QATAR UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

ENTERPRISE RISK MANAGEMENT AT QATAR'S CONSTRUCTION INDUSTRY

BY

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ABSTRACT

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Title: Enterprise Risk Manaagement in Qata's construction

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Lately, enterprise risk management (ERM) is an emerging topic, which has attracted the worldwide attention. All organizations around the world recognize the importance of risk management regardless of their size or industry as it has been a response to the volatile environment. The Government of Qatar has recognized the importance of risk management and some of the ministries have applied risk management principles in their organizations.

Because of the multitude in their operations, construction firms are prime candidates for ERM adoption. Although there is an increased number of studies on risk management around the world, limited studies have strived to provide an understanding of the implementation of Enterprise Risk Management (ERM) in the construction industry. This research investigates and provides an understanding of ERM implementation in the Qatari construction industry.

This research tries to investigate the existing level of ERM in the Qatari construction industry. In addition, the research investigates the criteria that

affect the ERM implementation and the factors that drive or hinder the ERM implementation in Qatar.

By using a survey as the main data collection method, almost 80 construction companies have responded. The results reported a medium-level overall the ERM maturity in these companies. In addition, a total of 16 important maturity criteria and 64 applicable ERM best practices were identified and included in the survey questionnaire. The research found that 14 drivers and 32 hindrances had significantly positive and negative influence on ERM implementation in the construction companies in Qatar.

The research has reviewed the literature and adapted the proposed ERM framework by Zhao proposes in his book on ERM in International construction operations.

Since few studies have discussed the ERM implementation in construction firms in the Gulf region, this study is a pioneering contribution to the current literature of the ERM in Qatar's construction Industry.

Keywords: Construction Firms, Driver , Enterprise Risk Management , ERM Framework, Hinder , Qatar.

DEDICATION

This work is dedicated to my husband Mohamed and to my lovely daughter Fatima

This project is the end of my MBA journey that you all supported me along…

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ABBREVIATIONS

ERM : Enterprise Risk Management

ERMMI : Enterprise Risk Management Maturity Index

QCCs : Qatar Construction Companies

SPSS - Statistical Package for the Social Science

CHAPTER 1: INTRODUCTION

All organizations around the world recognize the importance of risk management regardless of their size or industry, as it has been a response to the volatile environment. The Government of Qatar has recognized the importance of risk management and some of the ministries have applied risk management principles in their organizations. Although there is an increased number of studies on risk management around the world, limited studies have strived to provide an understanding of the implementation of Enterprise Risk Management (ERM) in the construction industry. This research investigates and provides an understanding of ERM implementation in the Qatari construction industry.

1.1 Research Question

This research aims to answer the following question: How is ERM implemented in construction firms based in Qatar?

1.2Research Objectives

The main objectives of this study are:

1. Investigate the existence of ERM concept in construction firms in Qatar.
2. Investigate the criteria or attributes that affect ERM maturity in construction firms in Qatar.

3. Examine the critical factors driving the implementation of ERM in construction firms in Qatar.
4. Examine the critical factors hindering the implementation of ERM in construction firms in Qatar.

1.3 Research Motivation

This research aims to provide an understanding of the level of ERM implementation in construction firms based in Qatar, thereby contributing to the knowledge relating to ERM implementation in construction firms. This should cover not only the project risks but also the risks encountered by being a business enterprise.

1.4 Scope of the Research

This research focuses on the process of ERM implementation in the Qatari construction industry with different classifications and types. The research aims to investigate the existence of ERM concept in these firms, investigate the criteria that affect the ERM maturity in the construction companies in Qatar and finds out the critical factors that drive or hinder the ERM implementation in the construction firms. Finally, this research will adopt a validated ERM framework for the construction industry to investigate the implementation of ERM in Qatari construction companies.

CHAPTER 2: LITERATURE REVIEW

This chapter gives an overview of the Qatari construction industry and reviews the literature on risk management, project risk, enterprise risk management. Moreover, the chapter discusses the criteria or attributes in the ERM Maturity and the drivers and hindrances to ERM implementation. In addition, the chapter discusses the importance of ERM implementation in the construction industry and its relationship with the PRM practices. Finally, the chapter will adapt and elaborate on an existing customizable ERM framework for construction firms to be used in Qatar.

2.1 Qatar Overview

With the stability of its business environment and growing consumer demand, Qatar has been recognized as the fastest growing construction market in the GCC region as its National Vision 2030 has outlined investments in the various sectors ("Construction in Qatar Key Trends and Opportunities to 2021", 2017).

2.1.1 Overview Of The Construction and Projects Sector

In conjunction with the country's renaissance and an implementation of the Qatar National Vision (QNV) 2030 and to meet the requirement for the successful delivery of the World Cup 2022, the construction industry in Qatar has registered notable growth mainly driven by public sector investments in

construction projects. The government invested over QAR455 billion (US$125 billion) in various large-scale construction projects ("Construction in Qatar Key Trends and Opportunities to 2021", 2017). Qatar is in the process of establishing huge construction projects, the main trends in the construction sector are the following: the development of Qatar's transport infrastructure, creating a range of world-class sporting venues according to estimation, 12 new stadiums and 90,000 hotel rooms will be built for the accommodation of 400,000 visitors attending to witness the tournament ("Construction in Qatar Key Trends and Opportunities to 2021", 2017). In addition to these projects the Qatar Rail and Metro Project, Lusail Real Estate Development and Msheireb Downtown Doha that is a large urban regeneration complex by Msheireb Properties in central Doha, designed to preserve the architectural heritage of Qatar and other projects. These projects and others require more effort in the construction sector to complete on time and at the lowest costs and risks.

2.1.2 The Qatari Construction Industry and Firms

Because of the nature of their business and since it is a project-based industry; the construction companies in Qatar are facing complex and diverse risks from inside and outside. These risks impact the company's project objectives and corporate objectives.

Moreover, insufficient environmental information and construction

experience contribute to a higher risk and possibility of losses in the market”(Zhi 1995). Moreover, the failure of conducting effective risk management tend to cause huge problems for the companies like schedule performance and poor cost, conflicts, and even business failures. So, applying risk management is important for the success and profitability of the construction companies.

Through the reading and searching for the topic, I have come across a book that discussed enterprise risk management in international construction operations. So, this research is an adaptation to some of the principles of that book to Qatar Construction Industry at all levels and with different classifications.

2.2 Risk Management

Risk management entails the process of identifying, carrying out analysis through assessing with the primary objective of controlling any threats that might lead to loss facing any individual or organizations business ("What is risk management?" 2013, p.1-21). Risk management evolved from “insurance management” two decades back. However, the concept used in it involves a broader scope of activities as well as responsibility compared to those used in insurance management. Furthermore, it is used in most organizations. It is typically considered to be more vital by small business operators since if not identified and handled in time, it might lead to a considerable loss leading to even closure of a business which might have

taken a tremendous amount of capital to set up. Most of the factors resulting in this decline are always tricky to notice or even to predict. According to (Davis, 2009), some of the risks that might affect small business are like theft, fire, staff injuries as well as physical factors such as a flood. They can change normal operation in industry leading to an enormous amount of loss or even liability that could have taken business owner a lot of capital and years to build. Initially, risk management was only pertained to decline in property and casualty, but of late it has expanded in the financial management. Some of the areas where it is used are the interest rate calculation and control, foreign exchange rates as well as any dangerous activities affecting E-commerce operations. Due to increase in its role, many companies have been opened and its currently being implemented used by this large companies and organization in the management of its operation thus the introduction of enterprise risk management.

2.3 Definition of Enterprise Risk Management

Enterprise risk management came about in around 1990s mainly due to continuous growth in most businesses. ERM does not only cover risk as the risk management but also included any chance that could be caused accidentally together with those in financial, operation and strategic management in business ("What is enterprise risk management (ERM)? - Definition from WhatIs.com,").

ERM as defined by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) refers to "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 may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives". In this study, this definition is adopted as it applies to various industries, including the construction industry. The definition implies that the implementation of ERM should be at all levels across an enterprise and applied in strategy setting to assure the achievement of corporate objectives.

The ERM mainly expands the processes through which it is undertaken so as to include not only the risks that are linked to accidental losses but also the strategic losses, financial, and other operational risks that could in one way or the other detrimentally hamper the operations of the firms in the economy. It is imperative to acknowledge that the construction firms need to often apply the mechanisms of ERM so as to enhance the ways through which they amicably undertake their various operations in the economy.

Zhao et al. (ZHAO, 2015) in his book stated that the process of ERM is an ongoing and flowing process through the company, and everyone should have the responsibility about risk management at all the level of an organization. Moreover, ERM helps better understanding to the risks that any organization can face which lead the managers to control these risks and sets

their goals for the firm's risk appetite.

It is equally important to state that both the rating agencies and the regulators in the market have also enhanced the ways through which they scrutinize their risk management processes for the construction companies (Chapman et al., 2012).

2.4 Benefits of Enterprise Risk Management

The benefits of ERM can be classified as either being qualitative or quantitative ("What Is Enterprise Risk Management?" 2013). There is a wide range of advantages that arise whenever the policies of ERM are applied in any organization. A very well implemented enterprise risk management usually has a very focused culture when it comes to risk management. This constitutes to cultural shift thus enabling risks to be considered to be more open and hence easing risk management. However, it should be noted that the process of communication and discussion regarding any risk within an organization should not only be recognized as a way of giving information to the managers but also a means of sharing information of the risk in the entire company thus allowing better decision making as well as insight in the organization. The second benefit comes about when a company uses appropriate risk management structure. This will lead to a more standardized risk report, which is in a position of tracking enterprise risks. By doing this, their result in improvement in focus for both the directors and executive manages in ways of data provision hence proper mitigation division of risks.

Additionally, proper development of risks helps in detecting potential risk events through the provision of early warning. Finally, it helps inefficient use of resources through improving efficiency by proper allocation of resources to manage corresponding risk("Five Benefits of Enterprise Risk Management ERM: CliftonLarsonAllen (CLA) LLP,").

2.5 Enterprise Risk Management in Construction companies

In the past years' enterprise risk management was mainly segmented only in the business companies ("INTEGRATING ENTERPRISE RISK MANAGEMENT AND ENTERPRISE PERFORMANCE MANAGEMENT," 2017, p.111). However, of late, most construction firms are not only using project risk management (PRM) in their construction which only focuses in risk associated with projects but has managed to identify other systematic risks by focusing on ERM in the growing construction firms. ERM and PRM have different goals. ERM is meant for the risks related to the enterprise level that could affect the objectives of the firm negatively or positively (COSO 2004). While, PRM is related to the risks at the project level that might negatively affect the project objectives like time, cost safety and quality of the project (PMI 2008).

The construction industry has been found to expose to an array of risks that have a direct impact on the performance. The main reason for this is the level of complexity like in a business of construction ("Implementation of

Risk Management in Malaysian Construction Industry: Case Studies," 2015). Traditionally, enterprise risk management was primarily meant for shifting function of risk management from being to being defensive to being offensive as well as the strategic way to improve project risk management within the construction industries (Onyiriuba, 2016, p. 59-75). Given the increase in the level of complexity and diversity in the number of risk in the construction firms, they have decided to adopt most of ERM techniques. Since all the construction companies usually are project-based, many tangible benefits come about through ERM implementation in the project. Therefore, all the construction companies need to implement enterprise risk management in the construction process to ensure improvement in the performance of the construction project. Consequently, there need to be motivational measures as well as leadership styles when implementing enterprise risk management in any construction company (Zhao, 2017, p.2).

2.6 A Proposed ERM Framework for Construction Firms

There are many existing ERM frameworks but for the construction industry, there is not any. Because the construction firms are project-based firms, an ERM framework has been proposed by Zhao to address the problems faced by many such companies (ZHAO, 2015). The proposed framework Fig. 1 is composed of; (1) an ERM process; (2) commitment of the board and senior management; (3) training programs; (4) resources; (5) ERM ownership; (6) risk-aware culture; (7) objectives; (8) a common risk language; (9) PRM;

(10) RMIS; (11) risk communication; and (12) monitoring, review, and continuous improvement of the ERM framework(ZHAO, 2016).

This proposed ERM framework is different from the other existing frameworks for the other industries because the construction industry has a project-based nature. So to reflect this accept in ERM framework, the component "PRM" is added to the existing ERM frameworks and the component "objectives" is added as well which has the project objectives while the other components are similar to the existing ERM frameworks for the other industries (ZHAO, 2015).

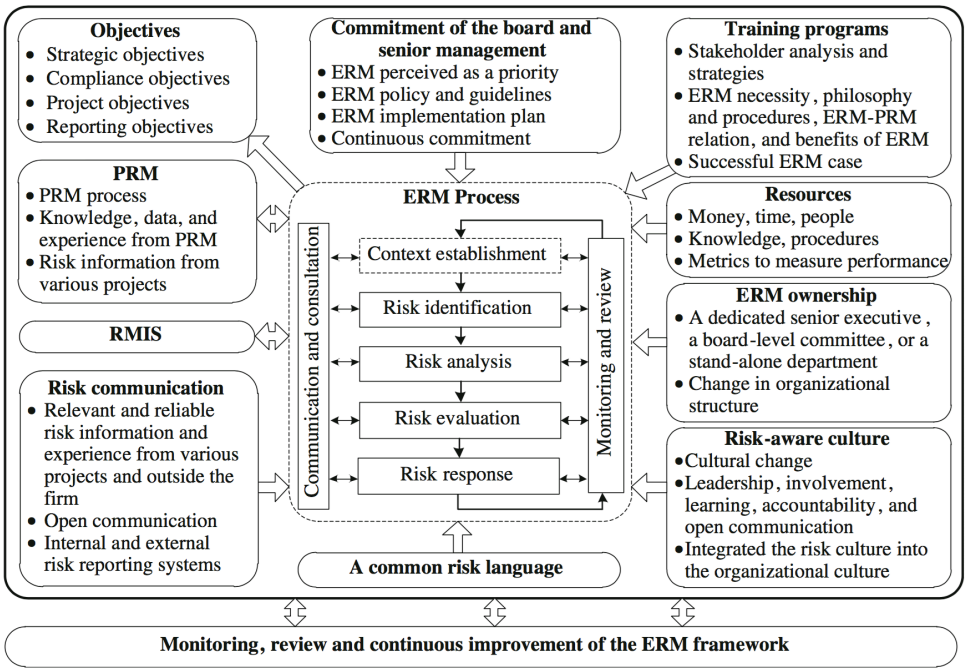

Figure 1 A proposed ERM framework for construction firms. Adapted form Enterprise Risk Management in International construction operations (p.53), by ZHAO, X. (2016). [S.l.]: SPRINGER. Adapted with permission

2.7 The criteria in the ERM Maturity Model

"ERM maturity reflects the sophistication of ERM implementation"(Zhao, 2015). Zhao has proposed a model that is consisted of criteria that affect the ERM implementation.The model also reviews the performance of ERM in the organization and assesses the implementation level of each criterion. ERM maturity is a measure of the progress of ERM implementation (Narvaez 2011).

For the effective implementation of the ERM policies by the construction firms to be undertaken, the following criterion needs to be followed to the latter: first of all, there needs to be a full commitment from not only the board but also the senior management of the companies in the market. The board of the companies needs to reassure of their support regarding the adoption and effective implementation of ERM alongside other senior management of the companies. This criterion can be considered as a driver and a critical success factor for ERM implementation (Stroh 2005).

Also, there is need to have the ERM ownership within the firms. It is imperative to have the employees of the companies who are in full support of the implementation process, and therefore they do everything within their capacity to ensure that the policies are amicably implemented (Banham 2004) . To fulfill this criterion, a position of chief risk officer (CRO) can be added to take responsibility for risks (Cendrowski and Mair 2009; Lam 2003).

It is also important for the construction firms to have risk appetite and tolerance in the modern society. Risk appetite is the "amount and type of risk that an organization is willing to pursue and retain," while risk tolerance is an "organization's or stake- holder's readiness to bear the risk after risk response in order to achieve its objectives" (ISO 2009: p. 9). It is under such conditions that they will see the dire need to implement the policies that will go a long route towards guaranteeing that they effectively implement the ERM policies within the construction companies.

Another critical criterion that needs to be taken into account is the need to create a risk-aware culture among the major stakeholders within the construction companies in the company. The supportive culture is very critical to the success of ERM efforts in an organization (Brooks 2010; Cendrowski and Mair 2009). It is because through such means the firms will strive to find the necessary means through which they mitigate the risks. And one of the most important ways to do so is through encouraging the implementation of the ERM policies in the economy. Creating the risk-aware culture will equally help people to understand more about the risks that they face in the course of undertaking their business activities. And it is in such ways they will find the necessary means to mitigate them in the society (2016 international valuation handbook: Industry cost of capital, 2016).

It is also essential to consider the need by the construction firms to have sufficient resources in the market. It is through the amicable distribution of the sufficient resources that are at their disposable that the firms will manage to excellently implement the ERM policies (Aabo et al. 2005; RIMS 2008) .

"Risk identification, analysis, and response" is another important criterion for ERM implementation. The process equally entails the need to identify the risks that the firms are likely to suffer from in the economy. The companies also need to analyze the risks that they have identified, before prioritizing the risks that they will face in the course of undertaking their business activities in the market. Creating a corporate risk profile, which is "a periodic documentation of key risks to an organization to achieving its stated objectives over a specific future time" (Fraser 2010: p. 171), can help the ERM implementation (Aabo et al. 2005).

Also, it is important for the construction firms to take into consideration both the iterative and dynamic ERM process steps. The process includes monitoring and reviewing risks, risk identification, analysis, and evaluation and risk response. Following the necessary procedures that need to be followed in the course of implementing the ERM policies will play a vivacious role in safeguarding the success of its amicable implementation and enables the firms to deal with risks proactively (AON 2010; Dafikpaku 2011; Garvey 2008).

It is also essential for the construction firms to consider the necessary ways through which they will be leveraging the risks as opportunities in the contemporary society. It is important to understand that some of the risks that the firms are anticipating to happen could actually provide the ample opportunities through which the firms can enhance their business activities (Baker, 2011). It is for this purpose as to why when the firms embark on the task of implementing the ERM policies it is efficient to leverage some of the risks that they stand a high chance of using as opportunities so as to work in their favor in the market (AON 2010) .

It is critical to have a risk communication. Once the firms have identified the risks, analyzed them, and prioritized them then it is important to communicate to the various departments and personnel working within the firms regarding the best mechanisms through which the ERM policies are applicable in mitigating the risks in the market. It is through proper communication and understanding among the concerned parties in the construction companies that the process of adopting and implementing the ERM policies will be undertaken in a cordial way to aid in addressing the problem (Narvaez 2011).

Moreover, there is need to have a common risk language. Duckert implies that the common risk language should have explanations for the terminologies and methodologies for the effective ERM program (Duckert 2011). When the relevant employee have understood the proper ways through which the ERM

policies will aid in addressing the risk at hand, then the various employees have to speak in one language so as to effectively address the risk that the firms face in the course of undertaking their business dealings in the market (Duckert 2011).

There is need to have the risk management information system (RMIS) in the company. The system will play the role of providing the relevant info regarding the ways through which the risks need to be managed if they happen. The system can be used as " a platform for risk communication and reporting, records risk management activities, or even undertake risk identification and analysis and provide response plans. All the relevant staff should know how to apply this RMIS in ERM, to ensure that the functions are fully used "(ZHAO, 2015).

For the successful implementation of ERM, the procedure equally entails the need to organize the training sessions in the company. The training programs will provide the employees, management, and other within the firms on the ways through which the ERM policies need to be implemented and also it can be used to clear any misunderstanding about ERM. Zhao stated that "As the ERM implementation matures, such programs can serve as an organizational learning mechanism which enables employees to learn about ERM techniques and lessons from past projects" (ZHAO, 2015).

It is also important to have the "formalized key risk indicators (KRIs)", which is "a measure to indicate the potential, presence, level, or trend of a risk" (Hwang 2010: p. 126). KRIs will help in the course of indicating and monitoring the risks and prioritizing them so that the necessary mitigation mechanisms can be carried out by giving each risk a predetermined thresholds for each KRI that will help the management to take actions and adjust the strategies to be able to manage the risk I a proactive manner (Beasley et al. 2010b).

Another criterion that affects the ERM implementation is the integration of ERM into business processes. It is important to take into account the necessary procedures so that the integration process is done in an amicable way that will flow with the realization of the various business processes in the company. It is in such ways that the firms will succeed in making the ERM implementation. This integration involves decision-making and strategic planning (Narvaez 2011). In the decision-making processes, the risks identified should be considered. When ERM is fully integrated with decision-making, this is an indication that risk management is being embedded into the corporate culture (AON 2010).

Objective setting is another important criterion for ERM implementation. The construction firms also need to set their objectives and these objectives should be known and understood by all the staff at all levels in the firm. The company should consider how the ability to achieving the objectives is

affected by the risks that a company may face. As the risks affect its ability to achieve the objectives (Narvaez 2011).

The last criterion for the ERM implementation is the monitoring, review, and improvement of ERM framework. After the successful implementation of the ERM policies, the company needs to be in the forefront on monitoring the ways it is implemented. Also, the company needs to employ the necessary mechanisms through which the ERM process is reviewed after certain duration to ensure its efficiency. It is also vital to seek the necessary ways through which the ERM framework applied by the company are steadily improved so as to ensure that they are efficient enough to help in realizing the business objectives of the company (Ward 2006) .

2.8 Drivers for ERM Implementation

Most of the studies that have been undertaking in the past on the ways through which the various construction firms often apply the ERM mechanisms often suggest that it is because of various drivers that go a long way towards improving the efficiency of the firms in the economy.

One of the major drivers for the adoption of ERM is the existence of the legal and regulatory compliance requirements. There is the legal requirement that the construction firms need to comply with so as to amicably enhance the ways through which they undertake their operations around the world (Cook, 1994; Kleffner et al., 2003; Miccolis, 2003). It is through the

compliance with the law and regulations that the firms have enhanced their construction work in the market.

Also, the construction firms have adopted the need to undertake the non-mandatory reports or the standards through which they enhance their operations in the economy. The various construction firms have often embraced the relevant mechanisms and ways to which they apply the non-mandatory reports or standards regarding the ways through which they undertake their operations in the economy. It is through the adoption and enhancement of such mechanisms that the firms have been amicably undertaking their operations in the economy(WU and Olson, 2009) .

Another factor that has played a critical role in enhancing the ways through which the construction firms have been undertaking their operations is the credit rating agencies requirements. The three main credit rating agencies, i.e., S&P, Moody's, and Fitch, advocate for the need by the various construction firms to amicably adopt the ERM policies worldwide. It is through the full implementation of the recommendations in the ERM that the credit agencies strongly believe that the firms will be performing high-quality work that will enhance the operations of the firms in the market (Beasley et al., 2008; Couto et al., 2017). The need for all the relevant construction firms to comply with the needs of the credit rating agencies often encourage the implementation of the ERM policies by the relevant construction firms. The move has tremendously improved the performance of the construction firms.

Some of the factors that have often played a vital role in enhancing the implementation of ERM are the reduced earnings volatility and the reduced costs and losses. It is imperative to appreciate that the adoption of the policies often plays a crucial role in amicably reducing the high levels of losses and costs that the firms could have faced if they had failed to adopt it across the globe (Creelman & Smart, 2013).

It is also critical to note that through the adoption of the ERM policies, the construction firms have amicably managed to increase the profitability and earnings of the market. When the firms ensure that through the adoption of the policies in the ERM they construct high-quality structures with the minimal costs in the economy. It is in such ways that they save through the mitigation of the risks that could have occurred if the policies were not adopted (Damodaran, 2008). It is also essential that the application of the ERM aids in reducing the losses and risks that the firms could have experienced. It is in such ways that the construction firms have managed to improve their levels of earnings and profitability in the market.

Most of the studies that have been undertaking in the past also tend to suggest that the construction firms often apply the ERM policies because they play the vital role in improving the levels of decision-making in the market around the world. The adoption of the policies often enable the relevant stakeholders to acknowledge the critical ways through which more important decisions need to be made so as to reduce or totally eliminate the anticipated losses and risks that could in one way or the other enhance the operations of

the construction firms in the economy (Dicken, 2007). Such mechanisms often augment the ways through which the firms undertake their operations in the economy.

Another critical factor that has enhanced the implementation of ERM is the development of better risk reporting and communication in the company. The effective implementation of ERM often enhances the ways through which the firms amicably report the risks that take place and improves the ways of communication among the relevant stakeholders all over the world. It is in such ways that the necessary steps are often undertaken so as to improve the conducts of the firms and to help them realize their full potential in the economy.

Another driver for the ERM implementation is the increased management accountability by the construction firms. The construction firms that have adopted the policies often find it much easier to be accountable regarding the ways through which the management of the firms is being done in most parts of the world. The effective management of the firms often helps them to realize their major business goals in the market (Dixon et al., 2013). When the management of the firms is accountable for their works, then the firms will meet their major business obligations in the economy.

The realization of greater management consensus is another critical driver of the adoption of the ERM policies. It enables the top management of the construction firms to develop greater levels of consensus on the way forward regarding the operations globally. It is through the development of a

sound-mind consensus that often triggers and facilitates the proper undertaking of the business activities of the firms in the economy.

The firms that often apply the ERM have a competitive advantage over the ones that do not apply the mechanism in the course of undertaking their operations in the market. It is for this purpose as to why most of the construction firms have embraced the application of the policy as it will improve their net revenues and reduce their costs of undertaking their business activities in the market (Dixon & Adamson, 2013). Having a greater competitive advantage over the rival firms often enhance the business transactions that the construction firms get through contracts and this expands their business activities in the market. Consequently, the firms make more profit and expand their operations in the world.

The adoption of the ERM policy often plays the critical role when it comes to the realization of better resource allocation by the construction firms. Through the process of identifying the risks that the firm is likely to undergo and the adoption of ways to cut costs and mitigate the risks, the firms are in strong position to effectively allocate the resources that will enhance their operations across the world (Economist Intelligence Unit & MMC Enterprise Risk, 2001). It is in such ways that the net revenues of the firms in the market often augment and lead to the expansion of the business dealings in the market.

Another critical driver for the ERM implementation by the construction firms is the ways through which it improves the level of

satisfaction among the clients. When the policies are adopted, the firms often end up constructing high-quality structures that meet the level of expectation among the potential clients in the market at affordable costs in the economy (Engineering news-record, 1874). It is through the construction of the high-quality structures that the clients get satisfied with that enhances the operations of the firms.

Most of the studies that have been undertaken in the past suggest that the ERM policies often improve the ways through which the firms have control over its projects in the market. The firms often manage to understand the risks and costs of undertaking the project hence they make the most critical decisions that go a long way towards enhancing the operations of their business activities in the market (Fabozzi & Peterson, 2009).

The adoption of the policies also enhances the broader scope of risks. It makes the construction firms to effectively acknowledge the existence of the various risks in the market and adopt the necessary ways through which it is developed globally. It will also improve the manner through which the firms will adopt the necessary mechanisms to mitigate the various risks and losses that the firms anticipate in the course of undertaking their operations in the market. The policies enhance the ways through which the broader scope of risks are found and dealt with by the firms in the economy.

It also advances the information technology relevant to the construction firms in the market. The construction firms have adopted the ERM policies because it enhances the application of the modern ways through

which the firms often undertake its operations in the market. It also improves the conducts of the construction firms in undertaking their business dealings so as to realize their major business targets in the market.

Lastly, the adoption of ERM policies makes it possible for the top management to get the full details regarding the operations of the firms in the economy upon making the request. It is imperative to acknowledge the ways through which the firms effectively adopt the policies so as to enhance the ways through which they conduct the construction activities in the market (Hartman, 2003). Request from top management on the various developments regarding the construction processes by the firms are readily available, and this enhances the activities in the market.

2.9 Hindrances to ERM Implementation

Through reviewing the literature on ERM, almost 36 hinders for ERM implementation were summarized. Because of these hindrances, the percentage of companies implementing ERM was not high(ZHAO, 2015).

Most of the researchers that have been carried out in the past suggest that one of the major hindrances of the implementation of the ERM policies among the construction firms is the existence of low data quality. It is vital that the quality of data used in the adoption of the policies is of high quality so as to aid in the realization of the intended purposes by the construction firms (Financial Management: Theory & Practice, 2016). Low data quality often

interferes with the ways through which the firms undertake their operations, especially regarding the implementation of the ERM policies in the economy.

Another hindrance to the effective implementation of the ERM policies is the lack of data in the market. It is through the existence of the reliable and authentic data in the market that the relevant stakeholders often undertake their roles in an amicable manner to enhance the implementation of the ERM policies in the economy around the world (RMA, 2006).

Also, the insufficient resources such as personnel, time, and money among others play a vital role in hampering the effective implementation of the ERM policies worldwide. The construction companies largely depend on these resources to ensure that there is the effective and operational adoption of the ERM policies in the market(AON 2010; Beasley et al. 2010c; Blades 2010).

Lack of a formalized ERM processes can also be stated as one of the major hindrances to the effective adoption of the policies. The construction firms need to heavily rely on the adoption of the formalized ERM process so as to effectively undertake the ways through which the implementation process will take place in the economy (Kadakia, 2017; Miccolis 2003). Several firms often apply the informal ERM process, which makes them fail to realize the intended purpose of the policies in the economy.

Another hindrance to ERM Implementation is the lack of the necessary management techniques and tools. It is imperative to note that the lack of both

the management tools and techniques often hampers the ways through which the ERM policies are amicably implemented in the contemporary society (In Jeffreys & Oxford Business Group, 2014). It is important to have both the techniques and tools that will enhance the ways through which the firms undertake their business activities in the market.

Lack of internal knowledge, skills, and expertise is another hindrance to the proper adoption of the ERM policies by the firms in the economy. It is very important for the construction firms to have the personnel within the firms who have the proper skills, knowledge, and expertise on how to facilitate the effective adoption of the ERM policies (In Frasers et al., 2015). Such ways will enhance the operations of the companies in the economy.

Lack of properly qualified personnel to amicably implement the ERM policies could also hamper the adoption of the mechanisms across the world. The construction companies need to allocate some resources that will go towards the effective implementation of the ERM policies so as to enhance the ways through which the ERM policies will be amicably implemented in the market (Maginn, 2007). The personnel will do everything within their capacity to ensure that the implementation of the policies is amicably undertaken in the economy.

Lack of the risk management information system (RMIS) also hinders the ways through which the policies are effectively implemented in the community. It is important for the relevant stakeholders within the construction firms to apply the necessary means through which operational

RMIS will be adopted in the economy so as to enhance the operations of the companies (CFO/Crowe 2008; Muralidhar 2010).

The existence of the unsupportive organizational structures within the construction firms can also be blamed for the existence of poor ERM policies in the community. The structures within the organizations need to be organized in a manner that they fully support the adoption of the policies so as to enhance the operations of the construction firms (Blades 2010; CFO/Crowe 2008; Marks et al., 1993).

Other studies that have been undertaken in the past suggest that the existence of unsupportive organizational culture could detrimentally affect the implementation of the ERM policies in the market. The cultures of the firms need to supportive of the policies adopted so as to augment the ways through which the firms undertake their business dealings in the economy. (Blades 2010; Kimbrough and Componation 2009; Muralidhar 2010)

Lack of a common risk language is another hindrance to the implementation of the policies. The relevant stakeholders need to acknowledge the existence of a common risk that the firms face and seek the relevant ways to mitigate them hence appreciating the implementation of the ERM mechanisms all over the world (MEED, 1985; Muralidhar 2010; Nielson et al. 2005);

Lack of risk awareness in the organizations often tends to hinder the adoption of the policies. There is need to create awareness among the

personnel in the firms regarding the existence of risks in the society. It is in such ways that they will amicably augment the full implementation of the ERM policies within the organizations. (De la Rosa 2006; Muralidhar 2010) .

Some of the construction firms also have a lot of confidence in the existing risk management practices. It is for this purpose as to why they do not cover a lot of preferences to the implementation of the ERM policies in the market (Beasley et al. 2010c; McGeorge et al., 2013). It is important to blend not the existing and the ERM mechanisms so as to enhance the ways of mitigating risks in the firms in the economy.

The existence or the re-emergence of the silo mentality hinders the adoption of the ERM policies. It is because it affects the ways through which the implementation process is amicably realized in the economy (Kleffner et al. 2003; Middle East economic digest, 1957).

Lack of both shared understanding and approach regarding the risk management issues across the various departments within the construction firms also hinders the effective adoption of the policies in the market. It is equally important to state that the inadequate training obtained by the concerned personnel regarding the application of the ERM policies in the market also affects the amicable implementation of the policies in the market (Moore, 2013).

Also, the lack of proper understanding relating to an effective ERM process often hinders the efficient adoption of the policies in the economy across the globe (KPMG, 2010).

The perception that ERM adds to the bureaucracy also hinders the effective implementation of the policy in the modern society. It is essential to appreciate the importance of the mechanism and avoid viewing it as part of the bureaucracy so as to enhance the effective implementation of the policies and make the firms realize their full potentials in the market (Beasley et al. 2010c; RIMS and Marsh, 2006).

The perception that ERM often increases both the costs and administration often hinder the effective implementation of the policies across the globe (KPMG 2010).

Another perception that the adoption of the ERM policies often interferes with the various business activities of the construction firms has detrimentally affected the implementation of the mechanisms in the economy (CFO/Crowe, 2008).

Lack of ERM business case that provides the relevant info on what needs to be done has negatively interfered with the effective implementation of the policies in the market (KPMG, 2010).

Another major problem that has hindered the implementation of the policies is the lack of the perceived value or benefits that the ERM brings to the firms in the economy (Sterling, 2008). It makes most of the construction firms to avoid its full implementation.

Lack the commitment from either the board or the senior management to aid in the process of ERM implementation is another factor that hider for the implementation process (ANO, 2010; KPMG, 2010). It is because some of the senior management of the firms often does not perceive it as a priority (Merkley 2001; Miccolis 2003; Muralidhar 2010).

Lack of either the board or the senior management leadership among some construction firms has also affected the full implementation of the ERM policies in the market. It is because there is no personnel to authorize its implementation (Beasley et al., 2010c).

Also, the aspect of the movement of the ERM champion from the senior management position of other areas either inside or outside the firms without having a competent successor often leads to the failure to cordially adopt the ERM policies in the market (Scherer & Winston, 2012).

Lack of proper consensus regarding the importance of ERM among the senior management of the firms and the board members have in one way or the other detrimentally affected the full implementation of the policies in the modern society (Gates, 2006).

The existence of other competing priorities within the firms has also played a vital role in enhancing the ways through which the ERM implementation is affected (Beasley et al.,2010c; KPMG,2010).

Moreover, the lack of clear ERM implementation plan makes it difficult for the people who are entrusted with the task of ensuring the effective implementation of the policies in the market(ANO, 2010).

At times the inability by the people tasked with implementation of the ERM policies to effectively coordinate with the other departments within the firms has hindered the successful implementation of the policies in the market (Gupta 2011).

Also, the lack of metrics for measuring the performance of ERM makes it difficult to gauge the success rate of the implementation process in the economy (RIMS and Marsh 2006).

The existence of the unclear ownership and responsibility regarding the ERM implementation of the company has also hindered the effective adoption of the policies in the market across the world(ANO, 2010).

Some of the studies undertaken in the past also tend to suggest that the organizational turf hinders the implementation of the ERM policies among the construction companies. The aspects of resistance from the side of the employees to give up power detrimentally interfere with the ways through which the adoption of the ERM policies is undertaken all over the world (Miccolis, 2003).

Lastly, another shortcoming in the process of the full implementation of the ERM mechanisms among the construction firms is the people's reluctance to share the relevant information. The info is critical in enhancing the ways through which the amicable implementation of the policies can be undertaken by the construction companies in the global economy (Simkins 2008). Also, at times when the business is undergoing recession or downturn, then this could

negatively affect the ways through which the various construction firms adopt the ERM policies in the market (Kleffneret al., 2003).

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Research Framework:

As this research investigates the existence of ERM in the construction companies in Qatar and then examines the ERM maturity level. The research will adopt the principles which have been introducing in the book of "Enterprise Risk Management in International Construction Operations " written by Xianbo Zhao which studied the ERM in Chines construction companies in Singapore.

In this research, an assessment of the ERM implementation, which has been introduced in the book, will be used. The book identifies 16 ERM maturity criteria, which presented in the literature of this research. The key characteristics of advanced or successful ERM practices are reflected by these criteria. In the model Fig X , the independent variable is the implementation levels of these criteria while the dependent variables are the ERM maturity level.

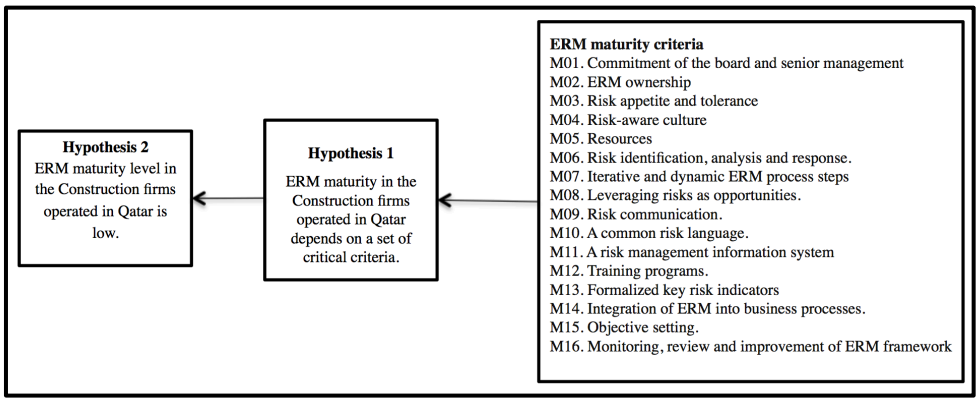

Figure 2 Hypotheses 1 and 2

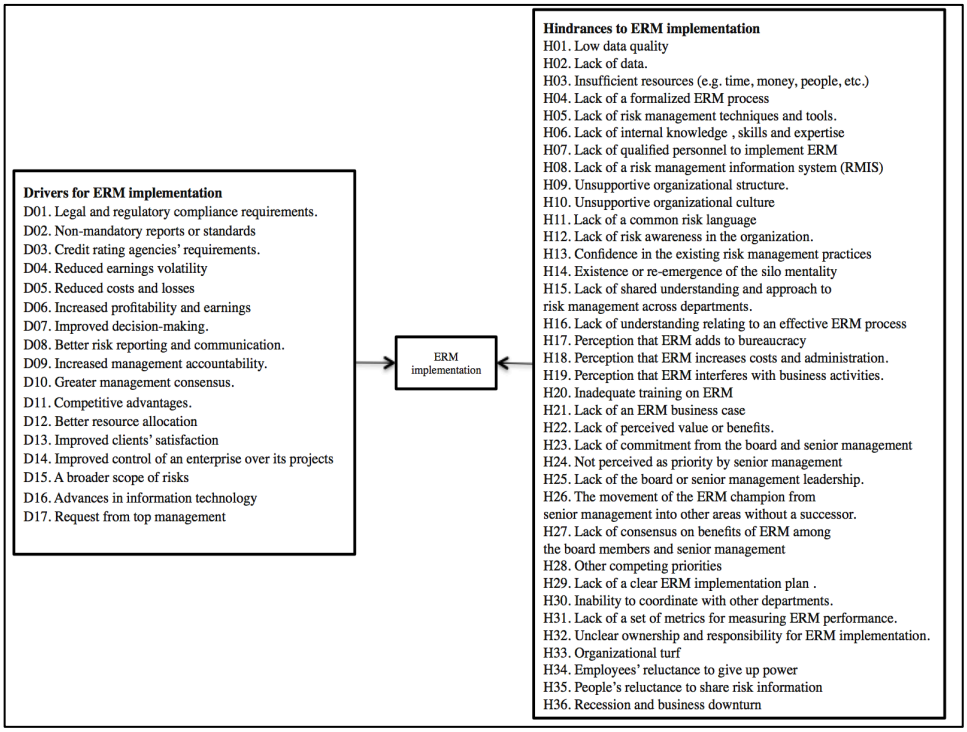

Figure 3 Hypotheses 3 and 4

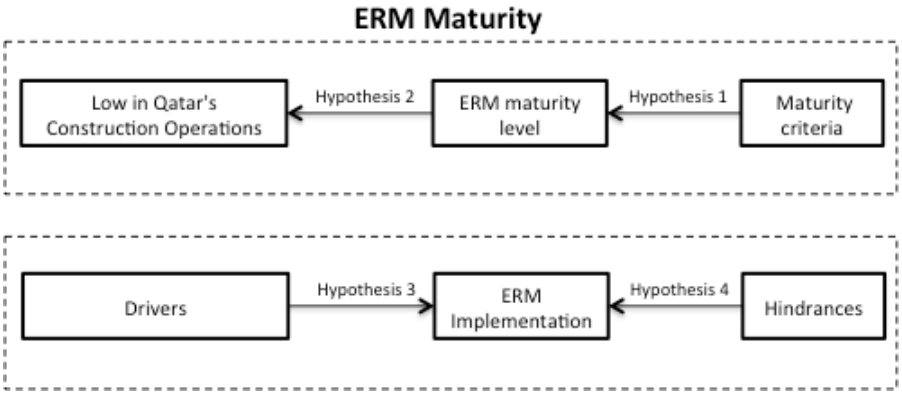

Figure 4 The link of the four hypotheses.

3.2 Research Hypothesis:

From the model Fig 2 the hypotheses of this research are the following :

H_1: ERM maturity in the Construction firms operated in Qatar depends on a set of critical criteria.

H_2: ERM maturity level in the Construction firms operated in Qatar is low.

H_3: ERM implementation in the Construction firms operated in Qatar is affected by a set of critical Drivers.

H_4: ERM implementation in the Construction firms operated in Qatar is affected by a set of critical hindrances.

3.3 Data Collection Methods

Initially, the researcher collected information from several Internet recourses regarding the Enterprise risk management practices especially in the construction industry from around the world and in the Gulf region. Then the researcher conducted the Qatar Chamber to collect information about the construction companies in Qatar and to be able reaching them.

Since the research is about the construction operations, so to overcome some of in "inherent limitations of a single approach and facilitates a complete understanding of a given construction management research phenomenon"(Love et al. 2002), this research quantitative method which was carried out by means of a web-based questionnaire (Appendix A) .The source of the questionnaire is the book and it consists of 33 questions, organized into four sections as follows:

A. **Section One(Demographic):** This section started with an introductory page describing the project. This section consisted of 8 Demographics of the respondent and his/her company. The demographics were : the Institution type , Years of company's work in the construction industry, The location of the firm , the company classification according to the Government Procurement Regulatory department at the Ministry of Finance , number of years worked in current

organization , number of years working in Qatar , the Job Level and the Nationality.

B. **Section two**: The second section was about ERM Best Practices.The respondent was asked to rate the importance of the 16 criteria, the applicability of the 71 ERM best practices according to his/her experience and knowledge, and the significance of factors. This section ended with an open question for the respondent to provide other best practices deem as important and rationale for ERM. The respondents were requested to rate the applicability of each practice in Qatar construction operations using five-point Likert scale (1 = very inapplicable, 2 = inapplicable, 3 = medium, 4 = applicable, and 5 = very applicable).

C. **Section three:** the third section was to obtain the importance of the 16 ERM maturity criteria and the applicability of the ERM best practices in Qatar's construction operation. The respondents were requested to rate the IMPORTANCE of each criterion toward ERM maturity assessment using a five-point scale: 1 = very low, 2=low, 3=medium, 4=high, 5=very high.

D. **Section four:** The fourth section of the survey was to address the critical factors that could drive and hinder ERM implementation in construction companies operated in Qatar. In this part, the respondents were asked to rate the SIGNIFICANCE of the factors in driving and hindering ERM implementation using a five-point scale: 1 = very

insignificant, 2 = insignificant, 3 = neutral, 4 = significant, 5 = very significant.

3.4 Quantitative method

The quantitative survey expected to access a larger number of respondents from construction companies in Qatar, to provide sufficient data for statistical analysis. As to Schermerhorn (1986), the advantages of using questionnaire include low cost and the facts of ambiguity among respondents that will lead to more trustful responses. The Questionnaires were designed with ” qualtrics” .

3.5 Research Measures

The measures to test the hypotheses are taken from the book of Enterprise Risk Management in International construction Operations by Xianbo Zhao.

3.5.1 The Criteria in the ERM Maturity Model

As stated in the book(ZHAO, 2015) and mentioned in the literature, to test an EM maturity, there are 16 maturity criteria need to be investigated. The criteria should reflect the implementation level of ERM, if a firm has practiced these criteria thoroughly, its ERM implementation can be deemed as highly mature(Zhao,2015). The book has dentified71 ERM best practices

that enable to understand the criteria and assess the firms ERM maturity according to their current ERM practices (ZHAO, 2015). The criteria should reflect the characteristics of an advanced or successful ERM practice. These criteria are as follows:

- M01 Commitment of the board and senior management
- M02 ERM ownership
- M03 Risk appetite and tolerance
- M04 Risk-aware culture
- M05 Sufficient resources
- M06 Risk identification, analysis, and response
- M07 Iterative and dynamic ERM process steps
- M08 Leveraging risks as opportunities
- M09 Risk communication
- M10 A common risk language
- M11 A risk management information system (RMIS)
- M12 Training programs
- M13 Formalized key risk indicators (KRIs)
- M14 Integration of ERM into business processes
- M15 Objective setting
- M16 Monitoring, review, and improvement of ERM framework

The importance of these criteria varies from one to another; hence, weights should be assigned to them. The maturity level of construction firms, therefore, depends on the weights of the criteria and the implementation levels of the criteria. (Zhao, 2015).

3.5.2 Drivers for ERM Implementation

To test the hypotheses 3, A total of 17 drivers were stated in the survey and collected from the literature review. The drivers for ERM Implementation (where "D" represents "driver") are :

- D01. Legal and regulatory compliance requirements.
- D02. Non-mandatory reports or standards.
- D03. Credit rating agencies' requirements .
- D04. Reduced earnings volatility.
- D05. Reduced costs and losses .
- D06. Increased profitability and earnings.
- D07. Improved decision-making .
- D08. Better risk reporting and communication .
- D09. Increased management accountability.
- D10. Greater management consensus.
- D11. Competitive advantages .
- D12. Better resource allocation .
- D13. Improved clients' satisfaction.

- D14. Improved control of an enterprise over its projects.
- D15. A broader scope of risks .
- D16. Advances in information technology.

3.5.3 Hindrances to ERM Implementation

The process of implementing ERM in a firm is not easy because it faces some hindrances. To test the hypotheses 4, there are hinders for ERM implementation stated in the book and identified in the literature. These hindrances include (where "H" represents "hindrance") the following:

- H01 Low data quality (Financial Management: Theory & Practice, 2016).
- H02 Lack of data (RMA 2006).
- H03 Insufficient resources (e.g., time, money, people) (AON 2010; Beasley et al. 2010c; Blades 2010).
- H04 Lack of a formalized ERM process (Kadakia, 2017; Miccolis 2003).
- H05 Lack of risk management techniques and tools (In Jeffreys & Oxford Business Group, 2014).
- H06 Lack of internal knowledge, skills, and expertise (AON 2010; In Frasers et al., 2015; KPMG 2010).
- H07 Lack of qualified personnel to implement ERM (Kleffner et al. 2003; RMA 2006; Maginn, 2007).

- H08 Lack of a risk management information system (RMIS) (CFO/Crowe 2008; Muralidhar 2010).
- H09 Unsupportive organizational structure (Blades 2010; CFO/Crowe 2008; Marks et al., 1993).
- H10 Unsupportive organizational culture (Blades 2010; Kimbrough and Componation 2009; Muralidhar 2010)
- H11 Lack of a common risk language (MEED, 1985; Muralidhar 2010; Nielson et al. 2005).
- H12 Lack of risk awareness in the organization (De la Rosa 2006; Muralidhar 2010).
- H13 Confidence in the existing risk management practices (Beasley et al. 2010c; McGeorge et al., 2013).
- H14 Existence or re-emergence of the silo mentality (Kleffner et al. 2003; Middle East economic digest, 1957).
- H15 Lack of shared understanding and approach to risk management across departments (CFO/Crowe 2008).
- H16 Lack of understanding relating to an effective ERM process (EIU 2001).
- H17 Perception that ERM adds to bureaucracy (Beasley et al. 2010c; RIMS and Marsh, 2006);
- H18 Perception that ERM increases costs and administration (KPMG 2010).

- H19 Perception that ERM interferes with business activities (CFO/Crowe 2008).
- H20 Inadequate training on ERM (Gupta 2011).
- H21 Lack of an ERM business case (Aabo et al. 2005; AON 2010; KPMG 2010).
- H22 Lack of perceived value or benefits (KPMG 2010; Sterling, 2008).
- H23 Lack of commitment from the board and senior management (ANO, 2010; KPMG, 2010).
- H24 Not perceived as priority by senior management (Merkley 2001; Miccolis 2003; Muralidhar 2010).
- H25 Lack of the board or senior management leadership (Beasley et al. 2010c).
- H26 The movement of the ERM champion from senior management into other areas without a successor (Scherer & Winston, 2012).
- H27 Lack of consensus on benefits of ERM among board members and senior management (Gates, 2006).
- H28 Other competing priorities (Beasley et al. 2010c; KPMG 2010).
- H29 Lack of a clear ERM implementation plan (AON 2010).
- H30 Inability to coordinate with other departments (Gupta 2011).
- H31 Lack of a set of metrics for measuring ERM performance (RIMS and Marsh 2006).
- H32 Unclear ownership and responsibility for ERM implementation

(AON 2010).

- H33 Organizational turf (Miccolis 2003).
- H34 Employees' reluctances to give up power (EIU 2001).
- H35 People's reluctance to share risk information (Simkins 2008).
- H36 Recession and business downturn (Kleffner et al. 2003).

3.6 Data Analysis Methods

After the data gathering procedure had been completed, the collected data was extracted as an Excel file from the "qualtrics" online portal. Some editing was needed to the file. The data gathered were analyzed using the Statistical Package for Social Science (SPSS) program. To test reliability and internal consistency of the responses the Cronbach's alpha coefficient was computed. The alpha can range from 0 to 1 and should be at least 0.7 for a scale to be reliable (Nunnally 1978).

3.6.1 To test Hypothesis 1: the Criteria in the ERM Maturity:

To test the null the one-sample t-test was conducted to test the population mean and to check wither all criterion and the best practices were significantly applicable in Qatar's construction companies. The criteria and the best practice without significant importance in the one-sample t-test are excluded.

3.6.2 To test Hypothesis 2: the ERM Maturity Level in Qatar's construction operations:

The ERM model which is proposed by Zhao in the book will be used here.Since the respondents were asked to rank the importance for each criteria using a five-point Likert scale (1 = very low, 2 = low, 3 = medium, 4 = high, 5 = very high); Table 1 shows the interpret of this scale on linguistic variables.

Table 1

The Linguistic Values For The Likert Scale 1

Linguistic value	Range of % of likelihood	Fuzzy number
Very low	0-25	(0, 0, 0.25)
Low	0-50	(0, 0.25, 0.5)
Medium	25-75	(0.25, 0.5, 0.75)
High	50-100	(0.5, 0.75, 1)
Very high	75-100	(0.75, 1, 1)

For each Significance maturity criteria:

The mean score (MS_i) for each maturity criteria were used to calculate the weights of each criterion, using the flowing equations :

$$MS_i = \sum_{i=1}^{n} (f_i s_i)/n \qquad (3.1)$$

where s_i is the score given by the respondents to significantly important criterion i, f_i is the frequency of each rating, and n is the total number of responses concerning a particular criterion. Then the weight W_i for the criterion i is calculated using the following equation:

$$W_i = MS_i / \sum_{i=1}^{n} MS_i \qquad (3.2)$$

For each Significance Best Practices:

In this section, the best practice with significance important will be used in the

model. the implementation levels of all the best practices will be the input data of the model. Then the following equation will be used to calculate the crisp number of ERM maturity level, i.e., the ERM maturity index (ERMMI) :

$$\text{ERMMI} = \sum_{i=1}^{n} (W_i \times L_i) = \sum_{i=1}^{n} \left(W_i/u \times \sum_{p=1}^{u} L_{ip} \right)$$

$$L_{ip} = 1/3 \times (l_{ip1} + l_{ip2} + l_{ip3}) \qquad (3.3)$$

$$L_i = 1/u \times \sum_{p=1}^{u} L_{ip}$$

where L_{ip} represents the crisp number of the implementation level of the best practice p under criterion i and L_i is the crisp number of the implementation level (i.e., maturity score) of criterion i. The ERMMI is in the interval of [0, 1] MI can be translated to the linguistic term according to the figure:

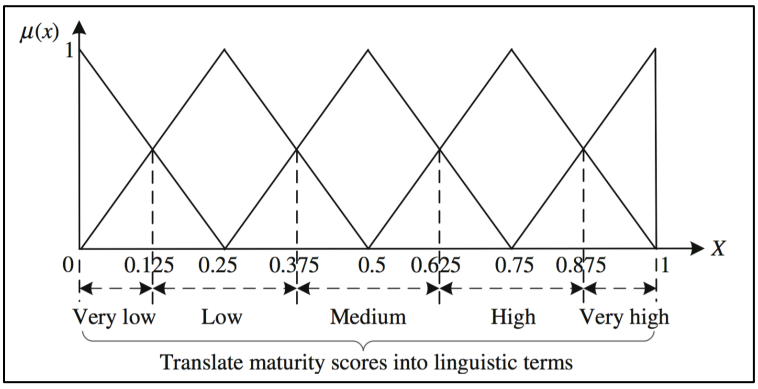

Figure 3 Translation of maturity scores

3.6.3 To test the Hypotheses 3 and 4 : the Drivers and Hindrances for the ERM Implementation:

Similarly, The one-sample t-test was conducted to test wether or not the drivers for and hindrances to ERM implementation were significant.

CHAPTER 4 : RESEARCH FINDINGS

This chapter provides an analysis of the survey conducted in this study.

4.1 Sample

As the Survey intended to investigate the importance of the ERM maturity criteria and the applicability of the ERM best practices in Qatar's construction companies. From October to December 2017, a total of 300 questionnaires were sent by email to the construction companies in Qatar, a total of 80 completed questionnaires were received, representing a response rate of 26.7 %. The response rate was consistent with the norm of 20–30 % with most questionnaire surveys conducted in the construction industry (Akintoye 2000) The Demographics of the of the respondents is indicated in Table 2.

Table 2

Demographic Profile (N=80)

Demographic		Frequency	Percent
Institution type	Qatari Construction firm	60	75%
	Non- Qatari Construction firm	20	25%
Years of work in the construction industry	5-10	44	55%
	11-15	21	26.3%
	16-20	5	6.3%
	21-25	6	7.5%
	Above 25	4	5%
Firm's Location	Qatar	71	88.6%
	Arabian Gulf Excluding Qatar	2	2.4%
	Middle East Excluding GCC	4	4.9%
	Europe	0	0%
	Asia	2	2.4%
	North America	0	0%
	Others	1	1.2%
The company classification according to the Government Procurement Regulatory department at the ministry of Finance	First	28	34.1%
	Second	24	29.3%
	Third	15	18.3%
	Fourth	10	12.2%
	Fifth	3	3.7%
No. of years worked in current organization:	One year or less	12	14.6%
	2 - 7	40	48.8%
	8 - 13	22	26.8%
	14 - 19	2	2.4%
	20 years or above	4	4.9%
No. of years working in Qatar	One year or less	10	12.5%
	2-7	39	48.8%
	8-13	22	27.5%
	14-19	5	6.3%
	20 years or above	4	5%
Job Level	Manager	26	32.5%
	Employee	54	67.5%
Nationality	Non-Qatari	38	47.5%
	Qatari	42	52.5%

75% of the respondents are from Qatari companies and for the geographical locations of the companies, 88.6% of the companies are located in Qatar which indicates that the data can reflect the opinions on ERM maturity criteria for Qatar's construction industry. In terms of experience, 45.1 % of the respondents had more than 10 years of experience in the industry. With respect to the designations of the respondents, 54 (67.5 %) were employees while 26 (32.50 %) were managers. The Qatari nationality of the respondents was 52.5% while the non Qataris were 47.5%.

4.2 Importance of the ERM Maturity Criteria in Qatar's construction companies

For each criterion, to test the reliability of the responses, Table 2 indicates that the α values of all criteria are above 0.7 which means that the data relation t the importance of the ERM maturity criteria had high reliability.

4.2.1 Testing Hypothesis 1 using one sample t-test

Table 3 shows the result of conducting one sample t-test, for each criterion' the mean score is presented.The one-sample t-test was used to test whether each criterion was significantly important to ERM maturity. The *p* values of all the criteria were all below 0.05, indicating that all the criteria had importance scores significantly different from the test value of 3.00. So, Hypothesis 1, which is "**ERM maturity level in QCCs depends on a set of**

critical criteria", was supported, as all the 16 criteria were significantly important to ERM maturity and must be used in the ERM maturity model.

4.2.2 Discussion

The top three who criteria obtained overall importance mean scores above 3.7 are "Monitoring, review, and improvement of ERM framework" (mean=3.838); "Risk-aware culture" (mean=3.7625); "ERM ownership" (mean=3.7625); "Commitment of the board and senior management" (mean=3.7625).

The results are consistency with the other studies that discussed the ERM in the other industries; as stated in the literature of this research, ERM ownership is important for the successful implementation of ERM and each risk needs an owner to take the full responsibilities of that risk.Moreover, Commitment of the board and senior management, was important criteria in QCCs as Gates indicated that Commitment of the board and senior management was the internal force that can drive ERM implementation in ERM implementation of the other industries (Gates, 2006).

Table 3

Mean Scores Of The ERM Maturity Criteria In Qccs

Code	ERM maturity criteria	Overall		
		Mean	*P* value	Cronbach's alpha coefficient
M01	Commitment of the board and senior management	3.7625	0.000	0.811
M02	ERM ownership	3.7625	0.000	0.778
M03	Risk appetite and tolerance	3.225	0.000	0.817
M04	Risk-aware culture	3.7625	0.000	0.832
M05	Resources	3.72	0.000	0.832
M06	Risk identification, analysis, and response	3.526	0.000	0.832
M07	Iterative and dynamic ERM process steps	3.538	0.000	0.832
M08	Leveraging risks as opportunities	3.795	0.000	0.832
M09	Risk communication	3.67	0.000	0.832
M10	A common risk language	3.63	0.000	0.832
M11	A risk management information system (RMIS)	3.423	0.028	0.901
M12	Training programs	3.731	0.000	0.901
M13	Formalized key risk indicators (KRIs)	3.4872	0.001	0.901
M14	Integration of ERM into business processes	3.675	0.000	0.901
M15	Objective setting	3.716	0.000	0.901
M16	Monitoring, review and improvement of ERM framework	3.838	0.000	0.901

4.3 The Applicability of the ERM Best Practices in QCCs

Table 4 shows the values of the Cronbach's alpha for each best practice, the values range from 0.778 to 0.909, indicating the acceptable reliability of the data since it is above 0.7.

The mean scores of the best practice applicability ranged from 3.02 to 4.21.

4.3.1 Testing the significance of the ERM best practices using one sample t-test

Table 4 also shows the results of conducting a one sample t-test to test whether each ERM best practice was significantly applicable in QCCs.The test was used with a test value of 3.00 and the significance level of 0.05. Table 4 shows that seven out of the 71 ERM best practices obtained *p* values over 0.05, indicating that their mean scores were not significantly different from 3.00. So, these four practices will be excluded in the ERM maturity model, as they were recognized not significantly applicable in QCCs. The seven practices were the following (Highlighted in the table): "B4.4There is neither a blame-culture nor defensive routines in a firm" (mean = 2.94; p-value = 0.074); "B7.1 New and emerging risks are consistently identified in a timely and proactive manner.." (mean = 2.94 ; p-value = 0.527); "B11.1 The firm has an RMIS that serves as a platform for risk communication and reporting,

records ERM activities, undertakes risk identification and analysis, and facilitates selecting response strategies." (Mean = 3.16; p-value = 0.127); "B11.2 Staff at all levels clearly understands how to apply the RMIS in ERM Practices." (Mean = 2.94; p-value = 0.646);" B13.1 KRIs are identified for all the critical risks that firm faces." (mean = 2.85; p-value = 0.199); "B13.4 KRIs act as early warning signals of increasing risk exposures in a firm." (mean = 2.94; p-value = 0.594)); "B14.1 Management across a firm consistently considers risk information, risk tolerance and appetite, risk priority and risk response strategies in all decision-making activities, especially in strategic decision- making." (mean = 3.19; p-value = 0.114).

Table 4

Applicability Of The ERM Best Practices

Best practices	Mean	Std. Deviation	*P* value
M01 Commitment of the board and senior management		**(α =0.811)**	
B1.1 A written ERM policy is approved by the board and senior management and is made known to all the staff	3.35	1.008	.006
B1.2 An ERM plan is developed and tailored to the corporate objectives and context	3.65	.858	.000
B1.3 All the risk-related decision-making and ERM practices are fully consistent with the ERM policy and plan	3.41	.852	.000
B1.4 The board and senior management actively takes part in ERM	3.54	.954	.000
B1.5 The commitment is continual and is not interrupted by changes in the board or senior management	3.41	1.040	.002

Criterion 2 ERM ownership		**(α =0.778)**	
B2.1A dedicated senior executive, or a stand-alone department, or a board-level committee takes charge of risk oversight and centralizes risk management	3.34	.941	.005
B2.2 All the staff actively participates in the ERM process.	3.40	1.038	.002
B2.3 Each category of critical risk has a risk owner, who fully understands the risks falling within the limit of his or her accountability	3.48	.871	.000
B2.4 All risk owners have sufficient authority to oversee any risk-related action and accept clear defined responsibility for managing the risks	3.26	.964	.034
B2.5 The authority and responsibility of risk owners is understood by staff at all levels of a firm	3.30	.999	.018
B2.6 ERM is incorporated into the performance review and assessment of risk owners	3.48	.871	.000
Criterion 3 Risk appetite and tolerance		**(α =0.817)**	
B3.1A Risk appetite is formally and clearly defined according to the corporate strategy	3.43	.965	.001
- B3.2 Risk appetite is made known to all the staff in the firm	3.53	.914	.000
B3.3 Risk tolerance for each specific risk is formally and clearly defined according to the corporate objective	3.38	1.009	.003
B3.4 Differences between risk tolerance defined and actual risks are regularly assessed	3.54	.913	.000
B3.5 Expected effects of risk response strategies are assessed against risk tolerance	3.33	.952	.007
M04 Risk-aware culture		**(α =0.832)**	
B4.1 A risk-aware culture is created throughout a firm and makes staff at all levels have risk awareness	3.51	.827	.000
B4.2 A climate of trust is built up within a firm and project teams	3.70	.906	.000
B4.3 Risk-aware culture is incorporated into the corporate culture	3.48	.871	.000
B4.4There is neither a blame-culture nor defensive routines in a firm	3.20	.968	.074
B4.5 The expected behavior within the organization is explicitly expressed to sustain a strong risk-aware culture.	3.36	1.070	.007
M05 resources		**(α =0.832)**	
B5.1 Resources are continuously invested in improving the risk management process, tools, techniques, personal skills, etc.	3.56	.898	.000
B5.2 Resources are allocated for risk response based on the results of risk analysis and risk priority.	3.36	.889	.002

B5.3 A firm has sufficient qualified staff and internal knowledge, skills and expertise to implement ERM.	3.38	.905	.001
B5.4 External consultants or experts are used to reinforce and complement existing internal knowledge and skills about ERM.	3.51	.779	.000
B5.5 A comprehensive set of metrics is consistently applied to measure ERM performance.	3.51	1.019	.000
M06 Risk identification, analysis, and response-		**(α =0.832)**	
B6.1 A firm adopts a formalized and standardized ERM process at the project and firm levels.	3.46	.728	.000
B6.2 The risk information collected is ensured to be relevant and reliable.	3.36	1.022	.005
B6.3 Qualitative and quantitative risk management tools and techniques are consistently used.	3.48	.871	.000
B6.4 A firm comprehensively identifies sources of risk, areas of impacts, and their causes and potential impacts.	3.43	.854	.000
B6.5 The likelihood of occurrence and impact magnitude of all the risks identified are analyzed in order to identify the risk rank and management priority.	3.41	.867	.000
B6.6 The relationship of different risks is considered and assessed.	3.53	.856	.000
B6.7 The appropriate risk response strategy is identified through considering the risk significance, risk appetite and tolerance, resource availability, and cost versus benefit comparisons, as well as the enterprise objectives.	3.39	.921	.001
B6.8 Risk response is designed to deal with critical risks at their sources.	3.45	1.030	.000
M07 Iterative and dynamic ERM process steps		**(α =0.832)**	
B7.1 New and emerging risks are consistently identified in a timely and proactive manner.	2.94	0.931	.527
B7.2 Risk information is collected from various sources and updated regularly.	3.58	.868	.000
B7.3 Risk identification, analysis, and response activities are continuously monitored, reviewed, and improved.	3.56	.926	.000
B7.4 The ERM process is clearly recorded to make it convenient to review and improve.	3.53	.927	.000
B7.5 Residual risks that still remain after the response measures have been fully implemented are assessed.	3.69	.756	.000
M08 Leveraging risks as opportunities		**(α =0.832)**	

B8.1 It is enterprise-widely recognized that opportunities are an aspect of risks.	3.44	.840	.000
B8.2 Opportunities are regularly identified and explored during risk management planning.	3.40	.866	.000
B8.3 Opportunities are regularly assessed by weighing the expected benefits and relevant likelihood against the potential losses and their likelihood.	3.45	.953	.000
B8.4 Opportunities for the expected improvement of firm performance are actively pursued through ERM.	3.45	.967	.000
B8.5 Risk-taking of a firm is aligned with its core competencies and risk appetite.	3.51	1.006	.000
M09 Risk communication		**(α =0.832)**	
B9.1 Risk information is consistently communicated and shared across projects and departments within the firm.	3.40	.989	.001
B9.2 Critical risk information is reported to the board and senior management in a periodic or immediate manner according to risk severity or urgency.	3.45	.926	.000
B9.3 Clear communication lines are established to ensure line managers, project managers, and frontline staff are promptly notified of critical information and decisions from senior management.	3.45	.921	.000
Criterion 9 Risk communication - B9.4 Individual comments and views of internal or external experts are encouraged during the ERM process.	3.65	.880	.000
M10 A common risk language		**(α =0.832)**	
B10.1 The risk language clearly explains the risk management terminologies and methodologies used within a firm.	3.43	.897	.000
B10.2 The risk language is understood and maintained by all the staff within a firm.	3.63	.905	.000
B10.3 The risk language is used consistently in all the communication within a firm	3.59	.896	. 000
M11 A RMIS		**(α =0.901)**	
B11.1 The firm has an RMIS that serves as a platform for risk communication and reporting records ERM activities, undertakes risk identification and analysis, and facilitates selecting response strategies.	3.16	.915	.127
B11.2 Staff at all levels clearly understands how to apply the RMIS in ERM Practices.	2.94	1.014	.646
B11.3 The functions of the RMIS are fully used in ERM practices.	3.45	.926	.000
M12 Training programs		**(α =0.901)**	

B12.1 Formalized training programs ensure all the relevant staff clearly understand the ERM policy, the ERM process, and potential benefits, thus reducing misunderstanding and anxiety about ERM.	3.39	.987	.002
B12.2 Regular training is provided for staff to maintain their high-level knowledge and skills relating to ERM.	3.55	.810	.000
B12.3 Training programs make the relevant staff learn from successes and failures from both previous and on going projects.	3.68	.808	.000
B12.4The staff who are professional or experienced in ERM share their knowledge relating to ERM with trainees in training programs.	3.40	.963	.001
M 13 Formalized key risk indicators (KRIs)		**(α =0.901)**	
B13.1 KRIs are identified for all the critical risks that firm faces.	2.85	.700	.199
B13.2 KRIs are consistently reviewed and updated	3.49	.693	.000
B13.3 KRIs are regularly monitored and analyzed by the risk owners.	3.46	.826	.000
B13.4 KRIs act as early warning signals of increasing risk exposures in a firm	2.94	.635	. 594
M14 Integration of ERM into business processes		**(α =0.901)**	
B14.1 Management across a firm consistently considers risk information, risk tolerance and appetite, risk priority and risk response strategies in all decision-making activities, especially in strategic decision- making.	3.19	1.040	.114
B14.2 ERM is fully integrated into all daily management and business processes.	3.45	.810	.000
B14.3 The implementation levels of the ERM best practices are regularly assessed to identify gaps and improve ERM practices.	3.58	.808	.000
M15 Objective setting		**(α =0.901)**	
B15.1Objectives of the firm are clearly identified and understood by staff at all levels	3.64	1.034	.000
B15.2 All objectives have performance measures and all performance measures are linked with objectives.	3.61	.987	.000
B15.3 Deviations from plans or expectations are regularly reviewed and assessed against the corporate objectives and project objectives.	3.60	.949	.000
M16 Monitoring, review, and improvement of ERM framework		**(α =0.901)**	
B16.1 A firm regularly monitors the progress of ERM implementation against, and deviation from, the ERM plan.	3.45	.899	.000
B16.2 A firm regularly reviews whether the ERM framework, policy, and plan are still appropriate according to the corporate external and internal context.	3.50	.968	.000

B16.3 Actions are taken to improve the ERM framework, policy, and plan, based on results of monitoring and reviews.	3.55	.913	.000

4.4 The ERM Maturity Level in the Qatari construction companies:

As described in section 3.6.2 of this research, Table 5 shows the calculation done using Excel for the value of the ERMMI of the Qatari construction companies.

Table 5

The Calculation Of The ERMMI Of The QCCs

Code	Li			Wi(%)	Li X Wi		
M01	0.351	0.598	0.850	0.076	0.027	0.045	0.064
M02	0.311	0.555	0.803	0.065	0.020	0.036	0.052
M03	0.334	0.579	0.830	0.054	0.018	0.031	0.044
M04	0.352	0.593	0.843	0.068	0.024	0.040	0.057
M05	0.332	0.572	0.817	0.062	0.021	0.035	0.051
M06	0.345	0.586	0.836	0.069	0.024	0.041	0.058
M07	0.370	0.613	0.863	0.059	0.022	0.036	0.051
M08	0.343	0.582	0.830	0.068	0.023	0.040	0.057
M09	0.341	0.582	0.831	0.066	0.023	0.039	0.055
M10	0.356	0.600	0.850	0.067	0.024	0.040	0.057
M11	0.328	0.575	0.825	0.060	0.020	0.034	0.049
M12	0.365	0.607	0.857	0.059	0.022	0.036	0.051
M13	0.348	0.598	0.848	0.059	0.021	0.035	0.050
M14	0.359	0.606	0.856	0.052	0.019	0.031	0.044
M15	0.373	0.614	0.864	0.060	0.022	0.037	0.052
M16	0.352	0.596	0.846	0.056	0.020	0.033	0.047
Sum				1.000	0.347	0.591	0.840
					0.347	0.591	0.840
				ERM Maturity Index		0.593	

ERMMI=1/3(0.347+0.591+0.840)= 0.593

4.4.1 Testing hypothesis 2 :

Since the value of ERMMI in the Qatari construction companies = 0.593 and as figure 4 shows, The ERMMI value falls into the regions of “medium” and “high,” and “medium” has a higher membership value than “high”. So, , the ERMMI of 0.593 can be translated into the linguistic term

"medium."

Thus So, Hypothesis 2, which is **"ERM maturity level in the Construction firms operated in Qatar is low.",** was not supported as the ERMMI shows that the ERM maturity is medium in these companies.

4.5 Drivers for ERM Implementation in QCC

Table 5 shows the value of the Cronbach's alpha coefficient is 0.904 suggesting that the data had high reliability when it relates to the drivers on ERM implementation in QCC. The mean score of the drivers to ERM implementation range from 3.26 to 4.00.

4.5.1 Testing hypothesis 3 using one sample t-test.

After conducting one sample t-test , To test whether the influence of the drivers was statistically significant, the results indicated that 2 out of the 17 drivers obtained p values grater than 0.05, implying that their mean scores were not significantly different from the test value of 3.00 , these 2 drivers are not significantly drove ERM implementation in Qatar's construction operations and will be excluded . So, Hypothesis 3, which **is "ERM implementation in the Construction firms operated in Qatar is affected by a set of critical Drivers"**, was supported. The factors are "Credit rating agencies requirements." (mean = 3.26; p-value =

0.109); “Reduced earnings volatility.” (mean = 3.23; p-value = 0.075). Whereas, 15 out of 17 drivers are significantly driving ERM implementation since their *p* is lower than 0.05. The top five drivers are the following: “Better risk reporting and communication.” and “Request and encouragement from the board and senior management” were recognized as the most significant factor in driving ERM implementation (mean = 4.00). “Better resource allocation.” Comes the second importance (mean=3.90). “Increased profitability and earnings.” Comes the third (mean=3.85).

Table 6

The Drivers Of ERM In Qccs

Code	Drivers for ERM implementation	Mean	*P* value
D01	Legal and regulatory compliance requirements.	3.68	0.000
D02	Non-mandatory reports or standards.	3.50	0.000
D03	Credit rating agencies requirements.	3.26	0.109
D04	Reduced earnings volatility.	3.23	0.075
D05	Reduced costs and losses.	3.64	0.000
D06	Increased profitability and earnings.	3.85	0.000
D07	Improved decision-making.	3.63	0.000
D08	Better risk reporting and communication.	4.00	0.000
D09	Increased management accountability.	3.68	0.000
D10	Greater management consensus	3.69	0.000
D11	Competitive advantages	3.56	0.000
D12	Better resource allocation.	3.90	0.000
D13	Improved clients satisfaction.	3.74	0.000
D14	Improved control of an enterprise over its projects	3.71	0.000
D15	A broader scope of risks	3.70	0.000
D16	Advances in information technology	3.60	0.000
D17	Request and encouragement from the board and senior management	4.00	0.000

Cronbach's alpha = 0.904

The one-sample t-test is significant at the 0.05 level (two-tailed)

4.6 Hindrances to ERM Implementation in QCC

To test hypothesis 4 of this research, first, the reliability of the hindrances to ERM implementation was tested.Table 6 shows the value of the Cronbach's alpha coefficient is 0.957 suggesting that the data had high reliability when it relates to the hindrances on ERM implementation in QCC. The mean score of the hindrances to ERM implementation range from 3.11 to 4.05.

4.6.1 Testing hypothesis 4 using one sample t-test.

After conducting one sample t-test, To test whether the influence of the hindrances was statistically significant, the results indicated that 4 out of the 36 hindrances obtained *p* values greater than 0.05, implying that their mean scores were not significantly different from the test value of 3.00. Thus, these 4 hindrances are not significantly hindrances ERM implementation in QCC. These hindrances will be excluded. So, Hypothesis 4, **"ERM implementation in the Construction firms operated in Qatar is affected by a set of critical hindrances."** was supported. The factors are "Existence or re-emergence of the silo mentality." (mean = 3.13; p-value = 0. 380); "Lack of an ERM business case." (mean = 3.13; p-value = 0. 380) ; "Organizational turf." (mean = 3.11; p-value = 0. 482); "People's reluctance to share risk information" (mean = 3.11; p-

value = 0.081) .

Table 7

The Hindrances Of ERM In Qccs

Code	Hindrances to ERM implementation	Mean	*P* value
H01	Low data quality	3.58	0.000
H02	Lack of data	3.72	0.000
H03	Insufficient resources (e.g., time, money, and people)	3.74	0.000
H04	Lack of a formalized ERM process.	3.69	0.000
H05	Lack of risk management techniques and tools.	3.63	0.000
H06	Lack of internal knowledge, skills, and expertise.	4.04	0.000
H07	Lack of qualified personnel to implement ERM.	3.81	0.000
H08	Lack of risk management information system.	3.44	0.001
H09	Unsupportive organizational structure.	3.38	0.006
H10	Unsupportive organizational culture.	3.60	0.000
H11	Lack of common risk language.	3.91	0.000
H12	Lack of risk awareness within the organization.	3.60	0.000
H13	Confidence in the existing risk management practices.	3.34	0.003
H14	Existence or re-emergence of the silo mentality.	3.13	0.380
H15	Lack of shared understanding and approach to risk management across departments.	3.68	0.000
H16	Lack of understanding relating to effective ERM Process.	3.78	0.000

H17	The perception that ERM adds to bureaucracy.	3.71	0.000
H18	Perception that ERM increases costs and administration	3.86	0.000
H19	The perception that ERM interferes with business activities.	3.89	0.000
H20	Inadequate training on ERM.	3.72	0.000
H21	Lack of an ERM business case.	3.23	0.137
H22	Lack of perceived value or benefits of ERM.	3.65	0.000
H23	Lack of commitment to the board and senior management.	4.05	0.000
H24	Not perceived as a priority by senior management.	3.98	0.000
H25	Lack of board or senior management leadership.	3.64	0.000
H26	The movement of the ERM champion from senior management to other areas without a successor.	3.64	0.000
H27	Lack of consensus on benefits of ERM among board members and senior management.	3.66	0.000
H28	Other management priorities.	3.78	0.000
H29	Lack of a clear ERM implementation plan.	3.70	0.000
H30	Inability to coordinate with other departments.	3.63	0.000
H31	Lack of a set of metrics for measuring the performance of ERM.	3.76	0.000
H32	Unclear ownership and responsibility for ERM Implementation.	3.64	0.000
H33	Organizational turf.	3.11	0.482
H34	Employees reluctance to give up power.	3.48	0.000
H35	People's reluctance to share risk information	3.11	0.081

H36	Recession and business downturn	3.48	0.000
Cronbach's alpha = 0.957			
The one-sample t-test is significant at the 0.05 level (two-tailed)			

4.7 Discussion

The study findings clearly imply that all the 16 ERM maturity criteria were significantly important and that 64 out of the 71 ERM best practices were significantly applicable in the QCCs. The seven practices that were found not significantly applicable were excluded from the ERM Maturity model. Thus, the model is formed by the 16 criteria and 64 best practices.

Moreover, The analysis results reported that the overall ERM maturity level QCCs was **Medium**. Thus, Hypothesis 2 that "ERM maturity level in QCCs is low" was not supported.

Moreover, 13 factors were reported to significantly drive ERM implementation, and 32 factors were found to significantly hinder ERM Implementation in these QCCs.

The results of this analysis were consistency with the other studies that discussed the ERM in other industries.

CHAPTER 5: CONCLUSION

This research was conducted to investigate the ERM in the construction companies in the State of Qatar. The results of the survey, which covered 200 companies, clearly underline the existence of the ERM in these companies. The research proves that 16 criteria are influencing the ERM in the construction industry in Qatar. Moreover, the research studied the 71 best practices of the ERM implementation and find out that 64 of them are applicable to the construction companies in Qatar. In addition to that, the study finds out that the are14 drivers and 34 hindrances the ERM implementation process in Qatar.

Although the research contributed to ERM literature, it has some limitations. First, the companies participation was relatively small, Due to time limits, randomly selected companies were contacted through emails and phone calls, but it did not generate the desired amount of feedback. Hence, government action is needed to help to reach a number of companies.

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APPENDICES

APPENDIX A – QU IRB APPROVAL

جامعة قطر
QATAR UNIVERSITY

Qatar University Institutional Review Board
QU-IRB

November 8, 2017

Ms. Salha Salman Al-Muhannadi
MBA Student
Qatar University
Tel.: +974 55421777
Email: 200554532@qu.edu.qa

Dear Ms. Salha Al-Muhannadi,

Sub.: **Research Ethics Review Exemption / MBA Student**
Ref.: **Project titled, "Enterprise Risk Management in Qatar's Construction Operations"**

We would like to inform you that your application along with the supporting documents provided for the above proposal, is reviewed and having met all the requirements, has been exempted from the full ethics review.

Please note that any changes/modification or additions to the original submitted protocol should be reported to the committee to seek approval prior to continuation.

Your Research Ethics Approval No. is: **QU-IRB 839-E/17**

Kindly refer to this number in all your future correspondence pertaining to this project.

Best wishes,

K. Hlali

Dr. Khalid Al-Ali
Chairperson, QU-IRB

Institutional Review Board
Office Of Academic Research

APPENDIX B – SURVEY

QUESTIONNAIRE	استبيان
Dear Participant We invite you to participate in our research study titled **" *Enterprise Risk Management (ERM) in Construction Firms Operating in Qatar*"** This research aims to gain an understanding of ERM implementation in Construction firms operating in Qatar. As part of the research, this survey is to identify the importance weightings of the criteria in an ERM maturity assessment model, and the applicability of the ERM best practices in these firms. The researcher assures you that the results of the analysis will be strictly used by the researcher for study purposes only and no individuals will be identified from their responses. Please note that there is no right or wrong answer, therefore, we seek your assistance to be as open, fair, honest as possible as you can in your responses. Your participation should take approximately 10 minutes. The information collected will be kept strictly confidential and there are no requests for disclosure of confidential information in the questionnaire. Your participation is completely voluntary and you may withdraw from this study at any time. The questionnaire comprises four parts: 1. Demographics	**عزيزي المشارك** ندعوك للمشاركة في هذه الدراسة البحثية بعنوان " إدارة المخاطر المؤسسية في شركات التشييد التي تعمل في قطر " يهدف هذا البحث إلى فهم آليه التنفيذ لإدارة المخاطر المؤسسية في شركات البناء في قطر. وكجزء من البحث، فإن هذا الاستبيان هو لتحديد أهمية ترجيح المعايير في نموذج تقييم نضج إدارة المخاطر المؤسسية. يؤكد لكم الباحث بأنه سيتم استخدام نتائج التحليل لأغراض الدراسة فقط وبأنه لن يتم التعريف أو الإشارة إلى الأفراد من خلال الإجابات المقدمة. الرجاء الملاحظة بأنه لا توجد إجابة صحيحة أو خاطئة وعليه نطلب مساعدتكم في الإجابة على الأسئلة بكل وضوح وحرية وصدق وأمانة قدر المستطاع. تستغرق مشاركتك في الاستبيان حوالي 10 دقائق وسيتم التعامل مع

2. ERM Best Practices 3. ERM Maturity Criteria 4. Drivers and Hindrances for Enterprise Risk Management If you have any questions you may contact me at 200554532@qu.edu.qa **Thank you for your valuable time** Salha AL-Muhannadi MBA student/ Qatar University	المعلومات التي سيتم جمعها بسرية تامة ولن يكون هناك أية أسئلة تستوجب الإفصاح عن بيانات سرية في هذا الاستبيان. مشاركتكم طوعية تماما ويمكنكم الانسحاب من هذه الدراسة متى شئتم ذلك يتكون الاستبيان من اربعة أقسام: 1. الديموغرافيا 2. أفضل الممارسات لإدارة المخاطر. 3. معايير النضج لإدارة المخاطر المؤسسية. 4. المؤثرات والعوائق لادارة المخاطر المؤسسية . إذا كان لديكم أي أسئلة يمكنكم التواصل معي عن طريق البريد الإلكتروني 200554532@qu.edu.qa **شكرا لكم على وقتكم الثمين** صالحه المهندي طالبة ماجستير إدارة أعمال/ جامعة قطر
Part 1: Demographics ***Please tick (✓) one box for each question:***	**الجزء الأول: معلومات عامة (ديموغرافيا)** يرجى وضع علامة (✓) أمام الإجابة:
A. Your institution type: (1) Building. ( ) (2) Maintenance of roads ( ) (3) Maintenance of Bulidings ( ) (4) Sanitation ( ) (5) Others : ----------	**A. نوع شركتك** : (1) بناء . ( ) (2) صيانة طرق. ( ) (3) صيانة مباني . ( ) (4) صرف صحي . ( ) (5) **أخرى :** . ( )

B. Years of your company's work in the construction industry: (1) 5–10 ( ) (2) 11-15 ( ) (3) 16-20 ( ) (4) 21-25 ( ) (5) Above 25 ( )	**B. عدد سنوات العمل كشركه مقاولات :** ( ) ( ) (1) 5 10 ( ) ( ) (2) 11 15 ( ) ( ) (3) 16 20 ( ) ( ) (4) 21 25 ( ) ( ) (5) 25 و أكثر
C. The location of the firm : (1) Qatar; ( ) (2) Arabian Gulf Excluding Qatar; ( ) (3) Middle East Excluding GCC ( ) (4) Europe; ( ) (5) Asia; ( ) (6) North America; ( ) (7) Others:----------.	**C. موقع الشركة :** ( ) ( ) (1) قطر. ( ) ( ) (2) دول الخليج العربي ما عدا قطر ( ) ( ) (3) الشرق الأوسط باستثناء دول الخليج العربي ( ) ( ) (4) أوروبا ( ) ( ) (5) آسيا ( ) ( ) (6) أمريكا الشمالية ( ) ( ) (7) أخرى :
D. your company classification according to the Government Procurement Regulatory department at the ministry of Finance : (1) First ( ) (2) Second ( ) (3) Third ( ) (4) Fourth ( ) (5) Fifth ( ) (6) Sixth ( )	**D. تصنيف الشركه على حسب تقييم إداره تنظيم المشتريات الحكومية بوزاره الماليه :** ( ) ( ) (1) **الاولى** ( ) ( ) (2) **الثانيه** ( ) ( ) (3) **الثالثه** ( ) ( ) (4) **الرابعه** ( ) ( ) (5) **الخامسه** ( ) ( ) (6) **السادسه**
E. No. of years worked in current organization: (1) One year or less ( ) (2) 2 - 7 ( ) (3) 8 - 13 ( ) (4) 14 - 19 ( ) (5) 20 years or above ( )	**E. عدد السنوات التي قضيتها في منظمتك الحالية:** ( ) ( ) (1) سنة أو أقل ( ) ( ) (2) 2 7 ( ) ( ) (3) 8 13 ( ) ( ) (4) 14 19 ( ) ( ) (5) 20 سنة أو أكثر
F. No. of years working in Qatar (1) One year or less ( ) (2) 2 - 7 ( ) (3) 8 - 13 ( ) (4) 14 - 19 ( ) (5) 20 years or above ( )	**E. عدد سنوات العمل في قطر :** ( ) ( ) (1) سنة أو أقل ( ) ( ) (2) 2 7 ( ) ( ) (3) 8 13 ( ) ( ) (4) 14 19 ( ) ( ) **(5)** 20 سنه أو أكثر

G. Job Level: (1) Manager ( ) (2) Employee ( )	**F. المستوى الوظيفي:** (1) مدير ( ) (2) موظف ( )
H. Nationality: (1) Qatari National ( ) **(2)** Non-Qatari National ( )	**G. الجنسية** (1) **قطري** ( ) (2) **غير قطري** ( )

Part II: ERM Best Practices الجزء الثاني :أفضل ممارسات إداره المخاطر المؤسسية

You are invited to rate the importance of the 16 criteria, the applicability of the
71 ERM best practices according to your experience and knowledge, and the significance of factors. In addition, you are welcomed to provide other best practices that you deem as important and rational for ERM. The findings of this study will be used to establish an ERM maturity assessment model for these construction firms.

آنت مدعو إلى تقييم أهمية المعايير ال١٦ ، وإمكانية تطبيق ٧١ أفضل ممارسات إدارة المخاطر المؤسسية وفقا لتجربتك ومعرفتك.
بالإضافه إلى ذلك يمكنك أضافه ممارسات آخرى تعتبرها مهمه لإداره المخاطر المؤسسية وسوف تستخدم نتائج هذه الدراسه لوضع نموذج لتقييم نضج شركات البناء بما يتعلق بإداره المخاطر المؤسسية.

Please rate the APPLICABILITY in applying the following best practices in Qatar Construction Firms using a five-point scale: 1 = very inapplicable, 2 = inapplicable, 3 = medium, 4 = applicable, 5 = very applicable
يرجى تقييم أهمية كل معياربإستخدام المعيار التالي :
1 = منخفض جدا، 2 = منخفض، 3 = متوسط، 4 = مرتفع، 5 = مرتفع جدا

No.	Criteria and best practices المعايير وأفضل الممارسات	Rating (1=Very inapplicable; 5 = Very applicable)				
		1	2	3	4	5
Criterion1 :Commitment of the board and senior management المعيار 1 :التزام مجلس الإدارة والإدارة العليا						
B1.1	A written ERM policy is approved by the board and senior management and is made known to all the staff يتم الموافقة على سياسة مكتوبة لإدارة المخاطر في المؤسسة من قبل مجلس الإدارة والإدارة العليا ويتم إبلاغ جميع الموظفين بها					
B1.2	An ERM plan is developed and tailored to the corporate objectives and context يتم وضع خطة لإدارة المخاطر بحيث تتطابق مع أهداف الشركة وسياقها					
B1.3	All the risk-related decision-making and ERM practices are fully consistent with the ERM policy and plan تتفق جميع ممارسات صنع القرار بالمؤوسسه تماما مع الممارسات ذات الصله بالمخاطر مع خطة إدارة المخاطر					
B1.4	The board and senior management actively takes part in ERM يشارك مجلس الإدارة والإدارة العليا في إدارة المخاطر المؤسسية					

B1.5	The commitment is continual and is not interrupted by changes in the board or senior management الالتزام مستمر ,ولا يتغير بتغير مجلس الإدارة أو الإدارة العليا					
Criterion 2 ERM ownership						المعيار 2 ملكية إدارة المخاطر المؤسسية
B2.1	A dedicated senior executive, or a stand-alone department, or a board-level committee takes charge of risk oversight and centralizes risk management يتولى مسؤولية الاشراف على إدارة المخاطر والرقابة عليها مسؤول تنفيذي أو قسم مستقل، أو لجنة على مستوى مجلس االإدارة					
B2.2	All the staff actively participate in the ERM process ويشارك جميع الموظفين في عملية إدارة المخاطر في المؤوسسة					
B2.3	Each category of critical risk has a risk owner, who fully understands the risks falling within the limit of his or her accountability كل فئة من فئات المخاطر الحرجة لديها مسؤول عنها والذي يفهم تماما المخاطر التي تقع في حدودها					
B2.4	All risk owners have sufficient authority to oversee any risk-related action and accept clear defined responsibility for managing the risks يمتلك المسؤول عن المخاطر أو إدارة المخاطر السلطة الكافية للإشراف على أي إجراء يتعلق بها وقبول كافة المسؤوليات لإدارتها					
B2.5	The authority and responsibility of risk owners is understood by staff at all levels of a firm الموظفين على جميع مستويات الشركة على تفهم بسلطة ومسؤوليات أصحاب المخاطر					
B2.6	ERM is incorporated into the performance review and assessment of risk owners يتم إدراج مهام إدارة المخاطر المؤسسية في تقييم الأداء لمالكي المخاطر					
Criterion 3 Risk appetite and tolerance[a]						المعيار 3 الرغبة في المخاطرة والتسامح
B3.1	Risk appetite is formally and clearly defined according to the corporate strategy يتم تحديد هوية المخاطر بشكل رسمي وواضح وفقا لاستراتيجية الشركة					
B3.2	Risk appetite is made known to all the staff in the firm يتم الإبلاغ عن مستوي الرغبة في المخاطرة لجميع الموظفين في الشركة					
B3.3	Risk tolerance for each specific risk is formally and clearly defined according to the corporate objectives يتم تحديد مستوي درجة تحمل المخاطر لكل خطربشكل رسمي وواضح وفقا لأهداف الشركة					
B3.4	Differences between risk tolerance defined and actual risks are regularly assessed يتم تقييم الفروقات بين المخاطر المحتملة والمخاطر الفعلية بانتظام					

B3.5	Expected effects of risk response strategies are assessed against risk tolerance يتم تقييم التأثيرات المتوقعة لاستراتيجيات الاستجابة للمخاطر مقابل تحمل المخاطر					

Criterion 4 Risk-aware culture	المعيار 4 ثقافة الوعي بالمخاطر

B4.1	A risk-aware culture is created throughout a firm and makes staff at all levels have risk awareness يتم إنشاء ثقافة توعية بالمخاطر في جميع أنحاء الشركة، وجعل الموظفين على جميع المستويات لديهم وعي بالمخاطر					
B4.2	A climate of trust is built up within a firm and project teams ويتم بناء مناخ من الثقة داخل الشركه وخلال فريق عمل اي مشروع					
B4.3	Risk-aware culture is incorporated into the corporate culture يتم دمج ثقافة الوعي بالمخاطر في ثقافة الشركة					
B4.4	There is neither a blame-culture nor defensive routines[b] in a firm لا توجد ثقافة لوم ولا وسائل دفاع روتينية في الشركة					
B4.5	The expected behavior within the organization is explicitly expressed to sustain a strong risk-aware culture ويعبر عن السلوك المتوقع داخل الشركة بصراحة للحفاظ على ثقافة قوية للوعي بالمخاطر					

(continued)

No.	Criteria and best practices	Rating (1 = Very inapplicable; 5 = Very applicable)				
Criterion 5 resources		المعيار 5 الموارد				
B5.1	Resources are continuously invested in improving the risk management process, tools, techniques, personnel skills, etc. يتم استثمار الموارد باستمرار في تحسين عملية إدارة المخاطر، و تحسين الأدوات والتقنيات ومهارات الموظفين، وما إلى ذلك.					
B5.2	Resources are allocated for risk response based on the results of risk analysis and risk priority ويتم تخصيص الموارد للاستجابة للمخاطر استنادا على نتائج تحليل المخاطر وأولوية المخاطر					
B5.3	A firm has sufficient qualified staff and internal knowledge, skills and expertise to implement ERM ويوجد لدى الشركة عدد كاف من الموظفين المؤهلين بالخبره والمعرفة والمهارات لتنفيذ مهام إدارة المخاطر المؤسسيه					
B5.4	External consultants or experts are used to reinforce and complement existing internal knowledge and skills about ERM ويتم الاستعانة بخبراء و استشاريون من الخارج لتعزيز ومكاملة المعارف والمهارات الداخلية القائمة بشأن إدارة المخاطر المؤسسية					
B5.5	A comprehensive set of metrics is consistently applied to measure ERM performance يتم تطبيق مجموعة شاملة من المقاييس باستمرار لقياس أداء إدارة المخاطر المؤسسية					
Criterion 6 Risk identification, analysis, and response		المعيار 6 تحديد المخاطر والتحليل والاستجابة				
B6.1	A firm adopts a formalized and standardized ERM process at project and firm levels تعتمد الشركة على عملية موحدة ومنسقة لإدارة المخاطر على مستوى المشروع والشركة					
B6.2	The risk information collected is ensured to be relevant and reliable وتضمن معلومات المخاطر التي تم جمعها أن تكون ذات صلة وموثوق بها					
B6.3	Qualitative and quantitative risk management tools and techniques are consistently used يتم باستمرار استخدام أدوات وتقنيات نوعية وكمية في إدارة المخاطر					
B6.4	A firm comprehensively identifies sources of risk, areas of impacts, and their causes and potential impacts تحدد الشركة بشكل شامل مصادر المخاطرونطاق تأثيرها وأسبابها وآثارها االمحتملة					

B6.5	The likelihood of occurrence and impact magnitude of all the risks identified are analyzed in order to identify the risk rank and management priority يتم تحليل احتمالية حدوث وحجم كل المخاطر بهدف ترتيب المخاطر لمعرفة أولوية الإدارة					
B6.6	The relationship of different risks is considered and assessed يتم النظر في العلاقة بين المخاطر المختلفة وتقييمها					
B6.7	The appropriate risk response strategy is identified through considering the risk significance, risk appetite and tolerance, resource availability, and cost versus benefit comparisons, as well as the enterprise objectives يتم تحديد الاستراتيجية الملائمة للاستجابة للمخاطر من خلال الاخذ بعين الاعتبار أهمية المخاطر، والقدرة على تحمل المخاطر والتسامح، وتوافر الموارد، ومقارنات التكلفة مقابل المقايضة،					
B6.8	Risk response is designed to deal with critical risks at their sources يتم تصميم استجابة المخاطر للتعامل مع المخاطر الحرجة من مصادرها					

Criterion 7 Iterative and dynamic ERM process steps المعيار 7 الخطوات التكرارية والديناميكية لعملية إدارة المخاطر المؤسسية

B7.1	New and emerging risks are consistently identified in a timely and proactive manner يتم تحديد المخاطر الجديدة والناشئة باستمرار في الوقت المناسب وبطريقة استباقية					
B7.2	Risk information is collected from various sources and updated regularly يتم جمع معلومات عن المخاطر من مصادر مختلفة وتحديثها بانتظام					
B7.3	Risk identification, analysis, and response activities are continuously monitored, reviewed, and improved يتم مراقبة المخاطر وتحليل أنشطة الاستجابة بشكل مستمر ومراجعتها					
B7.4	The ERM process is clearly recorded to make it convenient to review and improve يتم تسجيل عملية إدارة المخاطر المؤسسية بشكل واضح لجعلها ملائمة للمراجعة والتحسين					
B7.5	Residual risks that still remain after the response measures have been fully implemented are assessed ويجري تقييم المخاطر المتبقية التي ما زالت قائمة بعد تنفيذ تدابير الاستجابة تنفيذا تاما					

Criterion 8 Leveraging risks as opportunities المعيار 8 الاستفاده من المخاطر كفرص

B8.1	It is enterprise-widely recognized that opportunities are an aspect of risks ومن المتعارف عليه على نطاق واسع أن الفرص تشكل جانبا من جوانب المخاطر					
B8.2	Opportunities are regularly identified and explored during risk management planning يتم تحديد الفرص واستكشافها بانتظام أثناء تخطيط إدارة المخاطر					

B8.3	Opportunities are regularly assessed by weighing the expected benefits and relevant likelihood against the potential losses and their likelihood يتم تقييم الفرص بشكل منتظم من خلال تقييم الفوائد المتوقعة والاحتمالات ذات الصلة ضد الخسائر المحتملة واحتمال حدوثها					
B8.4	Opportunities for the expected improvement of firm performance are actively pursued through ERM ويجري العمل بنشاط من خلال إدارة المخاطر المؤسسية على متابعة فرص التحسين المتوقع لأداء الشركة					
B8.5	Risk taking of a firm is aligned with its core competencies and risk appetite تتماشى المخاطرالمتعلقة بإدارة المخاطر مع كفاءاتها الاساسية وقدرتها على مواجهتها					

Criterion 9 Risk communication المعيار 9 الاتصال بالمخاطر

B9.1	Risk information is consistently communicated and shared across projects and departments within the firm يتم الابالغ باستمرار عن المعلومات المتعلقة بالمخاطرومشاركتها عبر المشاريع والادارات داخل الشركة					
B9.2	Critical risk information is reported to the board and senior management in a periodic or immediate manner according to risk severity or urgency يتم ابلاغ مجلس الادارة والإدارة العليا بشكل دوري أو فوري عن معلومات المتعلقة بالمخاطر الهامة وفقا لشدة المخاطر أو إلحاحها					
B9.3	Clear communication lines are established to ensure line managers, project managers, and frontline staff are promptly notified of critical information and decisions from senior management يتم وضع خطوط اتصال واضحة لضمان ابلاغ المديرين التنفيذيين ومديري المشاريع وموظفي الخطوط الأماميةعلى وجه السرعه بالمعلومات الهامة والقرارات الصادرة عن الإدارة العليا					
B9.4	Individual comments and views of internal or external experts are encouraged during the ERM process يتم تشجيع التعليقات الفردية وآراء الخبراء الداخليين أو الخارجيين أثناء عملية إدارة المخاطر المؤسسية					

Criterion 10 A common risk language[c] المعيار 10 وجدود لغة شائعه للخطر

B10.1	The risk language clearly explains the risk management terminologies and methodologies used within a firm وتشرح لغة المخاطر بوضوح المصطلحات والمنهجيات الخاصة بإدارة المخاطر المستخدمة داخل الشركة					
B10.2	The risk language is understood and maintained by all the staff within a firm المصطلحات والمنهجيات الخاصة بإدارة المخاطر(لغة المخاطر) المستخدمة داخل الشركة مفهومه وواضحه لجميع موظفي الشركة					

B10.3	The risk language is used consistently in all the communication within a firm وتستخدم هذه اللغه باستمرار للتواصل داخل الشركة					
Criterion 11 A risk management information system (RMIS) المعيار 11 نظام معلومات إدارة المخاطر						
B11.1	The firm has a RMIS that serves as a platform for risk communication and reporting, records ERM activities, undertakes risk identification and analysis, and facilitates selecting response strategies لدى الشركه نظام معلومات لإدارة المخاطر يعمل كمنبر للتواصل والابلاغ عن المخاطر ويسجل أنشطة إدارة المخاطر المؤسسية ويتولى تحديد المخاطر وتحليلها ويساعد على اختيار استراتيجيات الاستجابة					
B11.2	Staff at all levels clearly understand how to apply the RMIS in ERM Practices الموظفون في الشركة على جميع المستويات يفهمون بوضوح كيفية تطبيق نظام إدارة المعلومات في إدارة المخاطر المؤسسية					
B11.3	The functions of the RMIS are fully used in ERM practices ويستخدم هذا النظام بشكل تام في ممارسات إدارة المخاطر المؤسسية					
Criterion 12 Training programs المعيار 12 برامج التدريب						
B12.1	Formalized training programs ensure all the relevant staff clearly understand the ERM policy, the ERM process, and potential benefits, thus reducing misunderstanding and anxiety about ERM يوجد لدى الشركة برامج تدريب رسمية لجميع الموظفين المعنيين لضمان فهمهم لسياسة إدارة المخاطر المؤسسية، وعملية إدارة المخاطر المؤسسية، والفوائد المحتملة، وبالتالي الحد من سوء الفهم بشأن مهام إدارة المخاطر المؤسسية					
B12.2	Regular training is provided for staff to maintain their high-level knowledge and skills relating to ERM وتقدم الشركة برامج تدريبية منتظمة للموظفين للحفاظ على مستوى عال من المعرفه والمهارة الرفيعة المتعلقة بإدارة المخاطر المؤسسية					
B12.3	Training programs make the relevant staff learn from successes and failures from both previous and ongoing projects هذه البرامج التدريبية تحرص على تعلم الموظفين المعنيين من النجاح والفشل في كل من المشاريع السابقة والجارية					
B12.4	The staff who are professional or experienced in ERM share their knowledge relating to ERM with trainees in training programs في هذه البرامج التدريبية يشارك الموظفين المهنيين أو ذوي الخبرة في إدارة المخاطر المؤسسية معرفتهم المتعلقة بإدارة المخاطرمع المتدربين					

Criterion 13 Formalized key risk indicators (KRIs)[d] رايعملا 13 رطاخملا تارشؤم ةيسيئرلا

B13.1	KRIs are identified for all the critical risks that a firm faces يتم تحديد مؤشرات رئيسية للمخاطر لجميع المخاطر الهامة التي تواجهها الشركة					
B13.2	KRIs are consistently reviewed and updated يتم مراجعة وتحديث هذه المؤشرات باستمرار					
B13.3	KRIs are regularly monitored and analyzed by the risk owners يتم مراقبة مؤشرات المخاطر بشكل منتظم وتحليلها من قبل مالكي المخاطر					
B13.4	KRIs act as early warning signals of increasing risk exposures in a firm تعمل هذه المؤشرات كعلامات إنذار مبكر من التعرض المتزايد للمخاطر في الشركة					

Criterion 14 Integration of ERM into business processes المعيار 14 دمج إدارة المخاطر المؤسسية في العمليات التجارية

B14.1	Management across a firm consistently considers risk information, risk tolerance and appetite, risk priority and risk response strategies in all decision-making activities, especially in strategic decision-making تدرس الادارة في جميع أنحاء الشركة بشكل مستمر معلومات المتعلقة بالمخاطر، والقدرة على تحملها والقابلية لذلك وأولوياتها واستراتيجيات الاستجابة للمخاطر في جميع أنشطة صنع القرار، وخاصة في مجال اتخاذ القرارات الاستراتيجية					
B14.2	ERM is fully integrated into all daily management and business processes يتم دمج إدارة المخاطر المؤسسية بالكامل في جميع عمليات الإدارة والأعمال اليومية					
B14.3	The implementation levels of the ERM best practices are regularly assessed to identify gaps and improve ERM practices ويتم تقييم مستويات تنفيذ أفضل ممارسات إدارة المخاطر المؤسسية بانتظام لتحديد الثغرات وتحسين ممارسات إدارة المخاطر المؤسسية					

Criterion 15 Objective setting المعيار 15 تحديد الهدف

B15.1	Objectives of the firm are clearly identified and understood by staff at all levels أهداف الشركة واضحه ومفهومه من قبل الموظفين على جميع المستويات					
B15.2	All objectives have performance measures and all performance measures are linked with objectives لجميع الأهداف مقاييس للأداء وترتبط جميع مقاييس الأداء بالأهداف					

B15.3	Deviations from plans or expectations are regularly reviewed and assessed against the corporate objectives and project objectives ويتم مراجعة وتقييم الانحرافات عن الخطط أو التوقعات بانتظام وتقييمها وفقا لأهداف الشركة وأهداف المشروع					

Criterion 16 Monitoring, review and improvement of ERM framework

المعيار 16 رصد إطار إدارة المخاطر المؤسسية واستعراضه وتحسينه

B16.1	A firm regularly monitors the progress of ERM implementation against, and deviation from, the ERM plan ترصد الشركة بانتظام التقدم المحرز في تنفيذ خطة إدارة المخاطر المؤسسية ومواجه اي انحراف عنها					
B16.2	A firm regularly reviews whether the ERM framework, policy, and plan are still appropriate according to the corporate external and internal context تقوم الإدارة بانتظام بمراجعة ما إذا كان إطاروخطه وسياسه إدارة المخاطر المؤسسية لا يزالون مناسبين للسياق الخارجي والداخلي للشركة					
B16.3	Actions are taken to improve the ERM framework, policy, and plan, based on results of monitoring and reviews وتتخذ إجراءات لتحسين إطار إدارة المخاطر المؤسسية وسياساتها وخططها، استنادا إلى نتائج الرصد والمراجعات					

[a]Risk appetite is the amount and type of risk that an organization is willing to pursue and retain, while risk tolerance is an organization's or stakeholder's readiness to bear the risk after risk response in order to achieve its objectives. Risk appetite relates primarily to the business model and is strategic, while risk tolerance relates primarily to the organization’s objectives and is tactical.

(أ) الرغبة في المخاطرة هي مقدار ونوع الخطر الذي تكون فيه المنظمة على استعداد لمتابعته والاحتفاظ به، في حين تحمل المخاطر في اي منظمة هو استعداد الجهات المعنية لتحمل المخاطر بعد الاستجابة للمخاطر من أجل تحقيق أهدافها. الرغبة في المخاطرة تتعلق في المقام الأول لنموذج الأعمال التجارية وهو استراتيجي، في حين تحمل المخاطر تتعلق في المقام الأول بأهداف المنظمة وهو تكتيكي.

[b]Defensive routines are action, policy, or practice that prevents organizational participants from
experiencing embarrassment or threat and, at the same time, prevents them from discovering the causes of the embarrassment or threat

(ب)الإجراءات الروتينية الدفاعية هي الاعمال أو السياسات أو الممارسات التي تمنع المشاركين في المنظمة من
الاحراج أو التهديدات وفي الوقت نفسه، يمنعهم من اكتشاف أسباب الحرج أو التهديد

[c]A common risk language explains the terminologies and methodologies and contributes to a common
understanding of their meanings and context throughout the enterprise

(ج) لغة المخاطرة المشتركة تشرح المصطلحات والمنهجيات المتعلقة بالمخاطر وتسهم في عملية فهم معانيها وسياقها في جميع أنحاء المؤسسة

[d]A key risk indicator (KRI) is a measure to indicate the potential, presence, level, or trend of a risk. KRIs can predict whether a risk occurred or is emerging

(د)مؤشر المخاطر الرئيسية هو مقياس للإشارة إلى احتمال وجود الخطر ومستواه و اتجاهه. يمكن لهذا المؤشرالتنبؤ بما إذا كان قد حدث الخطر أو متوقع حدوثه

If there are other ERM best practices that you deem as important and rational, please list them below:

إذا كانت هناك ممارسات أخرى لإدارة المخاطر المؤسسية تعتبرها مهمة ، يرجى ذكرها أدناه:

Part 3: ERM Maturity Criteria الجزء الثالث : معايير النضج لإدارة المخاطر المؤسسية

There are 16 criteria identified for ERM Maturity. Please rate the IMPORTANCE of each criterion toward ERM maturity assessment using a five- point scale: 1 = very low, 2 = low, 3 = medium, 4 = high, 5 = very high.

هناك 16 معيارا تم تحديدها لتقييم نضج إدارة المخاطر يرجى تقييم أهمية كل معياراستخدام مقياس نقطة فاصلة: 1 = منخفض جدا، 2 = منخفض، 3 = متوسط، 4 = مرتفع، 5 = مرتفع جدا

Table 1

No.	ERM maturity criteria معايير النضج لإدارة المخاطر المؤسسية	Rating importance				
		1	2	3	4	5
M01	Commitment of the board and senior management التزام مجلس الإدارة والإدارة العليا					
M02	ERM ownership ملكية إدارة المخاطر المؤسسية					
M03	Risk appetite and tolerance الرغبة في المخاطرة والتسامح					
M04	Risk-aware culture ثقافة الوعي بالمخاطر					
M05	Sufficient resources الموارد الكافية					
M06	Risk identification, analysis, and prioritization تحديد المخاطر والتحليل وتحديد الاولويات					
M07	Iterative and dynamic ERM process steps خطوات تكرارية وحيوية لعمليات ادارة المخاطر فالمؤسسه					
M08	Leveraging risks as opportunities الاستفادة من المخاطر والفرص					
M09	Risk communication تبادل المعلومات المتعلقة بالمخاطر					
M10	A common risk language لغة خطر مشتركة					
M11	A risk management information system نظام معلومات إدارة المخاطر					
M12	Training programs برامج تدريبية					
M13	Formalized key risk indicators مؤشرات المخاطر الرئيسية					
M14	Integration of ERM into business processes دمج إدارة المخاطر المؤسسية في العمليات التجارية					
M15	Objective setting تحديد الأهداف					
M16	Monitoring, review, and improvement of ERM framework رصد واستعراض وتحسين إطار إدارة المخاطر المؤسسية					

Part 4: Drivers and Hindrances for Enterprise Risk Management

الجزء الرابع : المؤثرات والعوائق الخاصة بإدارة المخاطر المؤسسية

You are invited to rate the extent to which the factors listed in this questionnaire drive or hinder ERM practice and the implementation level of several criteria in your firm according to your experience and knowledge. The findings of this study will be used to identify the critical drivers and hindrances to ERM implementation as well as the ERM maturity level in in constructions firms operated in Qatar. We assure you that the information provided by you will be kept strictly confidential and will be used for academic purpose only.

إنك مدعو إلى تقييم مدى تأثير العوامل المدرجة في هذا الاستبيان في ممارسات إدارة المخاطر المؤسسية ومستوى تنفيذ المعايير في شركتك وفقا لتجربتك ومعرفتك

وستسخدم نتائج هذه الدراسه لتحديد الدوافع والعوائق التي تواجه إدارة المخاطر وكذلك مستوى نضج إدارة المخاطر في شركات البناء في قطر .

ونؤكد لك أن هذه المعلومات سوف تبقى سرية تماما وستستخدم لأغراض أكاديمية فقط.

Please rate the SIGNIFICANCE of the following factors in driving and hindering ERM implementation in your firm using a five-point scale:
1 = very insignificant, 2 = insignificant, 3 = neutral, 4 = significant, 5 = very significant.

يرجى تقييم أهمية العوامل التالية في تنفيذ أو عرقلة مهام إدارة المخاطر المؤسسية في شركتك باستخدام مقياس التالي:
1 = غير واضح جدا ، 2 = غير معروف، 3 = محايد، 4 = كبير، 5 = كبير جدا.

No.	Drivers for ERM implementation المؤثرات على تنفيذ إدارة المخاطر المؤسسية	Rate significance				
		1	2	3	4	5
D01	Legal and regulatory compliance requirements متطلبات التوافق مع القاونين والأنظمة					
D02	Non-mandatory reports or standards تقارير أو معايير غير إلزامية					
D03	Credit rating agencies' requirements متطلبات وكالات التصنيف الائتماني					
D04	Reduced earnings volatility انخفاض تقلبات الأرباح					
D05	Reduced costs and losses انخفاض التكاليف والخسائر					
D06	Increased profitability and earnings زيادة الأرباح					

D07	Improved decision-making تحسين عملية صنع القرار					
D08	Better risk reporting and communication تحسين الإبلاغ عن المخاطر					
D09	Increased management accountability زيادة مساءلة الإدارة					
D10	Greater management consensus زيادة توافق الإدارة					
D11	Competitive advantages مزايا تنافسية					
D12	Better resource allocation تحسين تخصيص الموارد					
D13	Improved clients' satisfaction تحسين رضا العملاء					
D14	Improved control of an enterprise over its projects تحسين سيطرة المؤسسة على مشاريعها					
D15	A broader scope of risks نطاق أوسع للمخاطر					
D16	Advances in information technology التقدم المحرز في تكنولوجيا المعلومات					
D17	Request and encouragement from the board and senior management طلب والتشجيع من مجلس الإدارة والإدارة العليا					

No.	Hindrances to ERM implementation العوائق التي تعترض تنفيذ إدارة المخاطر المؤسسية	Rate significance				
		1	2	3	4	5
H01	Low data quality انخفاض جودة البيانات					
H02	Lack of data نقص البيانات					
H03	Insufficient resources (e.g., time, money, and people) عدم كفاية الموارد (مثل الوقت والمال والناس)					
H04	Lack of a formalized ERM process عدم وجود عملية رسمية لإدارة المخاطر المؤسسية					
H05	Lack of risk management techniques and tools عدم وجود تقنيات وأدوات لإدارة المخاطر					
H06	Lack of internal knowledge, skills, and expertise الافتقار إلى المعارف والمهارات والخبرات الداخلية					
H07	Lack of qualified personnel to implement ERM عدم وجود موظفين مؤهلين لتنفيذ مهام إدارة المخاطر					
H08	Lack of risk management information system عدم وجود نظام معلومات لإدارة المخاطر					
H09	Unsupportive organizational structure بنية تنظيمية غير داعمة					
H10	Unsupportive organizational culture ثقافة مؤسسية غير داعمة					

H11	Lack of common risk language عدم وجود لغة خطر مشترك					
H12	Lack of risk awareness within the organization نقص الوعي بالمخاطر داخل المنظمة					
H13	Confidence in the existing risk management practices ثبات في ممارسات إدارة المخاطر الحالية					
H14	Existence or re-emergence of the silo mentality وجود أو عودة ظهور عقلية الصومعة					
H15	Lack of shared understanding and approach to risk management across departments عدم وجود فهم مشترك لمهام إدارة المخاطر عبر الإدارات الاخرى					
H16	Lack of understanding relating to effective ERM Process عدم وجود فهم بفاعلية إدارة المخاطر عبر الإدارات الاخرى					
H17	Perception that ERM adds to bureaucracy التصور بأن إدارة المخاطر المؤسسية تضيف إلى					
H18	Perception that ERM increases costs and administration التصور بأن إدارة المخاطر المؤسسية تزيد التكاليف					
H19	Perception that ERM interferes with business activities الإدراك بأن إدارة المخاطر المؤسسية تتداخل مع أنشطة الأعمال					
H20	Inadequate training on ERM عدم كفاية التدريب على إدارة المخاطر المؤسسية					
H21	Lack of an ERM business case عدم وجود قضية عمل لإدارة المخاطر المؤسسية					
H22	Lack of perceived value or benefits of ERM عدم وجود قيمة أو فائده متوقعة من إدارة المخاطر المؤسسية					
H23	Lack of commitment of the board and senior management					
H24	Not perceived as a priority by senior management لا يتم اعتبار إداره المخاطر كأولوية في الادارة العليا					
H25	Lack of board or senior management leadership عدم وجود قيادة لمجلس الإدارة أوالإدارة العليا					
H26	The movement of the ERM champion from senior management to other areas without a successor					
H27	Lack of consensus on benefits of ERM among board members and senior management					
H28	Other management priorities للإدارة أولويات آخرى					
H29	Lack of a clear ERM implementation plan عدم وجود خطة واضحة لتنفيذ إدارة المخاطر المؤسسية					

H30	Inability to coordinate with other departments عدم القدرة على التنسيق مع الإدارات الأخرى					
H31	Lack of a set of metrics for measuring performance of ERM					
H32	Unclear ownership and responsibility for ERM Implementation عدم وضوح ملكية ومسؤولية تنفيذ إدارة المخاطر المؤسسية					
H33	Organizational turf[b] الحمي التنظيمي					
H34	Employees' reluctance to give up power عدم رغبة الموظفين في التخلي عن السلطة					
H35	People's reluctance to share risk information إحجام الناس عن تبادل معلومات عن المخاطر					
H36	Recession and business downturn الركود وتراجع الأعمال					

[a]Silo mentality means that persons in one department or unit do not care about risk management in other departments or units

عقلية الصوامع: يعني أن الأشخاص في إدارة أو وحدة واحدة لا يهتمون بإدارة المخاطر في الإدارات أو الوحدات الأخرى.

[b]Organizational turf means that each organization has its "domain" or field of operation. It also has

human and material resources, goals, and tasks related to the goals.

The basic factor in triggering a "turf battle" is the degree of power surrendered or gained by the organizations involved. "Power" as used here is the ability to control or manage resources to accomplish a goal. If both organizations feel they will gain by working together or having access to an equal degree of power, cooperation continues. But if one organization feels it has too much to lose by continued cooperation, it begins to defend its "turf"

يعني الحمي التنظيمي أن كل منظمة لها "مجال" أو مجال تشغيل. لديها أيضا الموارد البشرية والمادية، والأهداف، والمهام المتعلقة بالأهداف.

العامل الأساسي في إثارة "الحمي التنظيمي " هو درجة السلطة للمنظمات المعنية.

"السلطة" التي يقصد بهت هنا هي القدرة على التحكم أو إدارة الموارد لتحقيق الهدف. وإذا شعرت المنظمتان بأنهما سيكتسبان من خلال العمل معا أو سيحصلون على سلطه متساوية سيستمر التعاونبينهما . ولكن إذا شعرت إحدى المنظمات بأنها تخسر الكثير من خلال التعاون المستمر، فإنها تبدأ في الدفاع عن "السلط