outcome Ethical Guidelines by the Social Research Association (2013).

The Ethical Guidelines by the Social Research Association (2013) state that "researchers have a moral obligation to attempt to minimize the risk of physical and/or mental harm to themselves" (Social Research Association, 2013, p.12), and obviously to research participants. The main ethical safeguards that need to be upheld are safe data storage, confidentiality, anonymity, informed consent, etc. Therefore, the pertinent ethical issues are those of ensuring this research work conforms to formal academic and ethical norms.

#### **4.10 Research Strategy and Design**

This research applies the qualitative method, using a single case study, the KPC, a public petrol sector case in Kuwait, as the main approach of enquiry. As discussed in Sections 4.2 and 4.3, this ontological stance leads to the epistemological perspective that assumes interpretivism phenomenon, to understand qualitatively, rather than to measure such an evaluation quantitatively. The main area of the research is ERM in Kuwait-based Petroleum

Corporation (KPC); in particular, the case is from human-driven changes in the public sector. It is found that, an integrative approach based on a multi-disciplinary review of the literature, can help in developing an in-depth understanding of the phenomenon being researched. The initial finding from this review was the need to bridge gaps in knowledge, in terms of the ERM from the human aspects, and therefore between the theory and practice in this field. To do so, this research applies the framework and then modifies it accordingly. Other components and the main dimensions of the research strategy are encapsulated in Figure 4-3.

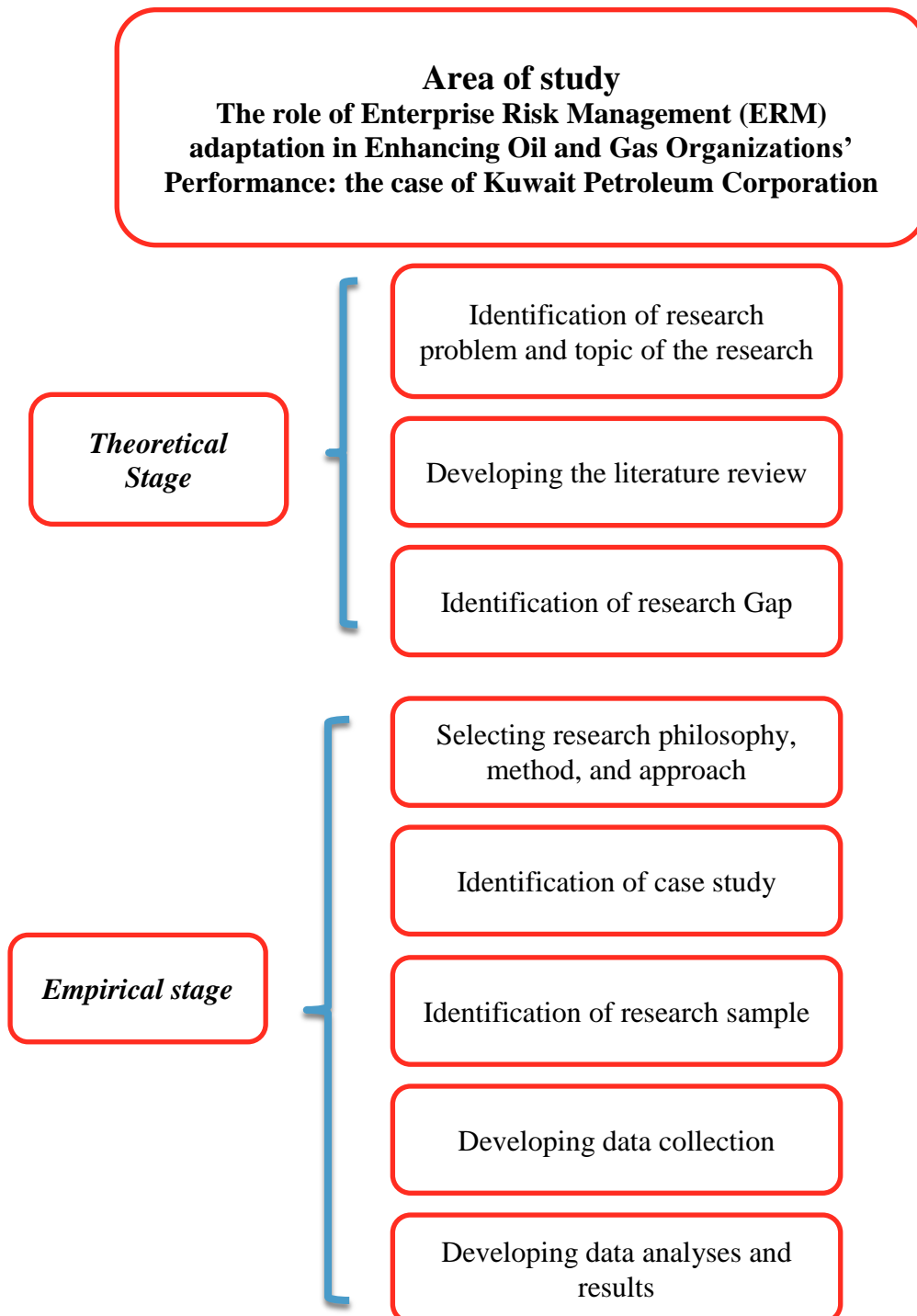


Figure 4-3: Research strategy and design

Source: Researcher

#### **4.11 Research process**

This research was divided into three main steps as shown in Figure 4-3<sub>2</sub>, starting with the main structuring of the idea, and developing the ‘*what*’ question about the research. The second step was the data collection stage, and the ‘*how*’ part of the study; and the final step came as the interpretation, explanation and analysis of the collected data, or the ‘*why*’ part of the phenomenon. The research structure starts with a literature review of the ERM system, and the evaluation methods in the public sector of Kuwait. The Researcher decided to study this phenomenon, by focusing on the ERM in the Kuwait-based petroleum corporation (KPC). Consequently, a data collection strategy built on the basis of the qualitative method was developed, based on the objective of the research, focusing on understanding and analysing the phenomenon. The data collection strategy was divided into a pilot exploratory stage and the main fieldwork. Data analysis and interpretation were conducted as a final stage.

#### **4.12 Chapter Summary**

In this Chapter, the Researcher has explained the methodology in detail. It was initiated by considering the ontological, epistemological and the foundation of the interpretivism paradigm, which forms the basis of this research, as well as the justification for its selection. This paradigm was found to be applicable, because it matches the Researcher’s ontological and epistemological stances. The qualitative data collection and analysis technique was adopted, being the most appropriate to the research context. Focusing on a social phenomenon that involves the ERM in Kuwait-based Petroleum Corporation (KPC), a single perspective must be taken into account. This Chapter justified the data-gathering instruments from qualitative strands, including the use of semi-structured interviews, documentation and archival research.

## **Chapter 5 : Data Collection and Analysis**

### **5.1 Introduction**

The previous Chapter discussed the various research methodologies and approaches, and justified the research methodology used for data collection and analysis. This Chapter aims to provide an analysis of the collected data, and to present empirical findings resulted from the analysis of the qualitative data, collected through semi-structured interviews. The qualitative analysis is used to classify particular themes and patterns, and to identify new emerging themes and ideas to provide better understanding of the phenomenon under study (Creswell, 2007; Trochim, 2009). This Chapter also aims to establish the foundation for the validation of the theoretical strategic ERM Alignment Framework, developed in Figure 3-1. The validation of the proposed framework is addressed, in details, in the next Chapter.

The remaining of this Chapter presents the analysis of three sections of the semi-structured interviews: A) Descriptive profile, B) ERM practice within the selected organization and C) Developing ERM strategic alignment framework.

### **5.2 Section A: Descriptive profile**

The questions of the interviews have been categorised and grouped into three sections, reflecting the areas of the research focus. Before proceeding into the analysis, it is necessary to assure that the Researcher had adhered to the ethical principles discussed in (Chapter 4, Section 4.10). Following these principles, it was clearly stated in the interview that the positions held by the participants may be revealed, but will remain unidentifiable by other parties. To make references to participants' views and responses, the participants' names were replaced by unique identifiers (interviewee 1 to interviewee 30).

To analyse the qualitative data, the Researcher developed critical factor codes to represent themes and subthemes, identified in the transcripts of the interview data. The Researcher will refer to these codes in the analysis, and the codes will be placed within *brackets*. Tables 5-1, 5-2 and 5-3 list the interview questions, along with initial factor codes, representing themes and subthemes.



Table 5-1: Interview Questions' Codes (Descriptive profile)

No	Questions	Codes
1	How many years have you been involved in risk management?	ERM_EXPE-1
2	What is your current position in the organization? Please provide a short job description? Which organization area you are located in?	ROLE ROLE_AREA

Questions in the first section of the interview (Table 5-1) aimed to build a better understanding about participants' ERM experience and their job roles. The first question asked about risk management related experience, and the code (ERM\_EXPE-1) was used to identify the risk management experience in years. To analyse the responses of the participants to this question, the Researcher used frequency table (see Appendix, Table 1). Figure 5-1 shows the percentage distribution of participants' risk management experience, in which 50% (23% + 27%) of participants' had 10 years or more in risk management experience. It also shows that 10% had 7 years, 20% had 3 years and 20% had only one year of risk management experience. These results affirm that the sample population of the participants is adequately selected, to support the investigation of ERM at strategic level, which required inputs from top management and more experience member of staff.

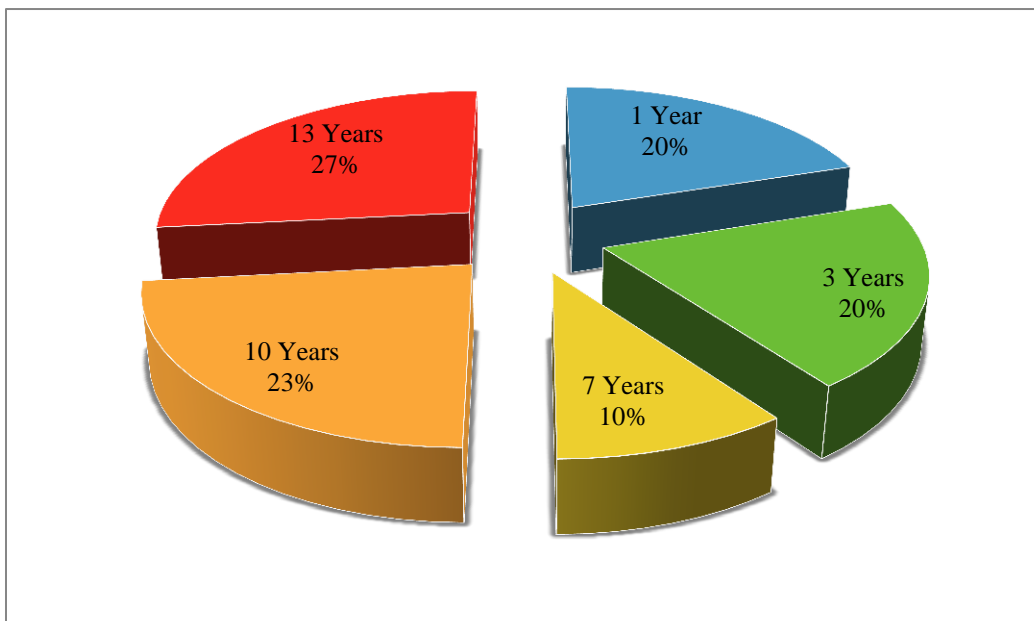


Figure 5-1: Percentage distribution of participants' risk management experience

The first part of the second question in this section asked respondents about their level of seniority. The frequency distribution of the seniority level (ROLE) is presented in Figure 5-2. This figure shows that 47% of the respondents were C-suite managers (i.e. CEO, COO, etc.), 31% were senior managers (e.g. directors and heads of key business units), and the remaining (22%) were middle managers (e.g. team leaders). The frequency table of this question can be found in Table 2 of the Appendix.

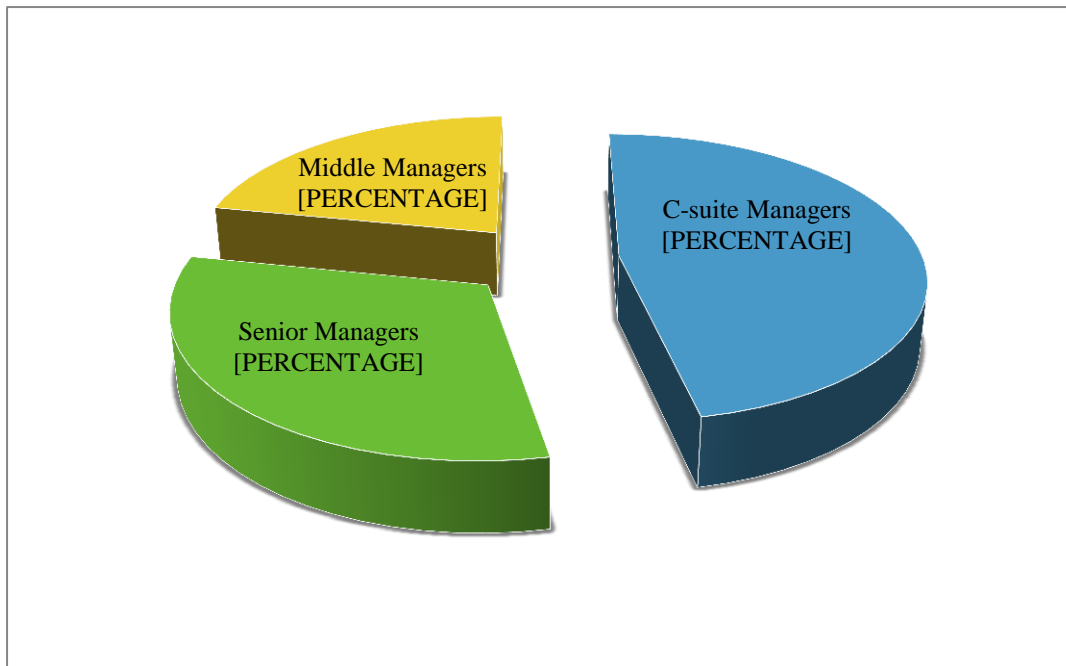


Figure 5-2: Percentage distribution of participants' seniority level

The second part of the second question asked respondents about which organizational area they are located in. The frequency distribution of the organization areas (ROLE\_AREA) is presented in Figure 5-3. This figure shows that 27% of the respondents were involved in operations, followed by 23% in risk management, 17% in IT Management, 13% in Finance, 10% in Business management and 10% in Front Office. Grouping respondents, according to their involvements with ERM (ERM\_EXPE-2), shows that the majority of participants (80%) were involved directly in ERM related activities, as shown in Figure 5-4.

As explained earlier in Chapter 4 (Subsection 4.7.2), judgment sampling techniques were used to select the population sample. All responses for questions of Section A were collected, before the data collection of Sections B and C. This helped the Researcher to ensure that the participants have sufficient knowledge in ERM, which is required to provide valuable insights and input into this research.

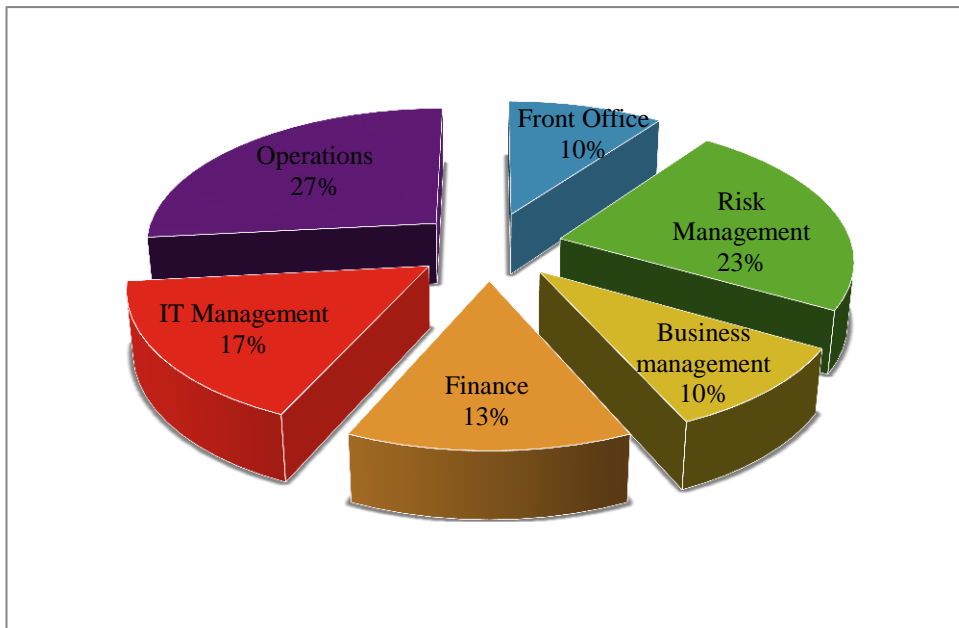


Figure 5-3: Percentage distribution of participants' organization area

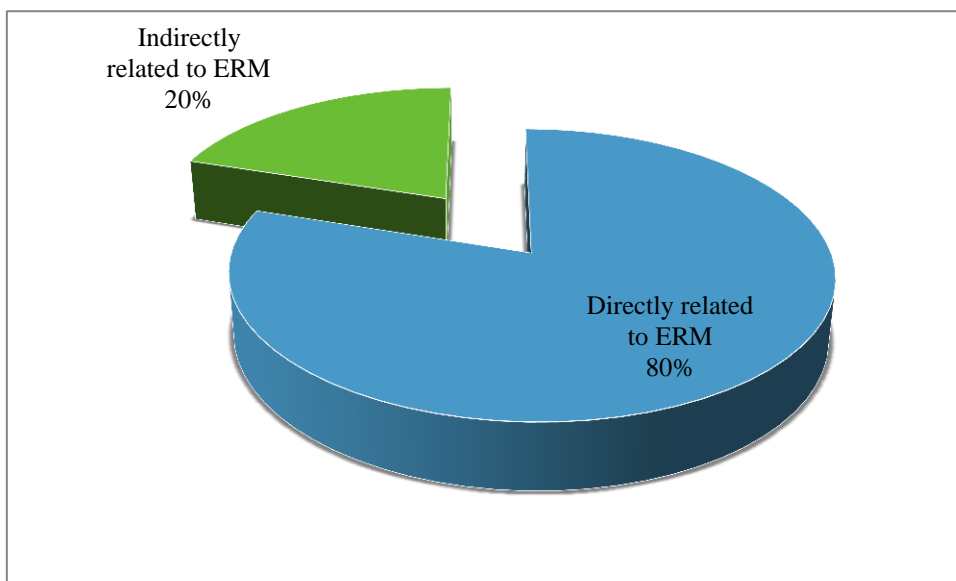


Figure 5-4: Percentage distribution of participants according to their involvement with ERM

### 5.3 Section B: ERM Practice Analysis

The questions of this section are concerned with the practice and maturity of ERM, within the organization covered in this study. Table 5-2 provides a list of interview questions along with factor codes, which represent themes and subthemes in this section.

Question B (1) asked interviewees about the level of their experience in ERM, and which stage/stages of ERM they have been involved in (ERM\_EXPE-3). Question B (2) explored

the major risk areas covered by the Risk Management in the organization (ERM\_AREA). Question B (3) investigated the extent to which risk considerations are incorporated into the decision making processes (ERM\_DSS). Question B (4) explored the current state of ERM implementation in the organization under study (ERM\_LEVEL). Question B (5) investigated further the state of ERM by assessing the maturity level of ERM (ERM\_MATUR). Question B (6) asked interviewees whether common or universal frameworks of ERM risk management are adopted by their organization (FRAM\_UNIFRAM). Question B (7) sought to identify the key challenges that impede the implementation of ERM (ERM\_CHALL). And finally, Question B (8) investigated the support of the board of directors devoted to ERM (ERM\_SENSUP-1), and what is the role of this support in ERM implementation (ERM\_SENSUP-2). The analysis of interviewees' responses will be detailed in the following section.

Table 5-2: Interview Questions' Codes (ERM practice)

No	Questions	Codes
1	Describe your experience in ERM? Which stage of ERM have you been involved in?	ERM_EXPE-1 ERM_EXPE-2
2	What are the major risk areas in your organization that are covered by the Risk Management?	ERM_AREA
3	To what extent has your company incorporated systematic consideration of risk into the decision making processes?	ERM_DSS
4	Does your organisation have ERM? If yes, please, describe the current state of ERM implementation in your organization - Investigation ERM - Planning ERM - Partial ERM - Comprehensive ERM - Strategically aligned ERM	ERM_LEVEL ERM_LEVEL-1 ERM_LEVEL-2 ERM_LEVEL-3 ERM_LEVEL-4 ERM_LEVEL-5
5	What is the current level of ERM maturity in your organization? - Undeveloped - Formalised - Established - Optimised - Strategic	ERM_MATUR ERM_MATUR-1 ERM_MATUR-2 ERM_MATUR-3 ERM_MATUR-4 ERM_MATUR-5
6	Does your organization follow a common or universal framework of ERM risk management?	FRAM_UNIFRAM

7	What challenges have your organization experienced or expect to experience during implementing ERM?	ERM_CHALL
8	How does the board of directors of your organisation support ERM? How important is the ERM support from senior management?	ERM_SENSUP-1  ERM_SENSUP-2

### 5.3.1 Section B: Question (1)

Figure 5-1 showed the percentage distribution of participants' risk management experience (ERM\_EXPE-1), which shows that the majority of those who responded to this question (60%) have 7 years or more of experience in ERM. This supported the interviewees' responses to identify which stage/stages of ERM they have been involved in (ERM\_EXPE-2). 20% of those interviewed indicated that they were involved in all ERM stages (see Figure 5-5). Not surprisingly, the majority, nearly 83% of interviewees, were involved in the requirement analysis stage. This is a high percentage of involvement in the requirement analysis stage, which gives a good indication that the organization has been following a systematic approach to implement ERM, which encourages wider participation in ERM implementation.

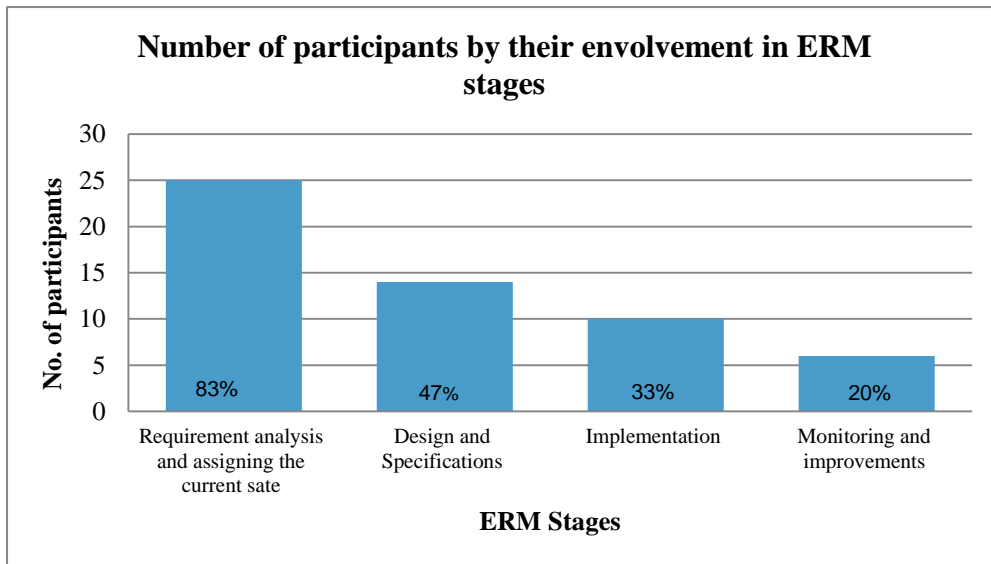


Figure 5-5: Percentage distribution of participants according to their involvement in different ERM stages

### 5.3.2 Section B: Question (2)

Over half of those interviewed (53%) stated that hazard risk is at the top of the risk areas, covered by ERM (Figure 5-6). It is not surprising that hazard risk is on the top of the risk

areas; this is due to the nature of operations performed in the oil and gas industry. This is followed by IT risk and operational risk, where 47% and 40% of the interviewees respectively identified it among areas covered by ERM. Strategic and Market risks have been identified by 33% of the interviewees as risk areas covered by ERM. This low percentage supports the need to this study, which aims to develop a strategic alignment risk management framework. Both, strategic risk and market risk, generally require long term planning. Therefore, not surprisingly, they are identified equally by the interviewees. Interviewee 6 gave some examples for different risks and stated that:

“Most of the operational risk is associated with upstream operations, especially in drilling. IT risk is one of the important areas where KPC devoted significant resources to develop robust measurements for safeguarding critical business data. We learned some valuable lessons from Saudi Aramco’s major security incident, when hackers lunch a cyber-attack on its systems couple of years ago.”

Interviewee 9 gave other examples of risk areas and stated that:

“Prices, demand and technology for extractions are some of risk areas which we need to be well planned for. Everything is changing and that definitely has an impact on KPC”

### **5.3.3 Section B: Question (3)**

Question 2 in this section identified the main areas which are covered by ERM. This question (Q3) investigated further to which extent risk considerations are incorporated into decision making processes (ERM\_DSS). This is not limited only to the areas covered by ERM, but it covers all the decision making process.

Figure 5-7 presents the breakdown of interviewees, according to their views on incorporating risk considerations into decision making processes. The number’s breakdown in Figure 5-7 shows that, a significant number of the interviewees (77%) stated that risk considerations are incorporated systematically into the decision making process. For instant interviewee no 4 stated:

“Decision at the implementations stage, it is the most difficult because we have to communicate the risk to other managers and employees. The culture sometimes is an obstacle that is why this is a difficult stage”

What is striking about the numbers in Figure 5-7, is that there is no agreement between the interviewees, regarding whether their organization incorporated risk considerations or not. Some of the interviewees, who think that risk considerations are not incorporated appropriately into the decision making process, emphasise that the ERM committee should have more active roles and power, to ensure wide-enterprise risk consideration in the decision making process. Interviewee 3 stated that:

“Assigning more responsibility to ERM committee is required to ensure systematic risk consideration in all decision making process. This is also a key factor to transform silo based risk management to fully integrated ERM”

Interviewee 3 arguments are very much in line with Bugalla *et al.* (2010), who emphasised the importance of hiring a Chief Risk Officer, and forming a risk committee, to ensure effective ERM implementation. This has been also supported by Mary (2017), who appreciated the updates in 2017 version of COSO framework. Some of these updates aimed to improve decision making process, by systematically incorporating risk considerations in decision making.

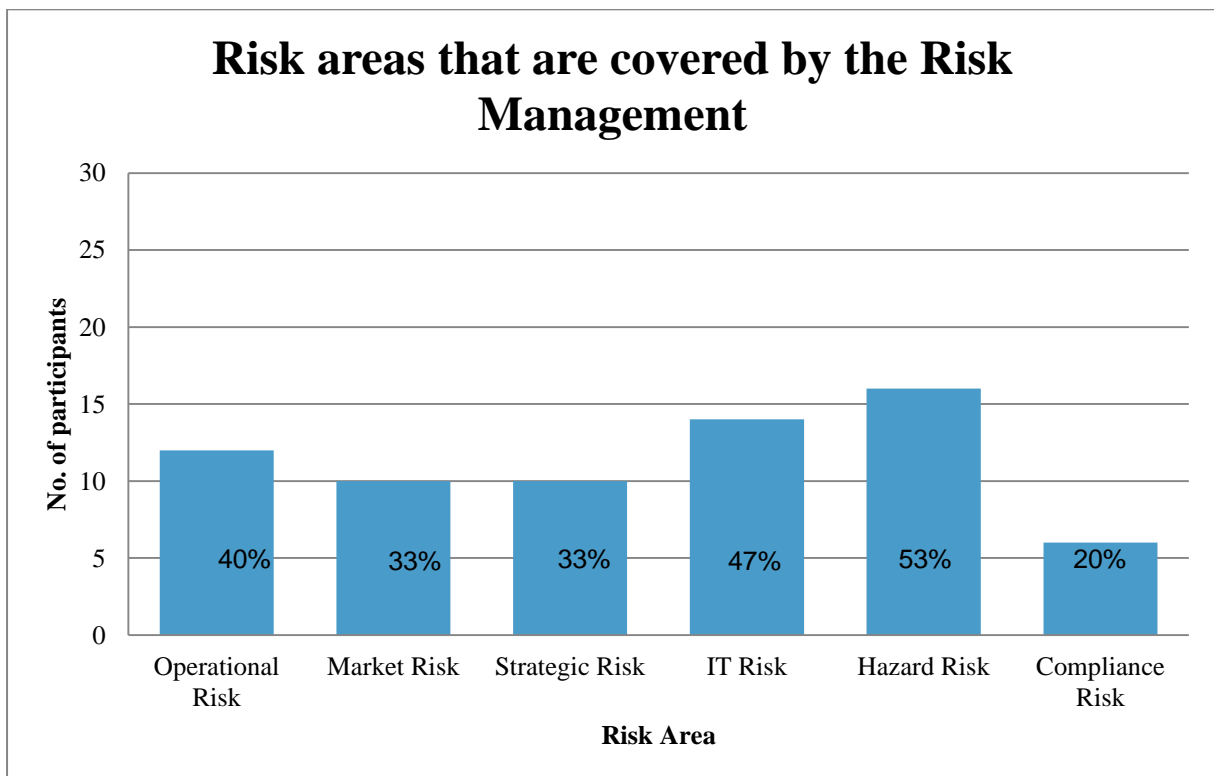


Figure 5-6: Risk areas that are covered by the Risk Management

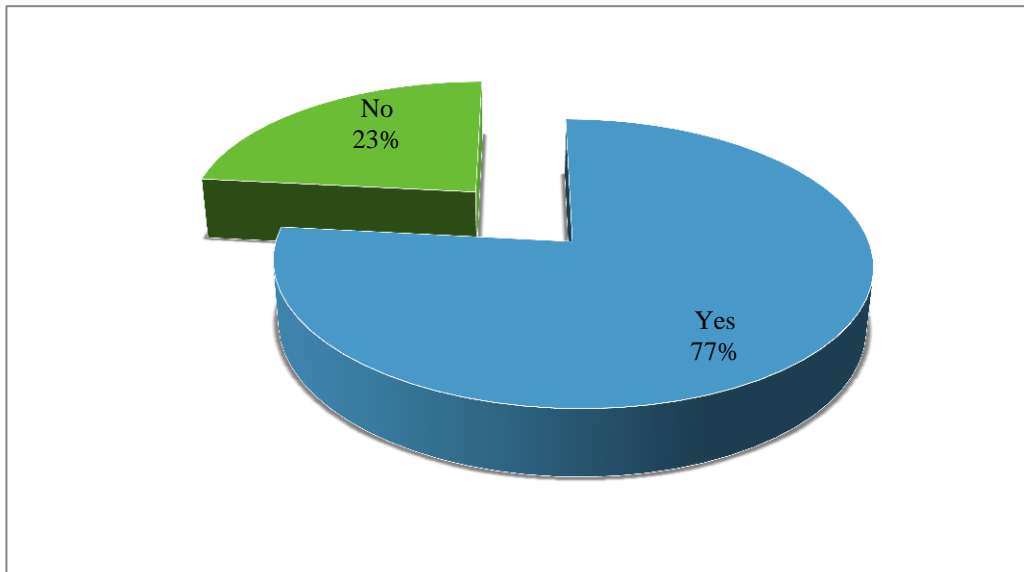


Figure 5-7: Participants’ views about incorporating risk considerations into the decision making processes

Regulatory and compliance risks were at the bottom of the risks identified as risk areas covered by the organization’s risk management. Only 20% of the interviewees identified them as risk area covered by risk management.

Interviewee 7 presented an argument that compliance risk is not currently a major concern like regulatory concerns, still, affects the Gulf Cooperation Council (GCC) market. Interviewee 7 stated that:

“The ERM in the company will continue to be developed and it will be driven by external factors. External factors like regulations are coming from the government only because at the moment GCC’s regulations are still under development. Once new regulations come into effect we have to comply with those regulations.”

#### 5.3.4 Section B: Question (4)

Following on question 3, this question takes further the investigation about the state of ERM, by exploring the current stage/phase of ERM implantation in KPC. Not surprisingly, there was a full agreement among the interviewees that there is a comprehensive formal enterprise risk management in place (ERM\_LEVEL-5). Al-Gharabally (2012) described the stages of ERM implementation that started in 2007, when the first ERM policy was created. Although



all of the interviewees have agreed on the existence of comprehensive formal ERM, only 75% of the interviewees believed that their organisation achieved the desirable result from its ERM implementation. Interviewee 3 stated that:

“We have a formal ERM implementation for almost ten years now. However, we still have a long way to reap the benefits of fully integrated ERM implementation. We are in stage now to quantify risks and following risk-based metrics to take strategic and investment decisions”

### 5.3.5 Section B: Question (5)

In this question, interviewees were asked to assess the maturity level of ERM (ERM\_MATUR). The interviewees' views of the maturity level of ERM fell between two categories: 1) 42% stated that ERM in KPC is optimized (there is an ERM system with clear knowledge sharing & continuous improvement) (ERM\_MATUR\_4); 2) 58% stated that ERM in KPC is optimized strategically (ERM\_MATUR\_5) (Well-defined ERM with good alignment between risk management processes, strategies and business functions).

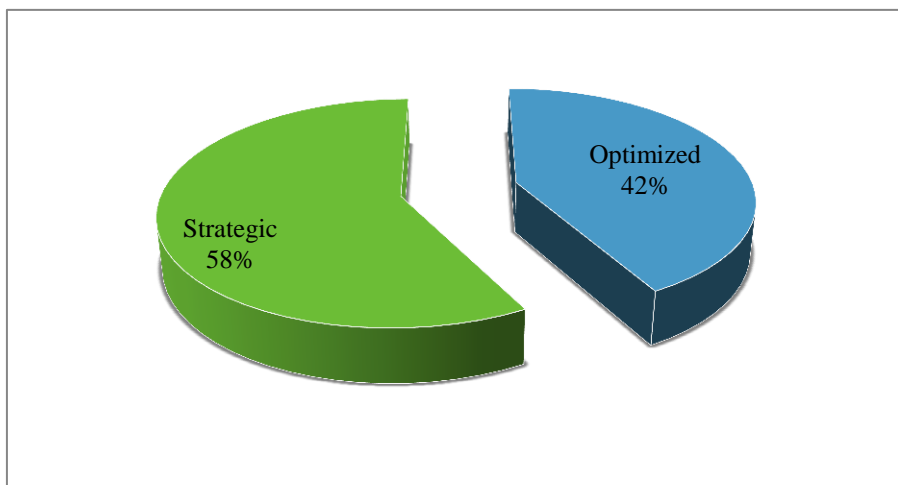


Figure 5-8: Participants views about KPC strategies and business

In 2012, and based on five levels maturity scale of ERM (InitialAd hoc, Fragmented, Comprehensive, Integrated and Strategic), KPC’s ERM maturity was deemed to be comprehensive (Al-Gharabally, 2012). The results in Figure 5-8 somehow support Al-Gharabally (2012) claims. Almost 5+ years, Al-Gharabally’s (2012) conducted the ERM maturity assessment, and it is expected to have some development on KPC’s ERM implementation to reach the strategic level. Interviewee 22 stated that:

“KPC is a pioneer on applying ERM and we start implementing formal ERM policy in 2007. Since then our ERM has gradually been developed. Until reached the comprehensive maturity”

Similarly interviewee 13 stated that:

“We have well-defined ERM and highly matured ERM system. However, that doesn't mean we will stop at this point. We have to keep working on ERM as this field is changing so fast”

In other view interviewee 13 stated that:

“The major risk in in general and our organisation in specific is the strategic risk because most think risk is related to operational risk”

### **5.3.6 Section B: Question (6)**

In order to assess the current ERM status in any organization, it is imperative to know whether common or universal frameworks of ERM risk management are adopted by the organization. This question asked interviewees to identify any standard or common ERM frameworks, which are adopted by their organization (FRAM\_UNIFRAM).

Almost all interviewees agreed that their organizations are applying one or more ERM universal frameworks. However, not all of the interviewees were able to identify which frameworks were adopted. The more experienced interviewees were able to identify ISO 3100:2009 and Risk Maturity Model (RMM) as the two standard ERM frameworks adopted by KPC. They also added that the KPC has customized their own ERM framework, based on KPC's organizational needs, along with the guidelines and recommendations of ISO 31000:2009 and RMM frameworks. Interviewee 19 added more details and stated that:

“KPC decided to implement ERM system more than ten years ago. We spent nearly one year to identify some of the standard RMM frameworks to adopt. The process wasn't easy as there were some limitations in the studied frameworks. We couldn't pick just one of the frameworks and follow it. Instead, we customized our ERM system based on our need and we followed most of the guidelines of two standard RMM frameworks: 3100:2009 and RMM frameworks”

The interviewees' responses to this question are consistent with Al-Gharaball (2012b) study investigating how KPC has chosen and adopted its ERM framework.

In other view interviewee 10 stated that:

“Yes we have risk management, if it is consider as ERM it is mainly informal in many of its processes”

Al-Gharaball (2012b) stresses that organisations have to adopt suitable ERM frameworks and approaches that meet their needs and requirements, and thus, no single or particular ERM framework can satisfy that.

### 5.3.7 Section B: Question (7)

This question aimed to identify the key challenges that impede the implementation of ERM (ERM\_CHALL). Table 5-3 lists the frequency distribution of each key challenge, which is identified by interviewees based on five descriptors of importance from “unimportant” to “critical” options.

Table 5-3: Frequency distribution of ERM\_CHALL code

ERM_CHALL	Frequency (%)				
	Un important	Slightly Important	Important	Very Important	Critical
Lack of the support from the top management	30%	0	0	60%	10%
Lack of the ERM implementation guidelines	13.3%	0	40%	46.7%	0
The time, cost and resources required to implement ERM	13.3%	0	36.7%	50%	0
Difficulties in integrating risk data across the organization	0	3.3%	46.7%	30%	20%
Lack of alignment between ERM, core organizational strategies and key objectives	0	3.3%	26.7%	10%	60%
Lack or risk management awareness and ERM culture	0	20%	13.3%	30%	36.7%
Lack of in-house skills and experiences in ERM implementation	0	0	33.3%	20%	46.7%
Lack of understanding of the benefits and challenges of implementing ERM	0	0	33.3%	30%	36.7%

Table 5-3 shows that almost two third of the interviewees (60%) have identified the lack of alignment between ERM, core organizational strategies and key objectives as critical challenges that hamper ERM development. This is followed by the lack of in-house skills and experiences in ERM implementation, which was identified by 46.7% of the interviewees as critical challenges. Lack of the support from the top management was seen as very important challenge, by 60% of the interviewees. In contrary, nearly third of the interviewees (30%) see that there were no problems with regards to top management support. Another important challenge was identified by 46.7% of the interviewees, who saw difficulties in integrating risk data across the organization as an important risk factor.

Interviewee 5 supported the importance of support from the top management by stating:

“Top management support is very important to make sure the successful implementation of ERM. The support needs to be coupled with long-term commitment from the top management toward ERM, which will positively influence employees in KPC and will ensure their active participation in ERM implementation.”

With a contradictory opinion, Interviewee 19 commented:

“Top management is already providing unlimited support for ERM and I think this is un-important issues in the case of our organization. What we need is a better understanding from the employees of how ERM applies to their job duties.”

The empirical evidence resulting from the analysis of this question complies with Beasley *et al.* (2010), who stressed that top management support for ERM is critical for ERM implementation. Another interesting finding is that the lack of alignment between ERM, core organizational strategies and key objectives were seen as critical key challenges to developing ERM systems. These findings highlight the needs for developing strategic ERM alignment framework, which the aim of this study. Another important finding is that difficulties in integrating risk data across the organization were highlighted by a considerable number of the interviewees. This was in line with Hofmann (2009), who stressed that an integrated and transparent approach to deal with risk data is necessary to produce robust risk reporting strategy and stable risk information.

#### 5.4 Section C: Development of ERM Strategic Alignment Framework analysis

The questions of this section are aimed to support the development of the strategic alignment framework. The discussion started by investigating the importance of aligning ERM with key organization areas (FRAM\_ALIGN). Then, each question focused on a key component of the proposed framework. Question 2 investigated the role and the importance of internal environment on ERM framework implementation (FRAM\_INTER), while Question 3 examined the roles and the effect of risk culture on ERM (FRAM\_CULT). Similarly, Question 4 investigated the role and effect of ERM infrastructure on ERM framework implementation (FRAM\_INFR). Lastly, Question 5 investigated the role and the effect of ERM integration (FRAM\_INTEG).

Table 5-4 provides a list of interview’s questions along with factor codes, which represent themes and subthemes in this section. The analysis of interviewee responses will be explained in the following Sub-section.

Table 5-4: Interview Questions’ Codes (ERM strategic alignment framework)

No	Questions	Codes
1	How is important to align ERM with key organization areas?	FRAM_ALIGN
2	<p>What are the roles and the effect of internal environment in ERM framework implementation?</p> <p>Based on your experience, what are the most influential internal environment factors which affected ERM framework implementation?</p> <ul style="list-style-type: none"> <li>- Mission, vision and core values</li> <li>- Strategies and objectives</li> <li>- Appetite aligned with risk tolerance</li> <li>- Risk oversight</li> <li>- Corporate governance</li> </ul>	<p>FRAM_INTER</p> <p>FRAM_INTER_VIS</p> <p>FRAM_INTER_STR</p> <p>FRAM_INTER_APP</p> <p>FRAM_INTER_OVE</p> <p>FRAM_INTER_GOV</p>
3	<p>What are the roles and the effect of risk culture in ERM framework implementation?</p> <p>Based on your experience, is a strong enterprise risk culture critical to realize the full effectiveness of ERM framework implementation?</p> <ul style="list-style-type: none"> <li>- Understanding of risk appetite and tolerance</li> <li>- Organizational change management</li> </ul>	<p>FRAM_CULT</p> <p>FRAM_CULT_APP</p> <p>FRAM_CULT_CHNG</p> <p>FRAM_CULT_TRANC</p>



by interviewees, based on five descriptors of importance from “unimportant” to “critical” options.

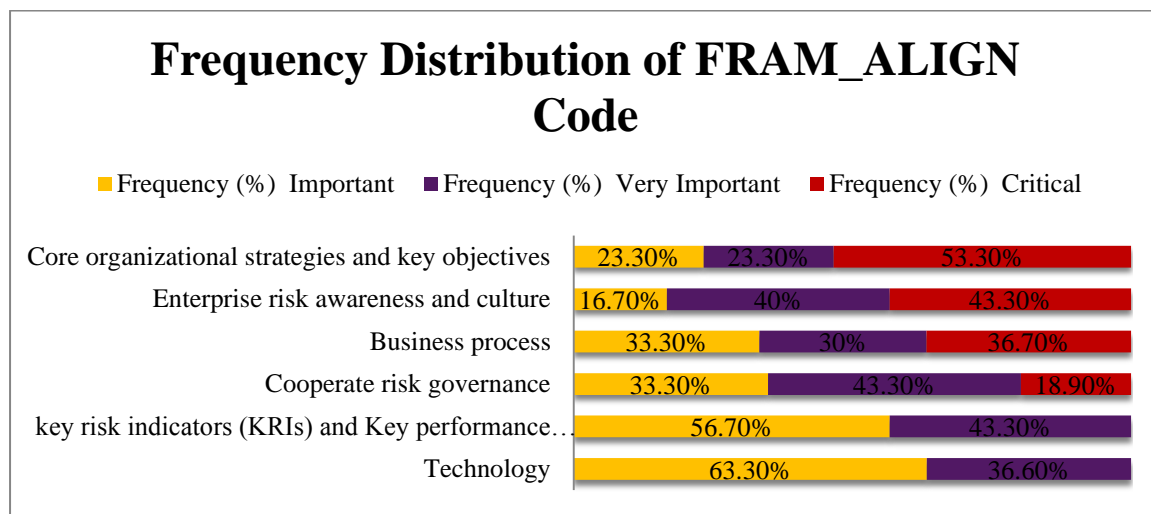


Figure 5-9: Frequency distribution of FRAM\_ALIGN code

Figure 5-9 shows that almost half of the interviewees (53.3%) have stressed that aligning core organizational strategies and key objectives with ERM is a critical success factor for ERM. This is followed by 43.3% of the interviewees, who identified aligning enterprise risk awareness and culture with ERM as a critical factor in ERM implementation. In addition, 36.7% of the interviewees stated that it is critical to align business process with ERM. Interviewee 5 supported the importance of aligning core organizational strategies and key objectives with ERM, and stated that:

“What is really a matter to improve the efficiency and effectiveness of any organization is that ERM system which is well-aligned with the top-level goals and strategies of the organization.”

Interviewee 2 with similar belief discussed:

“Aligning ERM with key organizational strategies and objectives is very important to ensure the success of ERM implementation.”

The previous results along with these arguments are very much in line with Mikes and Kaplan (2013), who emphasised the importance of aligning ERM with key organizational strategies, and identified it as a critical success factor in ERM implementation. Interviewee 12 stated that:

“ERM alignment with other organisations strategies is very important but not all senior managers know how to strategically align it”

Different from the previous organisational areas, the corporate risk governance was identified by 43.3% of the interviewees as less critical, yet, it is still very important to be aligned with ERM. Technology, key risk indicators (KRIs) and Key performance Indicators (KPIs) are identified, by 63.3% and 56.7%, respectively, as less important, but still important.

#### 5.4.2 Section C: Question (2)

Question 2, in this section, investigated the roles of internal organizational factors on ERM implementation (FRAM\_INTER). The interviewees asked to identify internal organizational factors that affected ERM implementation. In addition, they have been asked to rank these factors, based on their importance for ERM. The interviewees have identified five factors, which are in high level of importance (important, very important and critical). These factors are: 1) Risk oversight, 2) Appetite aligned with risk tolerance, 3) Strategies and objectives, 4) Mission, vision and core values, and 5) Corporate governance. Some of the interviewees have identified human resource policies and practices and the assignment of responsibility, as less important factors on ERM implementation (see Table 10, in Appendix). Figure 5-10 shows the frequency distribution of FRAM\_INTER code.

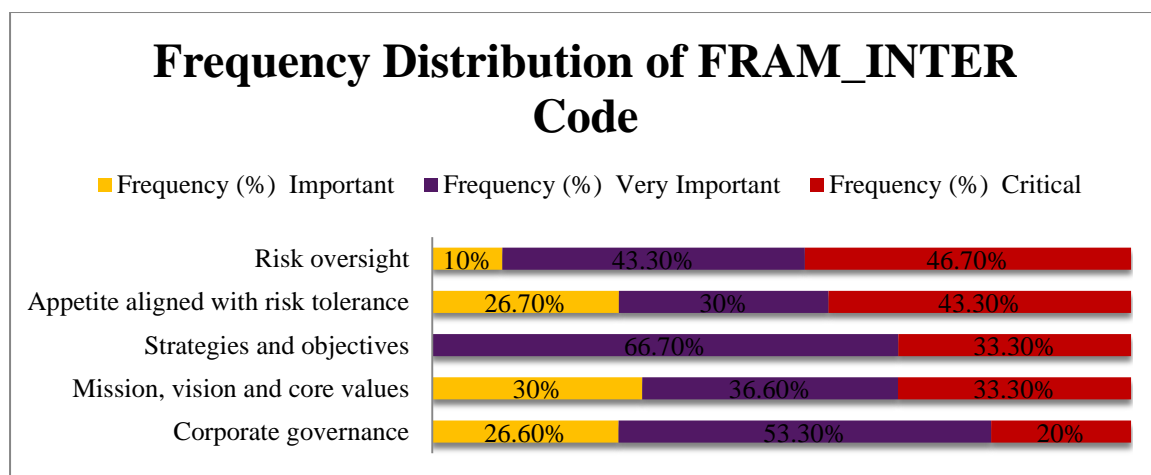


Figure 5-10: Frequency distribution of FRAM\_INTER

Figure 5-10 above shows that almost half of the participants (46.7%) ranked risk oversight as a critical internal factor in ERM implementation. This is followed by risk appetite aligned with risk tolerance, ranked by 43.3% of the participants as a critical internal factor in ERM



implementation. Risk oversight has been reported as more important than risk appetite aligned with risk tolerance, where 43.3% and 30% of the participants ranked them, respectively, as very important factors for ERM. Interviewee 27 supported the findings of this question with regard to risk oversight and appetite alignment with risk tolerance, and stated that:

“Since our organization incorporated ERM system in business processes, we put in place risk controls to overcome unexpected internal and external factors. This was not possible without defining clear organisational risk oversight. Risk oversight is critical to maximise the success of our ERM system. To enhance risk oversight, we establish risk committee and provide policies and procedures governing its operation.”

In regard to risk tolerance and risk appetite, Interviewee 21 stated that:

“Risk tolerance and risk appetite are two essential factors in our risk management system. Risk tolerance statements have to be aligned with the risk appetite. For each risk appetite statement we identified a corresponding risk tolerance limit which could be accepted as per the objectives under consideration”.

In contrast to earlier findings in Section C: Question (1), strategies and objectives have less critical effect on ERM. However, it is noteworthy to mention that the previous section investigated the importance of aligning organization’s strategies and objectives with ERM, while in this section, strategies and objectives were regarded as internal input factors to ERM.

As seen in Figure 5-10, strategies, objectives, mission, vision and core values were identified equally by 33.30% of the participants as critical internal factors for ERM implementation. However, strategies and objectives were regarded as very important (66.7%), even more than vision and core values, ranked by only 36.3% as very important. Corporate governance (20%) was ranked the least by the participants as a critical internal factor in ERM. However, nearly half of the participants (53.3%) have regarded corporate governance as a very important internal factor for ERM.

### **5.4.3 Section C: Question (3)**

Question 3 in this section investigated the roles and the effect of risk culture on ERM implementation (FRAM\_CULT). The interviewees were asked to identify some of the

important risk culture aspects that affected ERM implementation. In addition, they have been asked to rank these aspects based on their importance to ERM. The interviewees have identified seven risk culture aspects, which are in high level of importance (important, very important and critical). These aspects are: 1) Information sharing, 2) Risk mind-set, 3) Accountability, 4) Transparency and communication, 5) Understanding of risk appetite and tolerance, 6) Respecting norms and ethics and 7) Organizational change management. Figure 5-11 shows frequency distribution of FRAM\_CULT code.

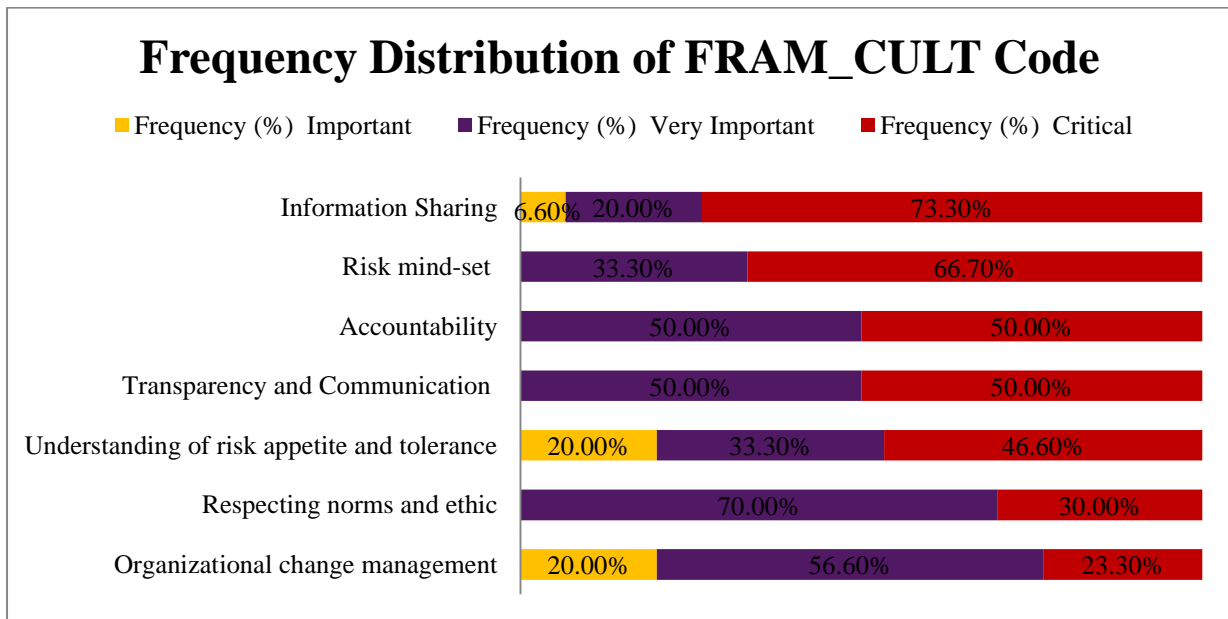


Figure 5-11: Frequency distribution of FRAM\_CULT code

There was complete agreement among all interviewees that information sharing is crucial to the success of the ERM. According to Figure 5-11, more than two third of the interviewees (73.3%) identified the information sharing as a critical enabler of risk culture, to ensure successful ERM implementation. The last third of the interviewees recognized information sharing as either a very important enabler (20%), or an important enabler (6.6%) of risk culture. Interviewee 18 discussed further the importance of information sharing and stated that:

“Information sharing is critical for ERM as it is required to build job related knowledge. It is important to assure that job related decisions are being made on high quality information. Risks information should be shared appropriately in order to provide integrated risk culture”

In the same line, interviewee 17 stated that:

“Using unreliable risk information data could leads to more risks and failures.”

Risk mind-set comes next on the list of critical enablers of risk culture, where, exactly, two third of the interviewees (66.7%) identified the risk mind-set as a critical enabler of risk culture. The rest of the interviewees (33.3%) ranked risk mind-set as a very important enabler of risk culture.

According to Figure 5-11, accountability, transparency and communication were identified equally by half of the interviewees (50%) as critical enablers of risk culture. The other half of the interviewees identified them as very important enabler of risk culture. Moving to risk appetite and tolerance, nearly half of the interviewees (46.6%) considered understanding of risk appetite and tolerance as critical enablers of risk culture. This is followed by 33%, who saw the understanding of risk appetite and tolerance as very important, and 20% who considered it an important enabler for risk culture. Interviewee 21 emphasised the need to understand risk appetite and tolerance, in order to improve overall risk culture. Interviewee 21 stated that:

“Risk appetite and tolerance are often overlooked and I think sometimes they are used without understand of what they really are. If risk appetite and tolerance understood well they can be used as a tool to support the discussion about risk within the organization. Better understanding of risk appetite and tolerance is also vital to improve overall risk culture.”

As seen in Figure 5-11, Respecting norms and ethics was perceived as a critical enabler of risk culture, by nearly third of the interviewees (30%), and as very important by the other two third (70%). Organizational change management came at the bottom of risk culture enablers, where it was considered as critical by 23.3%, as very important by 56.6% and as important by 20% of the interviewees. Interviewee 6 discussed the importance of respecting norms and ethics and stated that:

“Respecting norms and ethics are vital component of risk culture. Values and ethics should be incorporated into the day-to-day operational processes of the organization.”

The findings, with regards to respecting norms and ethics, are in agreement with Pagach and Warr (2010), who stressed that respecting norms and ethics and illustrating major

characteristics (i.e. respecting rule, collaboration, assessing risk performance and rewarding it), is very important to enhance decision making within organisation.

#### 5.4.4 Section C: Question (4)

Question 4 in this section investigated the roles and the effect of risk infrastructure on ERM implementation (FRAM\_INFR). The interviewees were asked to identify some of the important risk infrastructure components, which affected ERM implementation. In addition, they have been asked to rank these components, based on their importance to ERM. The interviewees have identified five risk infrastructure components, which are in high level of importance (important, very important and critical). These components are: 1) ERM supporting tools and technologies, 2) ERM policies and framework, 3) Risk data, 4) Oversight structure, 5) ERM governance. Figure 5-12 shows frequency distribution of FRAM\_INFR code.

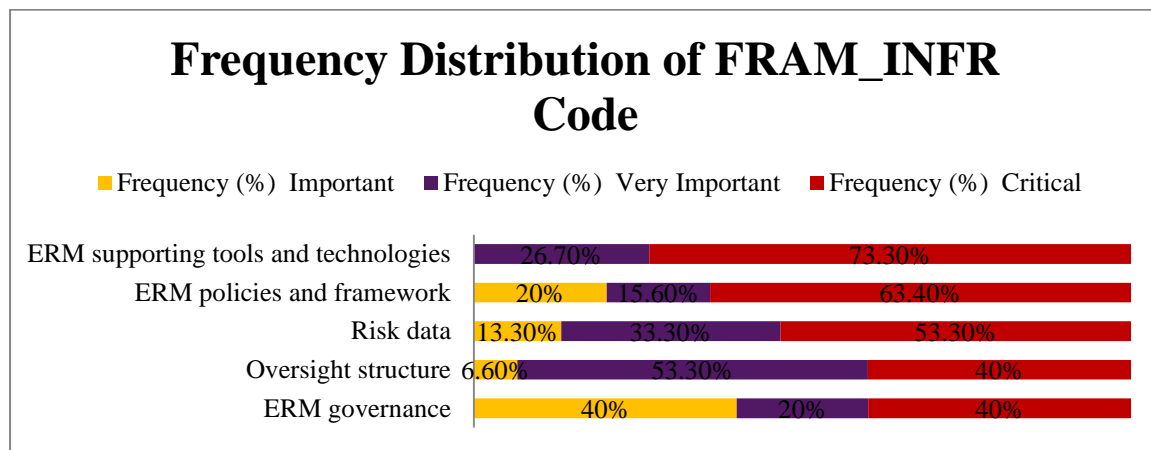


Figure 5-12: Frequency distribution of FRAM\_INFR code

There was complete agreement among all interviewees that ERM supporting tools and technologies are crucial to the success of the ERM. According to Figure 5-12, more than two third of the interviewees (73.3%) identified ERM tools as a critical component of ERM infrastructure. The rest of the interviewees (26.7%) recognized ERM tools as very important components in ERM infrastructure. Interviewee 18 discussed, further, the importance of ERM supporting tools and technologies, and reported that:

“There is wide range of technologies and tools that can be used to for analyse both internal and external risk. It is fundamental for any organization to select those techniques that best suit their needs and integrate well with the existing infrastructure.”

Interviewee 13, with the same view, stated that:

“We have made significant progress in term of developing our ERM program and this is was not possible without using effective ERM tools and techniques. We are now at the stage of developing unified and comprehensive aggregated view of risks which includes heat maps and scenario planning.”

As illustrated in Figure 5-12, ERM policies and framework were identified by nearly two third (63.4%) of the interviewees as critical component of ERM infrastructure. The rest of the interviewees were divided between: 15.6% who perceived ERM policies and framework as a very important component of ERM infrastructure, and 20% who just perceived them as important component of ERM infrastructure. Moving now into risk data, it has been identified by more than half of the interviewees (53.30%) as a critical component of ERM infrastructure. The rest of the interviewees were divided between 33.3%, who perceived it as very important enabler, and 13% who perceived it as an important component of ERM infrastructure. Risk data is interconnected with ERM tools and technologies, as most of these tools are based on risk data. Interviewee 13 explained further the relationship between ERM tools and risk data, and stated that:

“We working toward build an enterprise risk view which will aggregate all risks data across subsidiaries. This will include risk taxonomy, risk register and cash flow. In order to build this view we developed a comprehensive risk data repository.”

According to Figure 5-12, Oversight structure and ERM governance were equally identified by 40% of the interviewees as a critical component of ERM infrastructure. With regard to oversight structure, 53.3% and 6.6%, respectively, identified it as a very important and important component of ERM infrastructure. As for ERM governance, (20%) and (40%), respectively, identified it as a very important and important component of ERM infrastructure.

The importance levels of ERM governance, as observed in this investigation, are far more than the importance levels of corporate governance, as proved previously in Section C: Question (2). This is justifiable, as corporate governance is more general and could include ERM in it.

### 5.4.5 Section C: Question (5)

Question 5 in this section investigated the roles and the effect of risk integration on ERM implementation (FRAM\_INTEG). The interviewees were asked if comprehensive and unified ERM integration is critical to realize the full effectiveness of ERM framework implementation. In addition, the interviewees were asked to identify some of the important risk integration enablers, which affected ERM implementation. In addition, they have been asked to rank these enablers based on their importance to ERM. The interviewees have identified five risk integration enablers, which are in high level of importance (important, very important and critical). These enablers are: 1) Strategic planning, 2) Operational processes, 3) Enterprise-wide communication, 4) Structure and ownership, 5) Performance management. Figure 5-13 shows the frequency distribution of FRAM\_INTEG code.

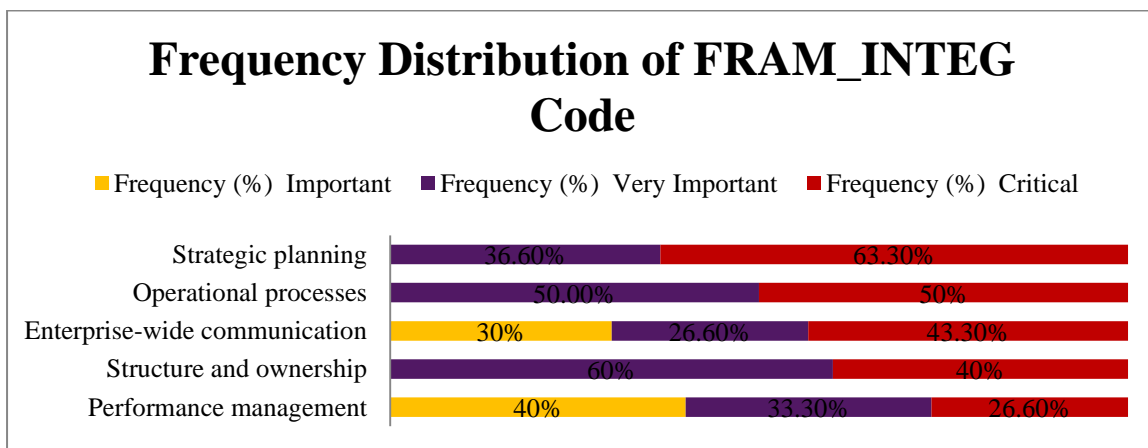


Figure 5-13: Frequency distribution of FRAM\_INTEG code

As can be seen from Figure 5-13, nearly two third (63.3%) of those who were interviewed indicated that strategic planning process, which takes account of risk integration, is critical to create a successful ERM. The rest of the interviewees (36.60%) ranked strategic planning that takes account of risk, as a very important enabler for successful ERM systems. Interviewee 11 stated that:

“Planning, planning, planning ‘strategically’ it is very important to consider all stakeholders and all possible obstacles because this may involve changes and require great efforts from all concern organisation departments”

Operational processes were identified, by exactly half of the interviewees (50%), as a critical enabler of risk integration. The other half of the interviewees identified it as a very important enabler of risk integration. Moving to enterprise-wide

communication, 43.3% of the interviewees perceived enterprise-wide communication as critical enabler of risk culture. The rest of the interviewees (26.6%) and (30%), respectively, identified enterprise-wide communication as a very important and important enabler of risk integration. Interviewee 12 stated that:

“Risk integration with other organisations strategies is extremely important, however, when it come to the implementation it is very difficult many players (managers and employees need to be involved and this require a strong communication”

As for the structure and ownership, 40% of interviewees perceived it as a critical enabler of risk integration; the rest of the interviewees, (60%), found it as a very important enabler of risk integration. Performance management came last, in term of criticality, and was ranked as a critical enabler of risk integration by only 26.6% of the interviewees. The rest of the interviewees were divided between: 33.3% who perceived it as very important enabler, and 40% who perceived it as just important enabler of risk integration. Interviewee 2 stated that:

“Risk integration is crucial and key element for effective implementation success that is why many initiatives fail badly during the implantation phase”

The importance of ERM integration was discussed previously in Section B: Question (7), where nearly all of the interviewees have identified the difficulties in integrating risk data across the organization as an important risk factor. In addition, the importance of ERM integration was also discussed in Section C: Question (3).

## **5.5 Chapter Summary**

Through data analysis in this Chapter, it is quite evident that there is a need for a strategic, and aligned ERM framework that is specific in nature and purpose, to the oil and gas industry. However, as concluded in Chapter 2, there is a lack of such aligning frameworks, which take into consideration the needs and nature of the organisations operating in this industry. This Chapter follows from the proposed strategic aligned ERM framework developed in Chapter 3, to validate the significant factors of the framework.

There is a clear agreement between the interview findings and the existing literature discussed in Chapter 2, with regard to the significance and the criticality of the proposed framework factors. The findings of this Chapter illustrate that senior management in the organization under study, believes that aligning ERM with key organization’s strategies and

objectives is critical, to improve the organization performance and maintain long-term sustainability. The results in this Chapter indicate that the organization under study has been following a systematic approach to implement ERM, which encouraged wider participation in ERM implementation. This is reflected in the high percentage of involvement from members of staffs, in the requirement analysis. The results also confirmed the key challenges of ERM discussed in Chapter 2, and were explored further in Section B: Question (7). The majority of participants in this interview stressed that support from senior management is critical for ERM success. However, interviewees did not agree about the extent to which this support exists. The results also ranked hazard risk on the top of the risk areas covered by ERM in the organization under study. That was not a surprise, due to the nature of operations performed in the oil and gas industry. Moreover, the results highlighted the most important components of ERM infrastructure and integration. Furthermore, the results identified the most important enablers for risk culture development. Surprisingly, regulatory and compliance risk were at the bottom of the risks identified as risk areas, covered by the organization's risk management. This is due to the fact that there is no regional and directional compliance developed in gulf countries, and the GCC's regulations are still under development.

Overall, the results in this Chapter support the main aim of this research, which is to develop an effective strategic aligning ERM framework. In the next Chapter, these results will be used, along with the findings from the literature, to provide academia and industry with practical guideline to implement the proposed framework.

## **Chapter 6 : Results and Discussions**

### **6.1 Introduction**

Within the context of earlier literature and empirical results previously outlined, this Chapter provides an explanation and justification of empirical findings, in order to reinforce the validity of the Strategic ERM Alignment Framework. Although ERM has been researched in the context of various industries, previous studies have not specifically addressed oil and gas organisations within the GCC region. Concerns have been raised that ERM is a critical determinant of the success of effective risk resiliency for the local oil and gas organisations. So far, international developments and plans for 2020 and beyond, for the GCC region, draw attention to the importance of risk resilience. However, insufficient consideration has been



dedicated to how general practices apply to Oil and Gas organisations, hence, no research has taken into account this specific sector’s needs. Consequently, this research shall investigate the factors that affect ERM implementation in the oil industry, and then, the framework is derived from research objectives, driven by research aims and questions.

Accordingly, this Chapter is divided into three Sections. The first Section deals with the research findings, in the context of research objectives, presenting the implications of the findings for the Research Framework. The second Section draws upon the ERM Strategic Alignment Framework analysis that derives and ties together the various strands defining the framework position within the current research. The third Section, the conclusion, includes a brief discussion of the implications, the contribution of the empirical findings and any associated limitations, which will be detailed in Chapter 7.

## 6.2 Research Findings in the Context of Research Objectives

This Section presents the findings and their correlation with achieving the research objectives. Furthermore, the findings reflect the research aims and research questions, as elaborated in Table 6-1 below.

Table 6-1 Research key drivers

<b>Aims</b>	<b>Objectives</b>	<b>Research Questions</b>
1. To investigate factors affecting ERM implementation;	1. Review current literature;	RQ1: Does current ERM approaches applicable to the Oil and Gas sector? If yes how? If no, Why?
	2. Analyse current adaptation of ERM in Oil and Gas organisations;	
	3. Analyse current Risk challenges facing Oil and Gas organisations	RQ2: What are the key risk challenges faced by Oil and Gas organisation in general and in the Kuwait in specific?
	4. Review current ERM approaches;	RQ3: How effective are the existing ERM frameworks for the Oil and Gas industry?
2. To develop implementation framework applicable to Oil and Gas organisations.	5. Develop implementational guidance for the proposed ERM Framework.	RQ4: How can a tailored ERM framework be implemented for Oil and Gas organisations?

Source: The Researcher

As Table 6-1 shows, the main research aim correlates with objectives one, two, three, and four, as well as with research questions one, two and three. This reflects the rationale of the research framework. Furthermore, the following Subsections discuss the correlations of

empirical findings to the context of aims, objectives and questions, as well as to previous research, in terms of implications.

### 6.2.1 Research Objective 1: To review current literature

Henceforth, the first objective of this research was to review the literature to create a basis for understanding the context of earlier literature, and explains how the research problem can expand knowledge. Moreover, the research gap identified in Chapter 2, Section 2.3, helps understanding what factors affect ERM implementation (research aim 1), and constituting the foundation of developing the framework applicable to Oil and Gas organisations (research aim 2). Thus, the first research objective that focuses on previous research reflects only a partial derivation of the framework, yet, provides fundamental theoretical background.

### 6.2.2 Research Objective 2: Analyse current adaptation of ERM in Oil and Gas organisations

Because the literature focusing on the industry of Oil and Gas is scarce, the empirical findings aim to contribute to the research field. The second research objective was to analyse how/if Oil and Gas organisations have adopted an ERM approach. Findings have shown that ERM maturity varies within organisations (e.g. undeveloped, formalised, established, optimised and strategic).

As discussed in section B, Chapter 5, the ERM practice analysis was directed to seven questions, where each was addressed to interviewees. The key findings have shown that interviewees understand through different perspectives adaptation to ERM. For instance, 53% reinforced the belief that hazard risks are the main area of concern covered by ERM, followed by IT risk, operational risk, compliance risks, and strategic and marketing risks (interview question 2).

Table 6-2: ERM key risks outlined by interviews

ERM key risks				
53%	47%	40%	20%	33%
hazard risks	IT risk	operational risk	compliance risks	strategic and marketing risk

Source: The Researcher

Similar findings regarding organisational dependency on external and internal environments have emerged through literature (e.g., Hindson, 2013). However, in contrast to the literature, the key ERM risks do not correlate to any theoretical view. The empirical findings shed new

light on how practitioners perceive risks at organisations. Hazard risk consideration draws a different perspective regarding what represents a priority. Another striking finding is that a second key factor (47%) is IT risk. Obviously, the recommended practices of COSO 2016 demonstrate that IT is becoming an integrative part of ERM as a performance aid. Perhaps, the most compelling implication is that the findings corroborate with ERM's best risk oversight practices. It seems possible that these findings differ from other organisations, due to the nature of Oil and Gas organisations, where hazard risks imply significant consequences. In the case of IT risk considerations, a possible explanation is that ERM standards (e.g. COSO and ISO 31000) have promoted significant considerations for IT.

As the examination of the literature has often focused on the financial industry, financial institutions were often the early adopters of ERM (McShane, Nair and Rustambekov, 2011; Schiller and Prpich, 2013; Lyons, 2015). The interviews analysis demonstrates that, although generic principles can be applied, Oil and Gas organisations are particularly prone to hazard risks. Consequently, operational risks, strategic risks, and hazard risks shall constitute the main focus, in addition to financial risks. Given the nature of Oil and Gas organisations (critical infrastructures) and their exposure to potential catastrophes and ripple effects (Kauspadiene *et al.*, 2017), the broader perspective of ERM does not seem to apply well. Safety and health management systems are an addition to ERM, due to the potential harm of dangerous substances (Suziyana *et al.*, 2012), pollution, or injuries. For instance, in the case of human error, systems failures need to be covered by ERM as a key priority, and a part of ERM strategy, building a specific risk mindset culture (Jolly, 2003). Thus, the requirements differ, and suggest specific needs to fulfil readiness and assessments to risks (either proactive or reactive). These findings also suggest and confirm the traditional approach to risk (a siloed approach), where only a specific portfolio of risks is considered, and the connection among risks is omitted (Grace *et al.*, 2010). ERM not only helps towards risk mitigation, but also to improve business potential and opportunities, while pertaining risk awareness (Tasmin and Muazu, 2017).

Notwithstanding, these limitations of the traditional RM yield a different perspective regarding what constitutes a priority, with considerable attention being paid to hazard risks (47%). Indeed the ever-growing array of hazards and risks grants industry-specific requirement. Nonetheless, recently, upgrading ERM to a more broadened scope (in contradiction to findings) suggests that Oil and Gas organisations fail to recognise strategic

risks (33%), when trying to establish an enterprise-wide risk oversight. Thus, more attention is paid to the production and environmental risks (climate change, geological risk or human error), rather than the managerial or strategic risks. This suggests a failure to facilitate a risk forecast (COSO and PwC, 2017), holistically for other types of risks (e.g. political risk, price risk, supply and demand risks, cost risks) (Mitchell, Marcel and Mitchell, 2012). While the research findings did not confirm the existence of a framework that is sector-specific and GCC region specific, it partially substantiate the need for a foundation, upon which, organisations may build a risk strategy for a secure and sustainable future. In short, a current adoption of ERM in Oil and Gas organisations is still in its early stages, hence, demonstrating that Oil and Gas organisations remain risk-event driven.

### **6.2.3 Research Objective 3: Analyse current risk challenges facing Oil and Gas organisations**

As confirmed earlier, Oil and Gas organisations' main considerations pertain to hazard risks and the lack of a sector-specific risk management strategy. It has been identified that risk consideration during decision making represents a high percentage (77%), and thus, hiring a CRO and establishing a risk committee is common practice. Internal and external factors represent challenges (as stated by Interviewee 7). However, there is no general agreement between interviewees, a fact which raises questions regarding risk culture. Section B, Chapter 5 has been identified that key challenges in ERM implementation are discussed in the following Subsections.

#### **6.2.3.1 Lack of support from top management**

Evidence provides strong empirical confirmation that top management support is lacking (60%). Focusing on ERM in the oil and gas sector in Kuwait, a lack of alignment with the executive strategy also suggests a lack of sector-specific risk management strategy.

A lack of support from top management has been debated in the literature, hence, the development of an ERM strategy is a continuous process to sustain its applicability (Aabo *et al.*, 2005). Organisation strategy, risk appetite, risk tolerance, and risk ownership are expected to have an integrative aligned approach, to ensure sustainable practices (Ernst and Young, 2015). Regardless of the specificity of an industry, ERM is most often seen as a top-bottom approach, where executives deploy further imperatives for the organisation. For instance, Borison and Hamm (2010) highlight the fragility of RM practices, if a mindset change does not occur within executives first (top-down approach). Fraser, Schoening-

Thiessen and Simkins (2008) also explore the perspectives of executives regarding ERM baseline, as a key performance driver. Despite regulatory specification for some industries (Sarbanes-Oxley Act of 2002) specifying that the need for executives to be supportive (encourages accountability) in improving the organisation's resilient capacity, the oil and gas sector in Kuwait is missing specification. Although these findings are compatible with the general findings of other research, empirical evidence reinforces that a lack of support from top management remains a current problem in ERM implementation.

#### **6.2.3.2 Lack of time, cost and resources**

Lowering costs that are required to implement ERM was emphasised by 50% of interviewees. It has been suggested that developing in-house skills and experiences might help in optimising the costs and leading to competitive advantage (Powel, 1992). Underpinning the right amount of cost (or rather, "cost-effectiveness" by allocating proper resources, readiness and avoiding cost infringements) prolongs the value of implementation (Paape and Spekle, 2012; Hayne and Free, 2014), in order to justify the cost of investment (Schmit and Roth, 1990). Beasley, Pagach and Warr (2008) sought to illustrate the balance between the benefits (value, profitability, performance) and the cost of implementation. ERM reduces cost, however, its maintenance and applicability can be increased by regulatory and market constraints. Implementation of ERM reduces overlapping processes, reduces losses, and optimises resources. This is perceived by the respondents as a burden for the organisation, as either the benefits of ERM are omitted or the ERM practice is inconsistent. ERM is advocated as a prudent way to allocate resources, save on costs, and enhance operational efficiency (Lin, Wen and Yu, 2012); all of which contradict the findings. Indeed, it may increase cost and resources implied in the short-term (Servaes, Tamayo and Tufano, 2009). However, it minimises losses in the long-term (Schmit and Roth, 1990).

Compared with the other half of respondents who did not perceive that lack of time, cost and resources as affecting the ERM implementation, these obstacles relate to the previous one, namely the lack of support from top management.

#### **6.2.3.3 Lack of ERM implementation guidelines**

The literature on ERM generically addresses how ERM should be implemented. Some of the guidelines address the implementation, through the perspective of risk culture (Zubrow, 2009). Generic in their nature, guidelines are influencing RM practices (Kleffner, Lee and McGannon, 2003). Organisations have adopted various practices, however, this does not

mean that the best practices are generated. Taking into consideration that in theory, organisations know how to deal with risks (due to guidelines, frameworks, scholarly literature, and legislation), the events of the last decade reflect that issues have only been partly resolved. Theoretical guidance of implementing ERM varies quite widely among industries. Researchers have paid considerable attention to ERM implementation, while others did to adoption or ERM measurement.

Concerning the research findings, ERM lacks a trend towards maturity, hence, 47% of interviewees found difficulties in integrating risk data across their organisations.

#### **6.2.3.4 Lack of data risk integration across the organisation**

Integrating risk data across the organisation shall be made based on a flow of risk information down from top management. Based on feedback received from interviewees, it seems that the lack of data risk integration across an organisation represents around 30% of the challenges arisen. The flow of information about risk has, as a purpose, not only to sustain an operational side, but also to provide risk support for management and executive boards (Viscelli, Hermanson and Beasley, 2017); which is useful in both, strategic planning and execution, and consequently enhances the decision-making capabilities. The lack of shared risk spectrum oversight, unified capabilities of reporting, analysis and mitigation identified by the research findings support the argument for a change in the way organisations align the units, as well as smoothing the communication and flow of information. One avenue for further research would be to investigate into specific strategies, to integrate and align data risk integration across an organisation, in order to better understand key risk sources (Tower Watson, 2013).

#### **6.2.3.5 Lack of risk management awareness and ERM culture**

Despite significant consideration of literature for ERM culture, the findings revealed that 30% of interviewees considered culture as a barrier to the successful implementation of ERM. Nonetheless, tackling the culture internally could be detrimental to ERM efficiency (Kleffner, Lee and McGannon, 2003). More importantly, previous research confirms that results can differ due to the industry-specific identified culture (Gordon, Loeb and Tseng, 2009; Paape and Spekle, 2012). Culture is certainly a significant component of ERM (COSO, 2016) and a good practice, recommended to safeguard organisational performance, value creation and embedded strategic resiliency practices (McShane and Rustambekov, 2011). The constraints, such as common risk language, beliefs, attitudes, experiences, communication or informal norms, can inhibit an enterprise-wide risk culture (Chenhall, 2003). Thus, human

aspect variables (informal procedures, norms, ethics) are an important consideration for risk management awareness and ERM culture.

#### **6.2.3.6 Lack of understanding of the benefits and challenges of implementing ERM**

Focusing on ERM in the oil and gas sector in Kuwait, 30% of respondents pointed out that understanding the benefits and challenges of implementing ERM pertain to its maturity. Little is known, if acknowledgement of benefits or challenges has immediate effects. From a theoretical perspective, the effectiveness of ERM is constructed over the long term. Similar research by Keith (2014) has identified a higher percentage for the financial industry (50%). Comparing the findings with other studies confirms that the oil and gas sector positions itself in a more mature stage. Benefits of ERM have been investigated as an adoption precursor for organisations (i.e. regarding performance, efficiency, alignment and many others) (Zéghal and El Aoun, 2016). Prior studies have noted the importance of understanding the benefits, as they represent the key driver (Zhao, Hwang and Low, 2015).

#### **6.2.3.7 Lack of alignment between ERM, core organisational strategies and key objectives**

In accordance with the findings, previous studies have demonstrated that a lack of alignment between ERM, core organisational strategies and key objectives can lead to a low performance, inefficiency and poor sustainability (Gresov, 1989; Coltman *et al.*, 2015; COSO, 2016). The research interest in the paradigm of alignment is prevalently considered by academics, at the detriment of practitioners or regulators. Due to its criticality (60%), a consequence of misalignment is broadly discussed (e.g. Womer *et al.*, 2006) and demonstrated, in terms of organisational governance. Therefore, the qualitative findings justify the rationale to develop an implementation framework to align ERM with core organisational strategies.

#### **6.2.3.8 Lack of in-house skills and experiences in ERM implementation**

Regardless of ERM benefits and resources, a lack of qualified in-house personnel to implement ERM and of internal knowledge are clear obstacles in achieving ERM maturity (Zhao, Hwang and Low, 2015; Renault, Agumba and Balogun, 2016). Empirical findings agree that a lack of internal knowledge is an undesirable challenge (46.7%).

#### **6.2.4 Research Objective 4: Review current ERM approaches**

ERM implementation is described by interviewees to be within desirable results (75%) (Question 4). However, the responses are given based on each individual's own perspective, and does not necessarily reflect the reality (possibly biased). Consequently, the interviewees' views of ERM maturity is segregated in two paths, strategic (58%) and optimised (42%), demonstrating consideration for comprehensive maturity (Question 5).

To address the research objective, the interview question (Q6) investigated whether the organisation adopts a common, or a universal framework of ERM. Despite its reliance on ISO 31000:2009 and RMM, KPC has customised an ERM framework, according to its own needs. Within the adoption phase, the organisation spent a significant amount of time (1 year), up to the moment when it identified what is feasible for its organisation. Granting that it follows the guidelines of good practices of both ISO and RMM, an optimised approach developed in-house seemed more feasible. On the other hand, a common strategy centred on the significance of enterprise-wide effectiveness seemed unsuitable and generic for KPC's needs. Identifying suitable ERM frameworks and approaches for organisations remains a current issue (Al-Gharaball, 2012b) in general and in particular a more challenging one for Oil and Gas organisations.

Consideration for in-house developed frameworks has been influenced by changes in the economic environment and market competition; this was regarded as a cheaper way to self-insurance, being an alternative precautionary approach to risk mitigation (Crockford, 1982; Dionne, 2013).

#### **6.2.5 Research Objective 5: To develop implementation framework applicable to Oil and Gas organisations**

This Subsection explicitly addresses the findings of five interview questions from section C, Chapter 5, regarding the development of ERM Strategic Alignment Framework analysis.

##### **6.2.5.1 Importance of aligning ERM with key organisation areas**

Development of internal business philosophies regarding risk oversight is, perhaps, due to the fact that organisations have acknowledged the importance of integration, and any negative outcome of unaligned business strategies. ERM implementation ensures value delivery, appropriate risk culture, accountability for organisational strategy and as such, the alignment with key organisation areas remains a priority (Yaraghi and Langhe, 2011; Aebi *et al.*, 2012; Gatzert and Martin, 2015).



Concerning the findings, the core organisational strategies and key objectives are indicated as valuable by respondents, reaching a value of 53.3%. The widely accepted view is that, to achieve organisational objectives, an organisation needs an alignment between its objectives and areas (e.g. departments). The COSO Internal Control-Integrated Framework (COSO, 2004, 2016) highlights explicitly the importance of *strategic direction* (objectives), as well as *control functions* across an organisation. Reaching an alignment is considered to be a managerial mechanism, because it does not only provide expectations and direction, but also endorses a risk safeguard that contributes to an enhanced way of identifying, understanding, communicating and mitigating risks, at an enterprise-wide level (Miles *et al.*, 1978). The strength of such approach ensures the alignment of ERM with the key areas and objectives of an organisation. Ultimately, the main scope of ERM is to sustain the achievement of organisational objectives, and thus, mature practice.

Enterprise risk awareness and culture (43.30%) has been identified as another key component that contributes towards ERM maturity. The findings of the qualitative data analysis demonstrate that, to achieve ERM strategic alignment, key drivers such as awareness and culture are essential for creating value, and achieving the maturity of implementation. Consensus on the importance of culture and awareness, however, only confirms the recognition of and not necessarily an overall maturity. Thus, culture and awareness can be both, drivers and obstacles, for an organisation.

The results have demonstrated that ERM alignment with business processes is a significant variable (36.7%) in the view of respondents; a fact that withstands a top-down approach at the operational level. Then, again, scholars such as Fraser and Simkins (2007) emphasise that often organisations fail to embed ERM in business processes.

Respondents also considered that Key Risk Indicators (KRIs) and Key Performance Indicators (KPIs) (43%) are significant in measuring results. It may be noted that such indicators represent a proof of progress, and a monitoring function that identifies underperforming areas (COSO, 2010). A KRI is a statement of how strategy, business architecture, control functions or processes serve an organisation (Scarlat, Chirita and Bradea, 2012). KRIs are metrics that define an organisation's risk profile, through a standardised method. Harmonising both KPIs and KRIs is recommended in the literature (Scarlat, Chirita and Bradea, 2012), in order to provide not only risk profile or risk likelihood, but also to address how the organisation performs in achieving its goals, and respectively, if it provides value (Scarlat, Chirita and Bradea, 2012). The combination of KRIs and KPIs aims to deliver

a feedback of the results, to define interdependencies, to help prioritise decisions, and to optimise critical functions for transparency (Scarlat, Chirita and Bradea, 2012; Fraser, Simkins and Narvaez, 2015). The fact that the respondents consider KRI and KPI as significant variables indicate that performance and risks are continuously monitored, which denotes an organisation's intention to optimise resources and work levels.

At the same time, non-significant variables, such as corporate risk governance (18.9%), were found, however, it is necessary to analyse further if the practical perspective of aligning ERM with key organisation areas is in agreement.

#### **6.2.5.2 Importance of internal environment on ERM framework implementation**

This Subsection gives an account of Question 2 (Section C, Chapter 5), which investigated the role and the importance of internal organisational factors that have affected the implementation of ERM. Based on importance, the interviewees ranked the factors, and the key factors identified are outlined below based on their relevance:

##### 1) Risk oversight (46.7% - critical)

Organisational oversight is driven by the strategic planning of an organisation (Althonayan *et al.*, 2011), and represents a holistic approach to dealing with emerging risks (Majdalawieh and Gammack, 2017). Risk is a part of any organisation's activity, and poor risk oversight practice can lead to siloed approaches, higher risk exposure or even failures (i.e. financial failures of 2008-2009) (Jorion, 2009). More importantly, the risk oversight needs to be aligned with an organisation strategy (COSO, 2016), and lastly implemented across the whole organisation. An oversight function represents an essential function within an organisation, and empirical findings articulate the highest consideration from interviewees. Known as a top-down due-diligence approach that is wide, risk oversight proposes to lower risks and exploit opportunistic risk, based on informed decisions (Agarwal and Ansell, 2016; Andren and Lundqvist, 2017). Consequently, a mature risk oversight shall ensure a holistic understanding of all risks, through an enterprise level function. Thus, the risk oversight's main role is to ensure the continuous monitorisation across a large spectrum of risks; a fact recognised within the practice.

##### 2) Appetite aligned with risk tolerance (43.30% - critical)

After risk oversight, the appetite alignment was articulated by respondents as critical for an organisation. The importance of aligning appetite with risk tolerance formalises an optimal

approach to risk and return (Society of Actuaries, 2012), as a balance between its willingness and capability to cope with risks, and achieve strategic objectives. Findings demonstrate that interviewees are aware of what happens when the thresholds to risks exceed (Farrell and Gallagher, 2014). The findings are similar to scholars', but the criticality in these findings is that a large number of respondents understand that limiting risk and tolerating risk have a high impact.

### 3) Strategies and objectives (33.30%-critical, 66.7% -very important)

Despite being acknowledged as critical, other interviewees considered that strategies and objectives are essential (66.7%). Among all variables, the 66.7% was the highest percentage registered. Overall, the empirical evidence suggests that respondents recognise their guidance role.4) Mission, vision and core values (33.3%)

Each organisation has its own specificity; accordingly, its mission, vision and core values define its business philosophy. The way organisations select strategies and set objectives further defines its risk oversight options. Nevertheless, each aspect interrelates, and thus, the achievement of mission, vision and core values depend on risk oversight support. Therefore, achievement rests on how it aligns with an organisation's strategy and objectives, as well as how it aligns with its risk oversight (COSO, 2017).

The empirical findings confirm that ERM is influenced by main perspectives and pressure of organisational interpretation. For example, it drives specific actions and behaviour towards risks, thus, ERM is exerted and accompanied by mission, vision and core values as drivers.

### 5) Corporate governance (20%)

In general, corporate governance sets the rules and regulations that apply to processes, systems, practices and procedures. Nonetheless, corporate governance establishes accountability, assurance and structure in decision making (Dabari, Kwaji and Ghazali, 2017). ERM is actively considered in corporate governance, and included in governance functions that are business-centric (McShane, 2018). The findings have indicated that there is a positive relationship between corporate governance and ERM, even though interviewees have shown insignificant consideration.

### 6.2.5.3 Role and effect of risk culture in ERM

Question 3 (Section C, Chapter 5) examined the role and effect of risk culture in ERM (FRAM\_CULT). Specifically, the following section structures the factors, based on criticality percentage.

#### 1) Information sharing (73.3%)

Ideally imbedded in ERM, the risk culture strengthens oversight capability, awareness, and responsibility, and frequently drives a top-down approach (Roeschmann, 2014). A significant proportion of interviewees appreciate that sharing information brings benefits to all parties involved. Rodriguez and Edwards (2010) argued that information sharing is, in fact, knowledge management that is done through people, processes and technology. Rodriguez and Edwards' (2010) view ascertains that the human component is the most important. Perhaps, such a high percentage demonstrates that interviewees understood through personal experiences the value of communicating and sharing valuable information, across business units. Moreover, information sharing is a function of ERM that constructs a holistic capability, to respond to risks (Arnold *et al.*, 2014). It facilitates coordination and collaboration building trust.

#### 2) Risk mindset (66.70%)

Advancing a risk mindset implies understanding the overall risk picture, from both perspectives of risk-averse and opportunistic risk (Rochette, 2009). ERM focuses on the strategic risk mindset, to perform analysis with various scenarios. Such scenario examination helps practitioners to think in advance, and encourages an understanding of potential threats and losses. Thinking forward helps the organisation to perform better in real life events, and helps to minimise losses; hence, there is an exercise practice for resiliency (Fraser, Fraser and Simkins, 2010). Supportive for a risk mindset is also the principles of change management incorporated in ERM, which articulates a sustainable ERM (Agarwal and Ansell, 2016).

#### 3) Accountability (50%)

Agreement among scholars seems to define risk accountability from the perspective of ownership (Rochette, 2009). Prior studies define accountability as twofold: individual responsibility and organisational responsibility. In the first case, it focuses on managerial and individual behaviours, roles and tasks. In the second case, it evaluates the performance and progress, regarding objectives achievement. For instance, COSO (2015, p. 3) provides key arguments referring to COSO Internal Control — 2013 Integrated Framework, which

endorses internal control principles of ‘control environment’ as it: 1) ‘demonstrates commitment to integrity and ethical values’; 2) exercises oversight responsibilities; 3) establishes structure, authority, and responsibility; 4) demonstrates commitment to competence; and 5) enforces accountability.

However, the accountability of risk remains at the organisational level, with responsibility distributed in different business functions. Therefore, the risk culture is an enabler to align processes and people, as well as assuring the correlation between directions and implementation. The findings of this research prompt a re-think of managerial implications in ERM practices. Interviewees argued that accountability drive a risk culture across the organisation, and represents a pillar for good practices. Thus, the interviewees acknowledged that the accountability for performance and progress creates good practices and responsiveness. Such accountability can be measured through audit, performance assessments or other mechanism, to assess the level of coordination.

#### 4) Transparency and communication (50%)

Enterprise-wide communication is a practice recommended by COSO Framework of 2004 (COSO, 2004). Significant association for communication is depicted in the 6<sup>th</sup> internal environment element of COSO framework. COSO stresses on the importance of communication and sharing information across the organisation, in a timely manner. It is clear from the findings that interviewees understood how transparency and communication enable performance. Such findings confirm with Arena *et al.*'s (2010) perspective that communication is a standardised mechanism that supports risk integration. Through the channels of internal communication, ERM safeguards control and reporting towards senior management. It also ensures that the information is communicated to business units, the fact that supports collaboration, breaking down misperceptions and siloed approaches.

The findings of this research support the view that there is a positive relationship between communication and ERM effectiveness.

#### 5) Understanding of risk appetite and tolerance (46.60%)

Risk appetite refers to an organisation statement, regarding its maximum risk profile that it is willing to take (Rochette, 2009). Considered by respondents as a critical factor, a risk appetite sets the boundaries of tolerability, in terms of risk degree and quantity (Rochette, 2009; Oliveira *et al.*, 2018). An organisation's risk appetite outlines how much risk is likely to be taken, in exchange for value and goals achievement (COSO, 2012; Rittenberg and Martens,

2012). It is about understanding what level of risk is implied and accepted, in return for an opportunity. Overall risk appetite plays a key role in achieving organisational objectives and strategies. Thus, it needs to be communicated and continuously updated (COSO, 2012). Despite the difficulty to set a risk appetite (Viscelli, Hermanson and Beasley, 2017), the interviewees (46.6%) pinpointed that it represents a noteworthy factor for an organisation culture, as well as for the research framework. In addition, metrics, such as KRIs identifies whether the risk is within acceptable levels (Lam, 2017).6) Respecting norms and ethics (30%)ERM philosophy drives processes, to ensure value protection and value creation through the governance of ethics (Demidenko and McNutt, 2010; Roeschmann, 2014). Organisations ethics represent a subset of ERM, which ascribes accountability in dealing with a portfolio of risks (Demidenko and McNutt, 2010). Therefore, the ethical code is embedded within both, the ERM strategy and the organisational strategy. As a rule, a culture of ethics is based on a code of conduct that, once mature, can become a competitive advantage (Rezaee, 2007; Demidenko and McNutt, 2010).

In considering the norms and ethics, this research found that 30% of interviewees consider that respecting ethical values is critical. Accordingly, successful governance of ERM depends on diligent and efficient behaviour. Consequently, ethical behaviour depends upon a risk culture, and a standard of behaviour. That does not only promote legal compliance, but also governs expectations, ethical practices, diversity, integrity and ethical values, which maintains a top-down approach for accountability and assurance (Demidenko and McNutt, 2010). It represents a commitment that people who implement ERM will adhere to its principles and norms, to assure legitimacy, trust and commitment to performance (Caldarelli *et al.*, 2012)

In this regard, Caldarelli *et al.* (2012) emphasise that norms and ethics are a significant component of ERM, and thus, there is lack of empirical evidence. This research examines the relationship between ERM and ethics and, offers a descriptive account of its value in implementing the framework.

#### 7) Organizational change management (23%)

Organisational change management refers to how good practices of management are reinforced, for the purpose of transformation, optimisation and resiliency (Fraser and Simkins, 2016; Prioteasa and Ciocoiu, 2017). Embedded in the old perspective of consultancy, change management aspires to deliver transformation for value creation and

behaviour change (Banasiewicz, 2015). Change management principles are a subset of ERM, which ensures that organisation objectives, risks and treatments are addressed. It ensures that information is shared across the organisation, and activities are employed and optimised at the highest level (Fraser and Simkins, 2016). Moreover, it focuses on efficiency and enhancement in the direction of return on investment (ROI). Thus, change management drives meaningful change of both, processes and behaviours (people).

Implementing ERM is an acceptance of organisational change management of RM practices (strategic change), empowering an organisation resiliency (Jabbour, 2013). Under these principles, the results show that only 23% of interviewees realise that change process is central. Subsequently, effective strategic changes are made through ERM strategies, guidance and goals (Agarwal and Ansell, 2016). From the acknowledged findings, understanding change management side of ERM remains infrequent in practice, in organisational culture. Not surprisingly, literature has indicated that often organisations fail to understand that ERM is a change management process that implies a holistic approach, of not only processes, but also a change in people's attitude towards change (Prioteasa and Ciocoiu, 2017). Understanding the change management principles applied by ERM cannot be reflected as a significant factor in interviewees' view.

In summary, the existence of a risk culture mindset was significantly stated by interviewees, through different lenses (information sharing, risk mindset, accountability, communication, risk appetite, norms and ethics). However, despite various percentages on each factor, they all interrelate and represent an attitude towards risks. Besides, they captured organisational ethical values, expected behaviours and declared how risk is understood (COSO, 2017).

#### **6.2.5.4 Role and effect of ERM infrastructure in ERM framework implementation**

Question 4 from Section C (Chapter 5) investigated the role and effect of ERM infrastructure, in ERM framework implementation (FRAM\_INFR).

##### **1) ERM supporting tools and technologies (73.30%)**

Most of the interviewees understand that ERM supporting tools and technologies are critical components of ERM infrastructure. An ERM technology purpose is to enable the implementation of ERM, and to support its feasibility in the long-term. The strength of using tools and technology leverages automation of risk practices, and enables a more robust structure to manage risks (Francis and Paladino, 2008).

## 2) ERM policies and framework (63.40%)

A policy represents a statement to explain responsibilities and warrants trustworthy practice (ISSA, 2004). Consequently, a policy must comprise and state the organisational philosophy, attitude, control and monitoring activities that ensure the alignment of strategy and objectives (CESG, 2012). Both policies and framework are a part of control activities that guide the organisation to respond to risks effectively (COSO, 2004). The policy is the enabler that sets the scope (statement), objectives, and vision of ERM; and the framework complements the policy by its practices and processes (Chapman, 2011). Furthermore, the policy explains how the framework applies and how processes and actions shall be undertaken (Chapman, 2011). The research findings advocate an approach that is facilitated by policies and framework, and represents a recognition of their impact on the security practice. To become a resilient organisation, the interviewees realised the implications of policies and framework.

## 3) Risk data (53.30%)

With regards to the research findings, 53.3% of interviewees were aware that data are critical to understanding the risk holistically. Within this line, Moody's Analytics (2014) emphasise the value of having raw risk data, and have tools to adjust them, transforming information and later on, business intelligence to support business functions. Deficiencies can impede ERM implementation, and thus, having access to data across the organisation represents an aggregation of meaningful information (Moody's, 2014). Although it remains a challenge for some industries (e.g. financial sector), data aggregation helps organisations to create account of practices, enhance resiliency, improve the speed of information flow and advocate stronger ERM capabilities, along with accuracy and integrity of information, clarity and usefulness (Bank for International Settlements, 2013).

## 4) Oversight structure (40%)

The risk oversight structure plays a key role in aligning communication, functions and practices, connecting all with organisation objectives (Fraser and Simkins, 2010). It represents a component of ERM, which supports strategic coordination of structure, practices and responsibilities (Andrén and Lundqvist, 2017). The findings indicated that there was a positive relationship in the view of interviewees between oversight structure and ERM implementation.

## 5) ERM governance (40%)



The evidence shows that ERM governance is critical for 40% of interviewees. These findings suggest that in general, risk oversight, risk reporting (control) and oversight structure (delegating responsibilities) are key pillars for ERM (COSO, 2017; Andrén and Lundqvist, 2017).

#### **6.2.5.5 Role and the effect of ERM integration in ERM**

Question 5 investigated the role and effect of ERM integration in ERM (FRAM\_INTEG), by looking into five factors.

##### 1) Strategic planning (63.30%)

Successful ERM aligns strategic planning with risk oversight and risk assessment, to ensure integration (Lam, 2017). In general, integration is a top-down approach that incorporates strategy and objectives within strategic planning (COSO, 2017). Strategic planning is a critical enabler of risk integration, as pinpointed by 63.3% of interviewees. One possible reason for this high percentage could be the advancement of various practitioners for standards and guidelines.

##### 2) Operational processes (50%)

Operational processes have been found to be a critical enabler of risk integration. Operational processes support ERM, and similarly to strategic planning, shall incorporate risk assessment (Lam, 2017). An operational process is a business capability for business continuity and effectiveness, and 50% of interviewees had place an emphasis on operation processes, understanding their criticality.

##### 3) Enterprise-wide communication (43.30%)

As previously discussed in Subsection 6.2.5.3, communication plays a key role in the risk culture of ERM. Furthermore, it represents also a critical enabler of risk culture. According to the analysis of the collected data, it can be stated that enterprise-wide communication is noteworthy by interviewees. The findings are also confirmed by literature, henceforth, communicating risks between business units promotes the awareness and accuracy of information (Oliveira *et al.*, 2018). Moreover, it ensures a continual process of obtaining valuable information that forms a reporting process across the organisation, connecting other business functions (COSO, 2004; COSO, 2017).

##### 4) Structure and ownership (40%)

Structure and ownership refers to the organisational structure, and how process and roles are defined. Chenhall (2003) describes processes and roles as an administrative mechanism to deliver performance. In the view of the interviewees, 40% treat structure and ownership as critical for enabling risk integration.

#### 5) Performance management (26.60%)

In spite of preceding discussions about the benefits of ERM, only 26.60% of interviewees consider performance as critical. Much of the current literature revolves around the benefits of the contribution of ERM towards organisational performance (Gordon *et al.*, 2009). Nevertheless, performance is an integrative part of ERM, an objective and an outcome (Lin, Wen and Yu, 2012). The prominent contribution of performance evaluation lies in organisational capability, to receive visibility and changes (Lalitha and Nandini, 2015). Likewise, performance measurement can draw attention to weaknesses in managing risks (Lalitha and Nandini, 2015). By this method, risks become prioritised based on severity and context (COSO, 2017), and thus, the impact on strategy and objectives is controlled.

### 6.3 Synthesis of empirical findings

The empirical findings identified represent a knowledge extension in the context of Oil and gas industry. By addressing the problem through research objectives, this study reviewed empirical evidence to explore the key ERM risks, the ERM challenges, the approaches towards risk, and the factors that form an effective ERM framework for Oil and Gas organisations. Foremost, Research Objective 1 is addressed in the Chapters of literature review, which formed the foundation for theoretical legacy. In order to gain a more comprehensive understanding of the findings, this section synthesises the main empirical findings.

Table 6-3 Empirical evidence

<b>Research Objectives</b>	<b>Key variables</b>	<b>Empirical findings</b>
Research Objective 2: Analyse current adaptation of ERM in Oil and Gas organisations	ERM key risks	Hazard risks 53%, IT risk 47%; operational risk 40%; compliance risks 20%; strategic and marketing risk 33%.
Research Objective 3: Analyse current risk challenges facing Oil and Gas organisations	Key challenges in the implementation of ERM	Lack of support from the top management 60% Lack of time, cost and resources 50% Lack of the ERM implementation guidelines 47% Lack of data risk integration across the organisation 30% Lack of risk management awareness and ERM culture 30% Lack of understanding of the benefits and challenges of implementing ERM 50% Lack of alignment between ERM, core organisational

		strategies and key objectives 60% Lack of in-house skills and experiences in ERM implementation 46.7%
Research Objective 4: Review current ERM approaches	ERM maturity	Reliance on ISO 31000:2009 and RMM ERM implementation is described by interviewees to be within the desirable results (75%) The interviewees' views of ERM maturity is separated in two paths, strategic (58%) and optimised (42%) which demonstrate consideration for comprehensive maturity.
Research Objective 5: To develop implementation framework applicable to Oil and Gas organisations	Aligning ERM with key organisation areas	Enterprise risk awareness and culture (43.30%) ERM alignment with business processes is a significant variable (36.7%) Key Risk Indicators (KRIs) and Key Performance Indicators (KPIs) (43%) are significant in measuring results corporate risk governance (18.9%)
	Internal environment	1) Risk oversight (46.7% - critical) 2) Appetite aligned with risk tolerance (43.30% - critical) 3) Strategies and objectives (33.30%-critical, 66.7%-very important) 4) Mission, vision and core values (33.3%) 5) Corporate governance (20%)
	Roles and the effect of risk culture in ERM	1) Information sharing (73.3%) 2) Risk mindset (66.70%) 3) Accountability (50%) 4) Transparency and communication (50%) 5) Understanding of risk appetite and tolerance (46.60%) 6) Respecting norms and ethics (30%) 7) Organizational change management (23%)
	Roles and the effect of ERM infrastructure in ERM framework implementation	1) ERM supporting tools and technologies (73.30%) 2) ERM policies and framework (63.40%) 3) Risk data (53.30%) 4) Oversight structure (40%) 5) ERM governance (40%)
	Roles and the effect of ERM integration in ERM	1) Strategic planning (63.30%) 2) Operational processes (50%) 3) Enterprise-wide communication (43.30%) 4) Structure and ownership (40%) 5) Performance management (26.60%)

Source: The Researcher

The empirical findings, outlined above in Table 6-3, represents critical factors in the effective implementation of ERM. The findings are based solely on interviewees' responses from Oil industry organisations. These findings offer suggestive evidence to understand the factors that affect ERM implementation (Research Aim 1), and also contributed in identifying the key variables in the implementation of a framework that is applicable to Oil and Gas organisations (Research Aim 2).

#### 6.4 Research Framework validation

Overall, it can be concluded that the empirical research addresses four research objectives to strengthen the validity of the Framework. The initial discussion regarding the ERM

alignment framework has been presented in Section 3.5, Chapter 3. The Framework, presented in Chapter 3, was derived from the literature review, the literature gap and the ERM alignment frameworks gaps. This Section validates the initial framework, in the view of empirical findings.

Accordingly, Objective 2 explored the current adoption of ERM in Oil and Gas organisations, and identified that the main risks are hazard risk, IT risk, operational risk, compliance risk, strategic risk and marketing risk. Objective 3 analysed the current risk challenges facing Oil and Gas organisations, and identified eight key challenges. Objective 4 reviewed the current ERM approaches to understand RM maturity, and Objective 5 explored variables and factors of the framework, all of which contributed to the achievement of research objectives.

In bridging theoretical and empirical findings, it has been identified that the Framework's key deliverables encode strategic, structural, relational and control deliverables.

D1 Portrays mission, vision and core values

Advocates an approach that is portrayed in mission, vision and core values and facilitated by policies and framework to attest the security practice

D2 Supports Strategies and objectives

Supports the alignment between ERM, core organisational strategies and key objectives

Provides a continued reinforcement of core organisational strategies and key objectives. Prior literature and interviewees' analysis have outlined a strategic equilibrium need.

D3 Offers support to adapt to various risks

Establishes ERM support through tools and technologies to enable implementation of ERM. The empirical evidence suggested the need to automate some processes in ERM implementation

D4 Assures support from top-bottom

Ensures accountability in delegating responsibility for risk oversight. Management shall understand strategically how ERM facilitates the achievement of risk resilience, across business units. Compatible with the initial findings within the literature, the empirical findings endorse the value of engaging business leaders and managers, to ensure a strategic vision (alignment of ERM with organisation strategy and objectives)

D5 Provides ERM implementation guidelines

D6 Leverages the understanding of the benefits and challenges of implementing

- Outlines a systematic communication across an organisation of both benefits and challenges of implementing ERM on a regular basis
- D7 Advocates data risk integration across the organisation  
Constructs data risk integration across the whole organisation
- D8 Establishes structure and ownership  
Articulates a risk oversight structure to warrant the alignment of functions, processes, practices and hierarchy. Empirical data have indicated a positive relationship between oversight structure and ERM implementation, enabling risk integration
- D9 Develops risk management awareness and ERM culture  
This deliverable is deployed through other seven sub-deliverables, because risk culture is an enabler of aligning directions and implementation, processes and people. Due to its complexity, each sub-deliverable is addressed separately. This is also a key strength of the present study, because it provides the key interrelated factors related to risk culture.
- D9a Information sharing  
Establishes a mechanism for information sharing across the organisation, to ensure a holistic capability. Both theory and practice highlighted the importance of information sharing as a way to facilitate coordination, collaboration and risk resiliency capacity
- D9b Risk mindset  
Demonstrates forward thinking in understanding the overall risk exposure. The view that both perspectives of risk-averse and opportunistic risk are essential to perform the analysis is in line with both literature and practice
- D9c Accountability  
Requires risk ownership for performance and progress regarding objectives achievement
- D9d Transparency and communication  
Creates enterprise-wide communication across the organisation, on a continuous basis through all communication channels. Likewise, policies and procedures shall be communicated and acknowledged. Also, a formal procedure shall be implemented centrally to standardise and reduce communication channel risks. The ERM Alignment Framework augments communication between multi-level management as an enabler of engagement
- D9e Understanding of risk appetite and tolerance  
Ascertains risk appetite and tolerance as part of organisational culture

D9f Respecting norms and ethics

Reinforces the rules and governance of ethics, to ensure that strategy and organisation strategy are accomplished

D9g Organisational change management

Drives meaningful change of both processes and behaviours (people) to provide value creation. Although the literature has indicated that often organisations fail to understand that ERM is a change management process, the empirical findings demonstrate that interviewees acknowledge its importance

D10 Optimise time, cost and resource

Enables periodical assessments to provide an optimised allocation of resources.



and external factors are regrouped, hence, it can influence not only the ERM infrastructure, but also the organisation mission, strategy or risk oversight.

This framework actually relates to the Oil and Gas industry, as it considers the internal and external factors, as well as the ERM culture that is based on, and applicable to the oil and gas industry. This framework is different from other models as discussed in Chapter 3, Section 3.6, in that it is derived from the identified literature gap, existing theory, the practical insights from the oil and gas industry, the evaluation of current ERM frameworks and the primary data collected.

## **6.5 Chapter Summary**

This Chapter explored the implications of empirical findings and the level of agreement with the literature. The analysis was drawn upon the guidance of research aims and objectives. Findings showed that perspectives on how risk matures in Oil and Gas organisations varied among interviewees. It has been identified that Oil and Gas organisations lack specific sector guidance for ERM implementation. Moreover, the results emphasised that the key challenges in implementing ERM ranged from (a) lack of support from top management (60%), lack of time, (b) cost and resources (50%), (c) lack of the ERM implementation guidelines (47%), (d) lack of data risk integration across the organisation (30%), (e) lack of risk management awareness and ERM culture (30%), (f) lack of understanding of the benefits and challenges of implementing ERM (50%), (g) lack of alignment between ERM, (h) core organisational strategies and key objectives (60%), and (i) lack of in-house skills and experiences in ERM implementation (46.7%). In the context of key challenges and various factors that impede proper ERM implementation, this Chapter considered exploring how ERM aligns with key organisation areas, infrastructure and risk culture contribution towards the successful ERM implementation.

Overall, it can be concluded that the contribution of empirical findings leverages the derivations that contributed towards the Framework validation. On these grounds, an ERM Strategic Alignment Framework has been correlated with various strands that define the framework position within current research. Moreover, the Researcher recommends an implementational guidance model for the proposed ERM Framework.

The next Chapter concludes the research, by reiterating main findings and how they correlate with the research objectives. It also highlights the research contribution, limitations and suggestions for further directions of research.



## **Chapter 7 : Conclusions and Recommendations**

### **7.1 Introduction**

This Chapter concludes with research recommendations, and discusses how this particular research contributes to the body of knowledge. The Chapter starts by outlining what has been achieved in terms of aims and objectives, and justifies how the main research questions were answered, concluding with the main findings of the study. Furthermore, this Chapter validates the implications of the existing gaps in the current literature, and finally, provides a perspective for further research and analysis.

Then, the Chapter moves into clarifying the limitations of this research, and whether these limitations affected the achievement of the objectives and the resolution of research questions. Next, the Chapter explains the significance of this study in terms of academic contribution and knowledge. Finally, it concludes with an articulation of conclusions, and further research recommendations.

### **7.2 Aims and Objectives**

This study was conducted according to the following research aims:

***Research Aim 1. To investigate the factors affecting the ERM implementation***

To fulfil this aim, an investigation of the ERM practices was conducted through analysing the literature and the empirical evidence from interviews, relying on the qualitative data collection methodology. To address the first research aim, four research objectives were directed:

*Research Objective 1. Review current literature;*

Previous literature has been explored to identify the key contributions to ERM. The theoretical assumptions and the research gap create the basis for understanding the context of the existing literature, and explains how the research problem can expand the current knowledge. It contributes to understanding what factors affect the ERM implementation, and how these correlate with the framework for Oil and Gas organisations. This research objective constitutes only a partial derivation of the theoretical background.

*Research Objective 2. Analyse current adoption of ERM in Oil and Gas organisations;*

This objective was addressed in the context of empirical data gathered from interviews, and represents the first phase of identifying primary data. The findings outlined different levels of ERM maturity (e.g. undeveloped, formalised, established, optimised and strategic), and

revealed that the most significant risks are hazard risks, as expected. However, compared with other findings, this research shed the light on specific requirements, and demonstrated that, although generic principles can be applied, Oil and Gas organisations are prone to hazard risks much more than any other industry. Correspondingly, Oil and Gas organisations need to adapt to some other additional risks, e.g. IT risk, operational risk, compliance risk, strategic and marketing risk.

*Research Objective 3. Analyse current Risk challenges facing Oil and Gas organisations;*

Risk consideration during the decision making represents a high percentage (77%), however, the key challenges to the implementation of ERM were identified as valid impediments. Current challenges were revealed to be:

- Lack of support from top management
- Lack of time, cost and resources
- Lack of the ERM implementation guidelines
- Lack of data risk integration across the organisation
- Lack of risk management awareness and ERM culture
- Lack of understanding of the benefits and challenges of implementing ERM
- Lack of alignment between ERM, core organisational strategies and key objectives
- Lack of in-house skills and experiences in ERM implementation

*Research Objective 4. Review current ERM approaches.*

This research objective identified that the organisation disregarded to adopt a common or universal framework for ERM. The main guidelines of good practices for ERM are ISO 31000:2009. The review of current ERM approaches demonstrates the organisation's consideration for strategic maturity.

*Research Aim 2. To develop implementation framework applicable to Oil and Gas organisations.*

This research aim was achieved through research objective 5.

*Research Objective 5. Develop implementational guidance for the proposed ERM Framework.*

The process of developing the framework comprises phases of exploring variables and factors of the framework. It derived from understanding the importance of aligning ERM with key

organisational areas, and understanding the internal environment, organisational structure and roles and responsibilities among many others.

### 7.3 Research Questions

RQ1: How current ERM approaches are applied to the Oil and Gas sector?

This question was addressed through all research objectives, identifying that the current ERM approaches lack practical direction in their attempt to manage risks effectively. It has been identified that (1) unclear risk culture, (2) unclear understanding of the link between aligning ERM with strategy and decision making, (3) lack of consideration and understanding of both external and internal environments, (4) lack of implementational guidance and practical direction, and (5) ambiguity in the ERM concept and lack of support from senior management are all validating that current practices fail to be tailored to the specific industry.

RQ2: *What are the key risk challenges faced by Oil and Gas organisation in general and in Kuwait in specific?*

Within the theoretical exploration of the key challenges faced during implementing ERM, the study identified that there is a lack of literature that focuses on Oil and Gas organisations in Kuwait. Therefore, the key factors acknowledged are extracted from the general literature. Some obstacles reduce the potential of ERM (see Table 7-1 below).

Likewise, within the empirical findings, the interviewees agreed majorly on the barrier factors. However, and despite the industry-specific risk exposure (internal and external), the research also emphasised that the absence of guidance hinders the ERM implementation potential.

Table 7-1 General and specific key challenges in implementing ERM

Literature gaps	Key themes	Industry key challenges	Key themes
The need for a strategic alignment between ERM framework and the organisational environments, both internal and external;	Strategic alignment	Aligning ERM with key organisation areas	Internal environment
The need for senior management support and commitment;	Accountability	Lack of support from the top management	Accountability
The need for allocating sufficient resources;	Resource allocation	Lack of time, cost and resources	Resource allocation

The need for relevant guidance for implementing ERM framework;	Implementation guide	Lack of the ERM implementation guidelines	ERM implementation guide
The need for an alignment framework that integrates with processes, objectives, strategy and culture the practice of ERM.	Holistic approach	Lack of alignment between ERM, core organisational strategies and key objectives; Lack of data risk integration across the organisation.	Holistic approach
The need for recognizing the potential benefits arising from the ultimate implementation of ERM practice.	ERM benefits	Lack of understanding of the benefits and challenges of implementing ERM	ERM benefits
N/A	N/A	Lack of in-house skills and experiences in ERM implementation	Role and effect of risk culture in ERM  Role and effect of ERM infrastructure in ERM framework implementation  Role and effect of ERM integration in ERM

Source: The Researcher

As noted above, in Table 7-1, the lack of in-house skills and the impact of culture, infrastructure and ERM integration have been identified as significant factors influencing the implementation of RM in Oil and Gas organisations.

#### **7.4 Limitations of the Study**

This research was conducted by focusing only on one case study. Thus, the findings reflect a single organisational perspective, that of Kuwait-based Petroleum Corporation (KPC), and thus, research findings are limited. Therefore, further studies shall include larger number of organisations, to pattern a comparison of practices.

Another potential weakness of the research is that the geographical location of the study has limited the research, with regards to generalising the findings.

#### **7.5 Contribution of the research to the body of knowledge**

This study has actually contributed theoretically to the existing literature of ERM, and practically to the implementation of ERM to the Oil and Gas industry. The study presented a critical deep analysis of the existing literature on ERM, including the academic studies as

well as the industrial reports. Investigating the influence of the internal as well as the external environments on the application of risk management is another contribution of this study to the knowledge. The research has addressed the gap existing in the empirical research, by focusing on industry-specific implementation barriers, through combining both, theoretical and empirical findings. This approach provides the rationale and value for understanding the factors, by refining the list that inhibits the ERM implementation. The study provides empirical evidence to demonstrate the shortcomings and the key success factors of ERM implementation, upon which organisations may build their new risk strategy, for a secure and sustainable future. And therefore, another contribution of the study is the development of an ERM Framework that is specific to the nature of the Oil and Gas industry, and its role to guide the approaches of ERM, the requirements, and the procedures. The study incorporates various theoretical perspectives to overcome granular approaches. Another strength of this research is that it represents a comprehensive examination of the risk culture. It provides an understanding of how risk culture and its sub-factors interrelate and impact the ERM implementation. Moreover, this study is differentiated from other studies which often implemented the quantitative approach, by adopting a qualitative data collection method. As for the industrial contribution, the research has specifically addressed the problems encountered in the Oil and Gas Industry, in Kuwait. The framework developed can not only be used by KPC, but also with other national and regional organisations, operating in the Oil and Gas industry, in Qatar, Saudi Arabi, Oman, and Emirates. Despite its specificity to the context under study, a slight customisation of the framework's components will make it more practical for other organisations to adopt it. After all, the GCC region share the political, economic, supply, cost, and technological risks, which grants the framework more effectiveness, outside the geographical boundaries of KPC.

## **7.6 Recommendations for future studies**

As already stated throughout the research, the ERM literature lacked practical implementation guidance that is specific to the Oil and Gas Industry, in the GCC region in particular. This research has successfully addressed this gap, by building an enterprise risk management framework that is comprehensive, providing management with guidance as to the implementation process in the Oil and Gas organisations. As stated in the limitations section, further research can be undertaken to examine this framework's applicability for geographical areas, other than the GCC countries, which reflects significantly into this study's broader contribution.

## 7.7 Chapter Summary

This research made sense why the ability to cope with uncertainty is relevant for business organisations in the oil and gas industry, especially as the nature of their operations is by default, challenged by a diverse set of hazards and risks.

Thus, this study had two-fold aims. First, it proposed to explore whether specific factors affect ERM implementation. Secondly, it probed the findings that emerged from data analysis to develop an implementation framework, applicable to Oil and Gas organisations.

By relating to the last 20 years, ERM had progressed significantly, impacting the differentiated identity of organisations, by affecting the particular governance processes. It has been argued that despite this progress, all contributions made to the literature relating to ERM have only been descriptive in their nature, being mainly visionary, rather than implementational. The gaps identified, by critically reviewing the existing literature, involve the lack of a clear risk culture aligned across the organisations; an unclear understanding of the link between aligning ERM with strategy and decision making; a lack of consideration and understanding of both external and internal environments; a deficit of implementational guidance and practical direction; an ambiguity in the ERM concept which leads to insufficient allocation of resources and lack of support from senior management and the board; and a lack of the managerial confidence in the existing practices of risk management. If these issues of the ERM are not successfully tackled, the ERM cannot fulfil its benefits. Moreover, as the ERM literature is still falling behind, regarding the needed practical guidance, the Researcher, therefore, recommended the development of a holistic ERM framework, tailored to the Oil and Gas industry, as a proposal to overcome the shortcoming of the current literature. More generally, these findings are consistent with prior research, showing that organisations continuously aim at managing risks arising from the operating environment. Thus, the management is in greater need for an implementational guide that direct the practical steps of ERM.

Referring to practice, the broad implication of the present research is that the existing frameworks have been investigated, detailing other authors' evaluations of the limitations of each existing framework, concluding with the need to have a comprehensive, practical guiding framework for the Oil and Gas industry. Within the empirical findings of this research, it was emphasised that conflicting practices make organisations continue to lack awareness about the strategic value of ERM. And thus, perhaps, the main focus of senior

management should go towards the full adoption of ERM, to ensure sustainable positive business performance.

Consequently, the framework can assist organisations in upgrading risk management processes, and to deal with the dynamic environment by aligning the key factors with the strategic risk approach. The key aim of the Framework is to ensure a consistent organisational performance, by reducing the volatility of their portfolios, and increasing the predictability of profitability. It also aims to manage possible risks that could have negative impacts on the organisation's performance, by improving methods used to achieve business goals and objectives.

In undertaking the research, the qualitative paradigm was found to be applicable, because it matches the Researcher's ontological and epistemological stances. Mixed-method approach was implemented to research the social phenomenon that involves the ERM in Kuwait-based Petroleum Corporation (KPC). A single perspective has been taken into account in data-gathering, due to time constraints and resources. It has been found that the organisation under study has been following a systematic approach to implementing ERM, which encouraged broader participation in ERM implementation. This is reflected in the high percentage of involvement from members of staffs, in the requirement analysis. The findings also confirmed the key challenges of ERM, as discussed in Chapter 2. The majority of interviewees stressed that the support from senior management is critical for ERM success. However, interviewees disagreed about the extent to which this support exists. The findings also revealed hazard risk on the top of the risk areas covered by ERM, in the organisation under study. That was not a surprise, due to the nature of operations performed in the oil and gas industry. Moreover, the study highlighted the most important components of ERM infrastructure and integration, and identified risk culture as the most critical factor and enabler. Surprisingly, regulatory and compliance risk was at the bottom of the risks identified as risk areas, covered by the organisation's risk management. This is because there is no regional and directional compliance developed in the Gulf countries, and the GCC's regulations are still under development. Findings showed that perspectives on how risk matures in Oil and Gas organisations varied among interviewees. It has been also identified that Oil and Gas organisations lack specific sector guidance for ERM implementation. Moreover, the key challenges in implementing ERM ranged from (a) lack of support from the top management, (b) lack of time, cost and resources, (c) lack of ERM implementation guidelines, (d) lack of data risk integration across the organisation, (e) lack or risk

management awareness and ERM culture, (f) lack of understanding of the benefits and challenges of implementing ERM, (g) lack of alignment of ERM, (h) core organisational strategies and key objectives, and (i) lack of in-house skills and experiences in ERM implementation. In the context of key challenges and various factors that impede proper ERM implementation, this Chapter considered exploring how ERM aligns with key organisation areas, infrastructure and risk culture contribution towards the successful implementation.

Overall, it can be concluded that the contribution of the empirical findings leverages the derivations that contributed to the Framework validation. However, while generic risk oversight practices are available for other industries, evidence suggests that strategic Enterprise Risk Management Alignment framework for Oil and Gas Industry in Kuwait is inexistent. Using a generic approach is not uncommon, especially when there is lack of specific industry practice. Although following other industries practices, the findings demonstrated that the Oil and Gas Industry has specific factors. Only when those factors are specifically addressed, it can be assumed that the due diligence is applied, and performance is elevated, to not only ensure that best practices are applied, but also safeguard the ROI.

At the basis of these conclusions, are three key derivatives: literature review, research gap, supporting theory and frameworks evaluation. On these grounds, an ERM Strategic Alignment Framework has emerged with various strands that define the framework position within the current research. Therefore, and based on the findings, the Researcher recommends the proposed ERM Framework.



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# Appendix

## Appendix A: Research Interview

**Title of the research:**

Development of Strategic ERM Alignment Framework for Oil and Gas organisations in Gulf Countries

**Researcher:**

**Contact Email:**

**Purpose of the research:**

This research aims to explore key areas of Enterprise Risk Management (ERM) in Oil and Gas organisations that are relevant to this research.

**What this research involved?**

The research involves qualitative semi-structured interviews. The interviews will take about 30-40 minutes to be completed and will include 16 questions. The questions cover three areas: 1) Descriptive profile, 2) ERM practise within the respective organization and 3) Developing ERM strategic alignment framework.

**Voluntary participation and conditionality:**

This interview is based on voluntary participation and all participants in this interview will be remaining anonymous and their personal information will not be disclosed. Participants in this interview may stop participating in this research at any point and they can refuse to answer any questions if they feel not comfortable with them. Participants are allowed to ask the researcher any questions they may have. The positions held by the participants may be reviled but it will remain unidentifiable by other parties.

**\* I have read the information above and herby indicate my agreement to participate in this research.**

**Yes, I agree**

**No, I do not agree**



**Demographic profile**

1- How many years have you been involved in risk management?

.....

2- What is your current position in the organization? Please provide a short job description?  
Which organization area you are located in?

.....

**Risk Management**

3- Describe your experience in ERM? Which stage of ERM have you been involved in?

.....

4- What are the major risk areas in your organization that are covered by the Risk Management?

- Operational Risk
- Credit Risk
- Market Risk
- Strategic Risk
- Regulatory/Compliance Risk
- IT Risk
- Hazard Risk
- Other (please specify):

5- To what extent has your company incorporated systematic consideration of risk into the decision making processes?

.....

6- Does your organisation have ERM? If yes, please, describe the current state of ERM implementation in your organization as shown below:

- Currently investigating the concept of enterprise-wide risk management, but no decision made yet
- No formal enterprise risk management in place, but there are plans to implement one
- There is partial enterprise risk management in place
- There is comprehensive formal enterprise risk management in place
- Other (please specify):

7- What is the current level of ERM maturity in your organization?

- Undeveloped (there is aware of risk but there is no formal approach applied).
- Formalised (basic risk process are applied but there is lack of enterprise-wide integration)
- Established (there is formal and integrated enterprise-wide processes)
- Optimised (There is ERM system with clear knowledge sharing & continuous improvement)
- Strategic (Well-defined ERM with good alignment between risk management processes, strategies and business functions)
- Other (please specify):

8- Does your organization follow a common or universal framework of ERM risk management?

- COSO Enterprise Risk Management – Integrated Framework
- Integrated Framework for Enterprise Risk Management (IFERM)
- ISO 31000 Risk Management
- Risk Maturity Model (RMM)
- Other (please specify):

9- What challenges have your organization experienced or expect to experience during implementing ERM? Please rate the following challenges based on your experience:

<b>Challenges</b>	<b>Un important</b>	<b>Slightly Important</b>	<b>Important</b>	<b>Very Important</b>	<b>Critical</b>	<b>Not Applicable</b>
Lack of the support from the top management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of the ERM implementation guidelines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The time, cost and resources required to implement ERM	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Difficulties in integrating risk data across the organization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of alignment between ERM, core organizational strategies and key objectives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack or risk management awareness and ERM culture	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of in-house skills and experiences in ERM implementation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of understanding of the benefits and challenges of implementing ERM	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (please specify):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10- How does the board of directors of your organisation support ERM? How important is the ERM support from senior management?

.....

11- How is important to align ERM with key organization areas?

<b>Organization Areas</b>	<b>Un important</b>	<b>Slightly Important</b>	<b>Important</b>	<b>Very Important</b>	<b>Critical</b>	<b>Not Applicable</b>
Core organizational strategies and key objectives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Enterprise risk awareness and culture	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cooperate risk governance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
key risk indicators (KRIs) and Key performance Indicators (KPIs)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (please specify):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....

12- What are the roles and the effect of internal environment in ERM framework implementation? Based on your experience, what are the most influential internal environment factors which affect ERM framework implementation?

<b>Internal Environment Factors</b>	<b>Un important</b>	<b>Slightly Important</b>	<b>Important</b>	<b>Very Important</b>	<b>Critical</b>	<b>Not Applicable</b>
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Mission, vision and core values	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Strategies and objectives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appetite aligned with risk tolerance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Risk oversight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Corporate governance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (please specify):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....

13- What are the roles and the effect of risk culture in ERM framework implementation? Based on your experience, is a strong enterprise risk culture critical to realize the full effectiveness of ERM framework implementation?

<b>ERM Culture Components</b>	<b>Un important</b>	<b>Slightly Important</b>	<b>Important</b>	<b>Very Important</b>	<b>Critical</b>	<b>Not Applicable</b>
Understanding of risk appetite and tolerance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Organizational change management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Transparency and Communication	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Respecting norms and ethics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Information Sharing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Accountability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Risk mind-set	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (please specify):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....

14- What are the roles and the effect of ERM infrastructure in in ERM framework implementation? Based on your experience, is robust and supportive ERM infrastructure critical to realize the full effectiveness of ERM framework implementation?

<b>ERM infrastructure Components</b>	<b>Un important</b>	<b>Slightly Important</b>	<b>Important</b>	<b>Very Important</b>	<b>Critical</b>	<b>Not Applicable</b>
ERM policies and framework	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ERM governance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oversight structure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ERM supporting tools and technologies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Risk tolerance and apatite	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Risk data	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (please specify):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....

15- What are the roles and the effect of ERM integration in in ERM framework implementation? Based on your experience, is comprehensive and unified ERM integration critical to realize the full effectiveness of ERM framework implementation?

<b>ERM Integration Components</b>	<b>Un important</b>	<b>Slightly Important</b>	<b>Important</b>	<b>Very Important</b>	<b>Critical</b>	<b>Not Applicable</b>
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Strategic planning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Structure and ownership	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Operational processes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Performance management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Enterprise-wide communication	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (please specify):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....

## Appendix B: Sample Interview Transcript

**Interviewer:** nice to meeting you and discuss with you the ERM in oil and gas industry specially in QAC in Kuwait. what would like to say or to provide us about the maturity level of the ERM in your company.

**Interviewee:** first of all I want to congratulate you of being a student, PHD.

**Interviewer:** thank you.

**Interviewee:** this is an immerging field and this field it's developing. And it is good that you are showing interest in this field because we need qualified people to work in this area. and QAC was a pioneer applying ERM. we found the benefit of ERM.

**Interviewer:** and it's started since 2000

**Interviewee:** for almost ten years.

**Interviewer:** Let's say 2005, 2006

**Interviewee:** No, 2007,8,9 gradually developed.

**Interviewer:** It gradually developed until reached the comprehensive maturity.

**Interviewee:** Now We can say the maturity level is as good as any oil sector company, international company as well as the ERM goes. Because in the mechanic model of ERM, you will find very high maturity means applying it in cash flow at risk and applying it in risk on capital, semi quantitative, quantitative techniques, so in decision in other models like the lite model, they talk about applying the ERM at decision making level at the board. So all of this is being done in QAC.

**Interviewer:** What's the framework to apply in QAC? There is ISO COSO, RMM, farema

**Interviewee:** yes, You see the ERM application is not anything it's not that you have to apply particular framework.

**Interviewer:** There is no practical framework applicable for the oil and gas?

**Interviewee:** It is a management discipline. So you have to adapt a system which suitable to your company. So, since we are one of pioneers, we started with Australian New Zealand standard. The standard itself was adapted into the ISO 31,000 framework.

**Interviewer:** What about COSO?

**Interviewee:** COSO first watching came out and then later when the revising watching came out in 2017 for comings and I think now the final watching is out. The first Australian New Zealand standard itself was a very good comprehensive standard. ISO 31,000 standard further we find it's very good. COSO is fantastic. I think that

**Interviewer:** And wide common

**Interviewee:** And in US it is very popular. It's not as if adapting a particular standard alone will bring us the benefit. I think most of the COSO requirements are fulfilled in the byes. We are not sure about the medical regulatory and complains requirements are different. So the manner be used following the American complains, but the basic requirements of the standard yes we are following. Even we appreciate the definition of ERM. This is very important because the definition of ERM itself will give it the full framework coverage and we have adapted the ISO and the COSO definition of ERM. So we are trying to fulfill it as a requirement.

**Interviewer:** How far you feel that QAC has a benefit from the ERM nowadays in risk response specially?

**Interviewee:** Beauty of ERM is not only in having a framework and trying to do service, the beauty of ERM comes when actions are implemented to mitigate risk and those actions gives benefits.

**Interviewer:** Sometime avoid, sometime sharing

**Interviewee:** Yes, so actions can be to avoid, to treat, to tolerate, any of the four t's, but as long as we complete actions to mitigate risk, it is good. And the beautiful fantastic thing about QAC once the risk is identified, the management won't set on it. They are taking actions and number of actions are implemented, so it's fantastic. And I think that (unclear 5:46) and as the ERM future practitioner I think that framework is important, management system is important, but you are not sure it's else. The lessons will come if you implement actions. If we don't implement actions, then result will end.

**Interviewer:** The four thinking

**Interviewee:** The four T's yes. Once you have a risk, you either treat it or miss-tolerate it or you miss-dominate it

**Interviewer:** You are measuring exposure, evaluate this exposure under regular method

**Interviewee:** You must do something

**Interviewer:** And monitoring the results.

**Interviewee:** Yes, and then the benefit of the result. The framework is important. All the elements in the framework is necessary.

**Interviewer:** Do you think the framework nowadays is applicable for your company? Do you think there is a need for improve the framework for specific organization? Or you can apply the general framework for your own organization? Is there any challenges that you face when you apply specific framework like COSO, ISO or New Zealand? Or you feel that you need your own? You have to make your own framework that fit with your details?

**Interviewee:** ERM is a management discipline. A management discipline means there will be several schools of management. Ultimately, you will apply what's more suitable for you. And I think we see he selected the best elements and is applying the ERM frame. And all the ERM frames are basically quite similar to each other, so they are applying

**Interviewer:** The holistic overview, sharing the holistic overview, all of the framework.

**Interviewee:** Yes.

**Interviewer:** What's your thinking about the future regarding the ERM in your company? Is there a strategic plan?

**Interviewee:** The ERM in the company will continue to develop and it will be driven by external factors. External factors like regulations coming from the government because at the moment in general quick GCC the regulations are still developing, so new regulations might come because it's an immerging field, then we have to comply with those regulations. And new challenges had happening from the market place because the field of oil Oil and Gas industry is now changing.

**Interviewer:** You mean the price, you mean the demand?

**Interviewee:** The price, the demand, the technology for extractions, the price of oil. Everything is changing and that definitely has an impact.

**Interviewer:** Based on your experience what is the current state of ERM in Oil and Gas organizations as you said it's



**Interviewee:** Very high matured. But that does not mean we will rest you know? To maintain your level of maturity, we have to keep working on it because the field is developing so. You have to keep running to remain in the same place. You cannot relax and not do anything. If you stop running, you will select that

**Interviewer:** And you will be behind.

**Interviewee:** Yes, behind the camp.

The last question which I just added. Talking about the risk management in your company, they apply the ERM since 2007

**Interviewee:** By nine it was fully.

**Interviewer:** What are the changes you feel in your company? It's getting more strong, more management, I mean on risk this tangible benefit that you feel it?

**Interviewee:** Yes, of course. It's a lot of tangible benefit since then. Two ways to look at it: one is how the behavior of the management changed. Other way is what actions have been taken on the ground. On both sides that's a big change because now management takes what is called risk based decisions. So before they take a decision, they consider risk and then take a decision. Say like before a project is approved, they consider all the risk in the project before approving the product.

**Interviewer:** You have extra steps before to give the decision. So they consider the risk and then decision more.

**Interviewee:** Yes, so that's a great benefit and second what are the steps from reality on the ground. The reality on the ground you will find that number of actions are being taken to mitigate this. So let us say that progress can be avoided, so we will never know what the exact has been avoided because risk is a risk and it may or may not happen, but we think that many risks have been avoided because a number of actions have taken place.

## Appendix C: Descriptive Profile Data Analysis

Table 1: ERM Experience

Years of ERM experience	Frequency	Percentage
1	6	20%
3	6	20%
7	3	3%
10	7	7%
13	8	8%
Total	30	100%

Table 2: Seniority level

Seniority level	Frequency	Percentage
C-suite Manager	15	50%
Senior Manager	10	32%
Middle Manger	7	20%
Total	30	100%

Table 3: Organization Areas

Organisational Area	Frequency	Percentage
Front Office	3	10%
Risk Management	7	23.3%
Business management	3	10%
Finance	4	13.3%
IT Management	5	16.7%
Operations	8	26.7%
Total	30	100%

Table 4: Organization Areas

Organisational Area	Frequency	Percentage
Directly related to ERM	24	80%
Indirectly related to ERM	6	20%
Total	30	100%

Table 5: **Risk Considerations Into Decision Making Processes**

<b>Does risk considered Into Decision Making Processes</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	23	77%
No	7	23%
Total	30	100%

Table 6: **ERM Maturity Level**

<b>Maturity Level</b>	<b>Frequency</b>	<b>Percentage</b>
Undeveloped	0	0
Formalised	0	0
Established	0	0
Optimized	12	42%
Strategic	18	58%

Table 7: **Number of participants by ERM stage involvement**

<b>ERM Stages</b>	<b>Frequency</b>	<b>Percentage</b>
Requirement analysis and assigning the current sate	25	83.3%
Design and Specifications	14	46.7%
Implementation	10	33.3%
Monitoring and improvements	6	20%

Table 8: **Risk areas that are covered by the Risk Management**

<b>Risk Area</b>	<b>Frequency</b>	<b>Percentage</b>
Operational Risk	12	40
Market Risk	10	33.33333
Strategic Risk	10	33.33333
IT Risk	14	46.66667
Hazard Risk	16	53.33333
Compliance Risk	6	20

## Appendix D: Qualitative Data Analysis (Codes Frequency distributions)

Table 9: Frequency distribution of FRAM\_ALIGN code

FRAM_ALIGN	Frequency (%)				
	Un important	Slightly Important	Important	Very Important	Critical
Core organizational strategies and key objectives	0	0	23.3%	23.3%	53.3%
Enterprise risk awareness and culture	0	0	16.7%	40%	43.3%
Cooperate risk governance	0	0	33.3%	43.3%	18.9%
Technology	0	0	63.3%	36.6%	0
key risk indicators (KRIs) and Key performance Indicators (KPIs)	0	0	56.7%	43.3%	0
Business process	0	0	33.3%	30%	36.7%

Table 10: Frequency distribution of FRAM\_INTER code

FRAM_INTER	Frequency (%)				
	Un important	Slightly Important	Important	Very Important	Critical
Corporate governance	0	0	26.60%	53.30%	20%
Mission, vision and core values	0	0	30%	36.60%	33.30%
Strategies and objectives	0	0	0	66.70%	33.30%
Appetite aligned with risk tolerance	0	0	26.70%	30%	43.30%
Risk oversight	0	0	10%	43.30%	46.70%
Human resource policies and practices and	0	6.6%	0	0	0
Assignment of responsibility	0	6.6%	0	0	0

Table 11: Frequency distribution of FRAM\_CULT code

FRAM_CULT	Frequency (%)				
	Un important	Slightly Important	Important	Very Important	Critical
Understanding of risk appetite and tolerance	0	0	20%	33.3%	46.6%
Organizational change management	0	0	20%	56.6%	23.3%
Transparency and Communication	0	0	0	50%	50%
Respecting norms and ethic	0	0	0	70%	30%
Information Sharing	0	0	6.6%	20%	73.3%
Accountability	0	0	0	50%	50%
Risk mind-set	0	0	0	33.3%	66.7%

Table 12: Frequency distribution of FRAM\_INFR code

FRAM_INFR	Frequency (%)				
	Un important	Slightly Important	Important	Very Important	Critical
Risk tolerance and apatite	0	0	26.60%	73.30%	0
ERM governance	0	0	40%	20%	40%
Oversight structure	0	0	6.60%	53.30%	40%
Risk data	0	0	13.30%	33.30%	53.30%
ERM policies and framework	0	0	20%	15.60%	63.40%
ERM supporting tools and technologies	0	0	0	26.70%	73.30%

Table 13: Frequency distribution of FRAM\_INTEG code

FRAM_INTEG	Frequency (%)
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	<b>Un important</b>	<b>Slightly Important</b>	<b>Important</b>	<b>Very Important</b>	<b>Critical</b>
Performance management	0	0	40%	33.30%	26.60%
Structure and ownership	0	0	0	60%	40%
Enterprise-wide communication	0	0	30%	26.60%	43.30%
Operational processes	0	0	26.60%	56.60%	50%
Strategic planning	0	0	0	36.60%	63.30%