

# Conceptualising Risk Culture on Enterprise Risk Management (ERM) Implementation in Construction Companies

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## ABSTRACT

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*In today's global economy, inadequate risk management and lack of risk culture can threaten a company's viability. Since the construction industry is subjected to uncertainty, construction Public Listed Companies (PLCs) need to implement Enterprise Risk Management (ERM) as an effective technique in managing risk holistically. Although the importance of ERM is widely accepted, the influence of risk culture in its' implementation is unexplored. This paper presents a conceptual model that shows the relationship between risk culture and ERM implementation. The dependent variable is ERM implementation, consist of four dimensions namely risk identification and risk assessment; risk treatment; monitor and consult; communicate and consult. The independent variables, risk culture compromise of six dimensions, which are risk policy and risk appetite; key risk indicators; accountability; incentives; risk language and internal relationships. This study aims to empirically test the relationship between risk culture and ERM implementation among Malaysian construction PLCs. The quantitative method through a questionnaire survey is adopted as a data collection for this study. Risk culture is expected to have direct effects and significantly influence ERM. This study contributes to enhancing the body of knowledge in ERM especially in understanding significant risk culture that influences its' implementation from a Malaysian perspective.*

**Keywords:** enterprise risk management (ERM), risk culture, construction companies

## INTRODUCTION

Unprecedented levels of business complexity and changing geopolitical threats make risk abounds nowadays. The financial crisis in 2007 caused a panic that rippled across global markets and consequently led to frizzling credit markets in the following year. Hence, the numerous organisational failures due to inadequate risk management and culture that resulted in considerable financial loss and damaged company reputations (Ashby & Power, 2014; Beasley, Branson, & Hancock, 2010; De Jonghe, Edelsten, & Xavier, 2013; Mcconnell, 2013).

Thereafter, Enterprise Risk Management (ERM) came into the limelight as a popular strategy that attempts to holistically evaluate and manage all of the risks faced by an organisation (Pagach & Warr, 2010). This paradigm concept is emphasizing a more comprehensive view of risk and replacing the silo approach, which compartmentalized from a department to another in an organisation. According to Lam (2014), ERM is a comprehensive and integrated framework for managing key risks in order to achieve business objectives, minimise unexpected earning volatility and maximise firm value.

When an organisation manages risk through ERM that adopts a systematic and consistent approach, it tends to lower the organisation's overall risk of failure and thereby increase performance and the value of the organisation (Gottwald & Mensah, 2016). The results from some studies indicated that ERM

implementation had a significant positive linear relationship with the firm's performance and value (Eckles, Hoyt and Miller, 2014; Hoyt and Liebenberg, 2011, 2015). Besides, ERM positively contributed to construction companies in term of reducing losses, acting as performance indicators, improving decision making and control on projects (Liu, Low, & He, 2011; Low et. al., 2013; Zhao et. al., 2013a).

Furthermore, risk culture is frequently mentioned as the key contributor to banking scandals during the global financial crisis (Ashby, Palermo, & Power, 2013; De Jonghe et al., 2013; Mcconnell, 2013). Risk culture comprises of the attitudes and behaviours of individuals and groups within an organisation related to risk awareness, risk-taking and risk management (Deloitte, 2012; EY, 2014a). Muralidhar (2010) and Rao & Marie (2007) observed that unsupportive organisation culture was a factor that hinders ERM implementation. Besides, Rao & Marie (2007) point out culture is the barrier to ERM implementation in organisations. According to Muralidhar (2010), corporate culture is considered one of the structural challenges but risk culture is considered as operational challenges for ERM implementation in the oil and gas industry. Cooper et al. (2013) also found organisation culture either important or very important on ERM implementation in an organisation.

However, risk culture is not unique to banks and other financial institutions but also mentioned in real estate, insurance and construction industry studies (Roeschmann, 2014; Schoenfeld, 2013; Zhao et al., 2013). Construction companies are not an exception from the energy industry, banking or oil and gas industry in terms of facing various types of risk in the globalisation era. Naturally, construction companies are exposed to various risks at different stages of project implementation.

Project risk management concentrates on increasing the probability and impact of positive events and decrease the probability and impact of negative events simultaneously (PMI, 2013). In addition to project risks, construction companies are facing different types of risk with the increased projects size, technology advancement and market competition (Liu, Zou, & Gong, 2013). Subsequently, construction companies can manage various type of risks holistically in a strategic setting to ensure its survival and growth through ERM (Mohd, Asmah, & Isahak, 2011).

Despite numerous studies on ERM in various industries especially banking and insurance, there are very few studies focusing on the construction industry. There is little academic research exists about the implementation and culture of ERM in construction companies. Therefore, this paper aims to conceptualise risk culture and shed more light on its role in ERM implementation for construction PLCs in Malaysia. The objectives of this study are to determine the current ERM practices and to explore the risk culture dimensions in the construction companies. This paper presents a conceptual model to explore empirically the relationship between risk culture and ERM implementation. It is followed by the research methodology before the conclusion is presented.

## **CONSTRUCTION INDUSTRY IN MALAYSIA**

The Malaysian economy had expanded to 4.3% in the third quarter of 2016 with 7.9% of construction sectors driving the overall economic performance (Department of Statistics: Malaysia, 2016). Furthermore, the value of work performed in the Malaysian construction industry had increased steadily from RM 13.2 billion in 2008 to RM31.9 billion in 2016 (Department of Statistics: Malaysia, 2016). Since it is an important industry to the country's economy, the construction industry must implement ERM successfully to manage the various types of risk encountered due to its' challenging business.

Hence, the target population of this study is construction PLCs listed in the Main Board of the Malaysia Bursa. It is because they are typically large companies with huge operations and more likely to have the resources to implement ERM. It is also similar to studies by Hoyt & Liebenberg (2011) whereby the size of the company is associated with the extent of ERM adoption.

## ENTERPRISE RISK MANAGEMENT (ERM)

Risk and opportunities are synonymous, which means every risk has an opportunity and every opportunity has a risk. Risk is the chance of something happening that will have an impact on objectives that may have a positive or negative impact (AS/NZS, 2009). Meanwhile, risk management is the culture, processes and structures that are directed towards realising potential opportunities while managing adverse effects (AS/NZS, 2009).

ERM is focused on managing and correlating all types of risk faced by the organisation holistically (McShane, Anil, & Rustambekov, 2011). At the same time, Bromiley et al. (2014) argue academics and industry practitioners have different opinions on what is ERM. Some globally acclaimed frameworks and standards from Committee of Sponsoring Organisations of the Treadway Commission (COSO, 2004b), Australia Standard/New Zealand Standard-AS/NZS ISO: 31000 (AS/NZS, 2009), International Standards Organisations- ISO 31000 (ISO, 2009) and Committee of Casualty Actuarial Society (CSA, 2003) are available to assist organisations in designing ERM around their organisational needs, type of industry and size.

In regard to this, Lam (2014) highlights organisations to adopt ERM framework that best fits their business scope and complexity as there is no perfect ERM definition applicable to every organisation. Therefore, each organisation might have different ERM frameworks depending on its corporate structure, strategic direction and business objectives (Mikes, 2009). Generally, there are five sequential process steps in regard to ERM framework (AS/NZS, 2009; COSO, 2004b; CSA, 2003; IRM, AIRMIC, & ALARM, 2002; ISO, 2009), which are;

- i. Establish the context (including the organisation's strategic objectives, internal environment, objective setting);
- ii. Risk identification and assessment (including risk analysis and risk evaluation, analysing/quantifying risk, integrating risk, assessing/ prioritizing risk);
- iii. Risk treatment (including treating/ exploiting risk; risk response);
- iv. Monitor and review (including control activities and monitoring); and
- v. Communicate and consult (including risk reporting threats and opportunities, decision and residual risk reporting)

'Establish the context' process embody the risk culture inspiration for improved decision making and risk governance. Thus, the elements in this process are considered as dimensions for risk culture. While risk identification and assessment; risk treatment; monitor and review; communicate and consult are selected as ERM implementation dimensions.

### Establish the Context

'Internal environment', 'Establish context' or 'Objective setting' components in the five ERM framework focusing on how organisations implement strategies by incorporating possible risky events that will affect their business activities. Consequently, it will set the basis on how risks are viewed and managed by the employees including top management in the organisation. The AS/NZS (2004), COSO (2004), CSA (2003), ISO (2009)(AS/NZS, 2009; COSO, 2004b; CSA, 2003; IRM et al., 2002; ISO, 2009) emphasise the cultural aspects through these components to gain an understanding on the external, internal and risk management context of the organisation. This component is considered as the foundation of risk culture in an organisation that comprises of six dimensions after the four dimensions, which formed ERM.

### Risk Identification and Assessment

Identifying events that take into account external and internal conditions, which could affect the achievement of the organisation's objectives is the start of the risk management process (AS/NZS, 2009; ISO, 2009). Residual risk is the remaining risk after treatment and inherent risk emerges due to the way the

organisation operates (AS/NZS, 2009). A comprehensive list of events including sources of risk, causes and potential consequences are generated from this process (AS/NZS, 2009; ISO, 2009). Generally, these events identified can be categorised into various types such as financial/non-financial or external/internal

The identified potential events impact on the achievement of the organisation's objectives is deliberated at the risk analysis phase. Based on risk category, events are assessed from likelihood and impact perspectives to determine the levels of risk (AS/NZS, 2009; COSO, 2004a; ISO, 2009). Factors or sources that affect the likelihood and impact should be identified. These inputs help to decide which risk requires treatment before determining the most appropriate strategies. Existing controls must also be taken into consideration before deciding on the new treatment (AS/NZS, 2009; ISO, 2009).

## **Risk Treatment**

Based on the outcome of risk analysis, risks that require treatment and priority of treatment implementation are decided in risk evaluation (AS/NZS, 2009; ISO, 2009). Some risks may not require treatment, while some risks require maintaining existing controls from the evaluation. However, other risks may require further analysis when new controls proposed from the evaluation. The first step in risk treatment involves selecting a risk response that can balance the costs and efforts of implementation against the benefits it is derived (AS/NZS, 2009; ISO, 2009). Decisions on the selected treatment are also based on technical, financial, social and other criteria depending on the organisation's goals and objectives. Several treatment options include avoiding, reducing, sharing and retaining the risk.

A risk treatment plan is used to monitor risk responses and assess their effectiveness. The plan comprises of proposed actions, responsibilities, timing, performance measures, reporting and monitoring requirements (AS/NZS, 2009; ISO, 2009). Risk treatment itself can introduce new risk or produce residual risk. The new risk is subjected to the cyclic process of assessment, treatment and monitoring. As for residual risk, it can be decided to retain the risk or repeat the treatment process depending on the levels (AS/NZS, 2009; ISO, 2009).

## **Monitor and Review**

Monitoring helps to determine the effectiveness based on proposed and implemented risk treatment. The actual progress on risk treatment plans is a good reporting system and important performance measurement or key risk indicator (AS/NZS4630,2004; ISO,2009). Lessons can be learned from events successes and failures that can be complied through monitoring and review (AS/NZS, 2009; ISO, 2009).

Monitoring is an ongoing process involving various mechanisms such as the normal routine, self-assessment and independent assessment. Event identification, risk analysis and risk treatment are considered the normal monitoring routine (COSO, 2004a). Periodic monitoring involves self-assessment on each component in the ERM by the management team (COSO, 2004a). Internal auditors and external consultant conduct an independent ERM assessment to assist organisations in monitoring and obtaining an unbiased opinion on the overall ERM implementation (COSO, 2004a).

## **Communicate and Consult**

The communication seeks to improve members of organisation understanding on risk and its process (AS/NZS, 2009). This includes increasing awareness of their roles and responsibilities with consideration on their views on risk management (AS/NZS, 2009). Engaging employees from different areas of expertise in risk assessment and treatment can ensure accountability, appreciation and support on the risk treatment plan.

Communicating actual risk information in a timely manner from top-down, bottom-up and across the departments ensures the transparency into taking the risk in daily operation and decision making (Deloitte, 2012; EY, 2014b; IRM, 2012; Protiviti, 2014; PwC, 2012). Significant risk information is reported to the

board and top management in a periodic or timely manner (Dafikpaku, 2011). Meanwhile, employees as a whole are notified critical information and decisions from the top management.

## **TOWARDS THE CONCEPT OF RISK CULTURE**

In the context of an organisation, culture provides a sense of identity for members, generating larger commitment and reinforcing standards of behaviour (Greenberg, 2011). Rohit & Webster (1989) define organisational culture as the pattern of shared values and beliefs that provide individuals with the norms for behaviours in the organisation. Organisation culture resides in the way people perceive what goes on their organisation environment (Hofstede, 2011). As a subset of organisation culture, how an organisation manages risk has implications not only to the dynamic system but also the members is risk culture (Hardy, 2015).

Essentially, the popularised view of culture focuses on the relations among the people in the organisation (Schein, 1999). Thus, the ERM framework places importance on the involvement all level of employee in an organisation and not only top management in the implementation of ERM (COSO, 2004b; Irzan, Nik, Mohamad, & Fazli, 2012). Although the mandate for risk management comes from the highest level, employees at all levels within the organisation are responsible for the success of the risk management initiative too (Ashby, Palermo, & Power, 2012; Irzan et al., 2012; Sax & Torp, 2015). ERM involves participation from not only top management but also all level of employees with a systematic approach integrating risk management process holistically.

According to Protiviti & RMA (2013), risk culture is ‘the set of encouraged and acceptable behaviours, discussions, decisions, and attitudes toward taking and managing risk within an institution. As for Deloitte (2012), ‘risk culture encompasses the general awareness, attitudes and behaviours of an organisation’s employee toward risk and how risk is managed within the organisation’. ‘Risk culture is the norms of behaviour for individuals and groups within an organisation that determine the collective ability to identify and understand, openly discuss and act on the organisation’s current and future risks’ based on (Twining et al., 2010).

## **RISK CULTURE IN ENTERPRISE RISK MANAGEMENT**

As culture is an important building block of good governance, risk culture is an essential foundation risk management architecture (Rossiter, 2001). However, key aspects or characteristics of risk culture are still undetermined (Althonayan, Keith, & Killackey, 2012; Ashby et al., 2012). Schein (1999) further elaborated that culture consists of three main components; external adaption, internal integration and basic underlying assumptions. This concept is similar to the ERM frameworks through ‘Establish the context’(AS/NZS, 2009; CSA, 2003; ISO, 2009), ‘Internal environment’ and ‘Objective setting’ (COSO, 2004b) components.

Based on Hopkin, 2017, organisation taking actions to improve the risk culture as well as ERM implementation must lead to the improvements in ERM outputs and performance. This, in turn, should have a positive impact that delivers greater benefits from ERM. The following are discussions on risk culture dimensions namely risk policy and risk appetite; key risk indicators; accountability; incentives, risk language and internal relationships.

### **Risk Policy and Risk Appetite**

Identifying the core mission and goals are usually part of an organisation’s strategy process. When consensus core mission and goals provide solutions that work repeatedly, they can be perceived as potential cultural elements (Schein, 1999). Muralidhar (2010) points out that by declaring the ERM initiative in the organisation’s vision and mission statements is a way to link risk into the strategy. Subsequently, the critical linkage between strategy execution and risk management is through the determination of risk appetite level (COSO, 2004b). Risk appetite is an essential part of risk governance by making explicit the amount of risk that an organisation is willing to take in a strategic decision (COSO, 2004b; CSA, 2003; Deloitte, 2015;

EY, 2013, 2014a; FSB, 2014; Mcging & Brown, 2014). The persistent challenge is to ensure consideration of risk appetite is truly embedded in organisation daily operations, where core objectives are understood and driving behaviours at all levels of employees (EY, 2014b).

## **Key Risk Indicators**

Besides that, an organisation's performance needs to be monitored to track the progress of a goal's achievement. Consensus on the criteria for information gathering of an organisation performance can become central elements of its culture (Schein, 1999). Similarly, senior management can identify key risk indicators (KRIs) for monitoring purposes as they execute the chosen strategic initiatives. KRIs are also developed in concert with strategic plans for individual business units and incorporate acceptable deviations from the plan that fall within the overall risk appetite of the organisation (Beasley et al., 2010). Risk owners are required to update the KRIs related to the organisation's top risk exposures.

## **Accountability**

Risk appetite coupled with KRI not only contribute to monitoring the achievement of the organisation's objectives but also improving accountability (Aureli & Salvatori, 2012; Jackson, 2015). Risk is owned by the ones closest to its occurrence (FSB, 2014) usually through bottom-up steps that build on existing functional capabilities (Muralidhar, 2010). However, it should not be seen as replacing a top-down approach but acting in parallel and reinforcing manner. Regardless of the top-bottom or bottom-up approach, everyone in the organisation is responsible for managing risk (Mcging & Brown, 2014).

## **Incentives**

Employees understand their roles in ERM implementation and feel involved in creating a common risk culture when accountability is well defined coupled with incentives. In this manner, KRIs, as well as accountability, can be linked to risk-based incentives, defined for risk owners of all hierarchical levels (Aureli & Salvatori, 2012; De Jonghe et al., 2013). The linkage between incentives and risk management to the achievement of an organisation's objectives also can generate a greater responsibility of top and middle managers in their decision making. When incentives are in the picture, employees are also more active in risk assessment and response (FSB, 2014; Mcging & Brown, 2014). Thus, employees' contribution in a discussion can result in greater efficacy of risk management and create a risk culture (Aureli & Salvatori, 2012; Dafikpaku, 2011; Jackson, 2015).

## **Risk Language**

In addition, communicating in common language and conceptual categories are critical for people of an organisation to agree on what to do, what is important and so on (Schein, 1999). An ERM mind-set and common risk language create a natural risk habitat and together dictate everyone's enterprise-wide involvement (Althonayan et al., 2012). It is important organisations communicate through common risk language (Althonayan et al., 2012; Boulwood & Dominus, 2014; Muralidhar, 2010) to ensure everyone is "on the same page". Besides creating an intimidation free atmosphere, continual performance improvement with consistent risk information can be shared across business units (Hallowell, Molenaar, & Fortunato, 2013). Risk information such as risk appetite or response can be openly expressed in a common risk language so everyone can take action in order to achieve an organisation's goal.

## **Internal Relationships**

Delivering consistency between leadership, employee behaviour and alignment with other process is important for organisation in developing risk culture (EY, 2014b). Relationships between management and employees with coordination among other departments on ERM implementation can develop a risk culture in an organisation (Gupta, 2011). Clear and open communication with participation in implementing ERM

creates a transparent environment, which eventually developed risk culture in the organisation (Kenwood & Rafferty, 2017).

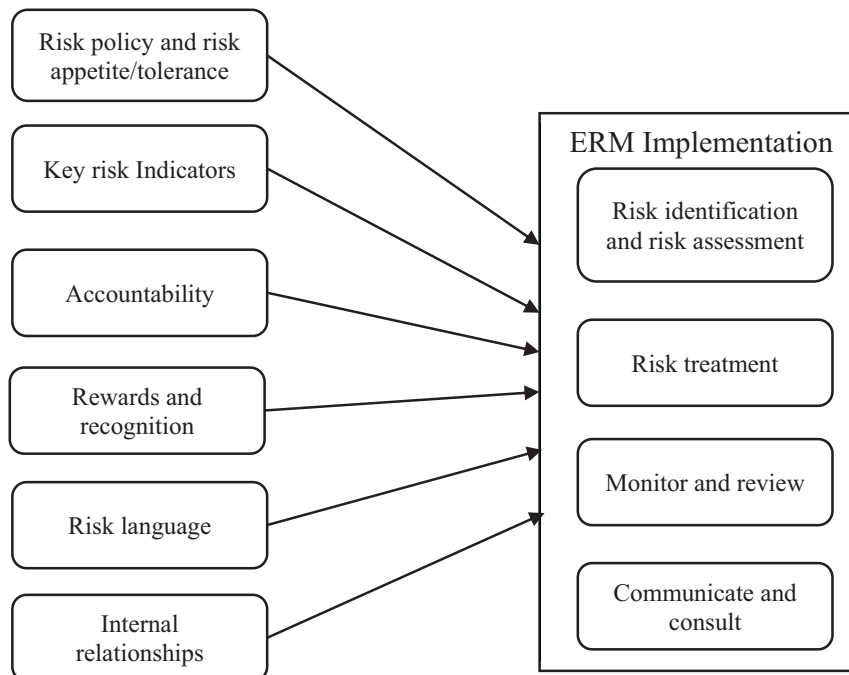
Lloyd-walker, Mills, & Walker (2014) and Mikes & Kaplan (2014) found that top management support in creating a no-blame culture can encourage employees to speak up and discuss risk issues they were worried about. Employees at different levels can communicate with their immediate supervisor about current and emerging risks that is critical to the organisation. As a way to gain employees' commitment by involvement, building risk culture can be complemented with more social and opinion sharing meeting (Dafikpaku (2011).

## THE CONCEPTUAL FRAMEWORK

The conceptual framework determines the way a researcher formulates the research problem, investigate the problem and attaches the meaning to the data accruing from the investigation. It is self-designed, formed from the literature review to determine the effect of risk culture on ERM implementation among Malaysian construction PLCs as showed in Figure 1.

The dependent variable (criterion variable or endogenous latent variable) is the main variable that lends itself as a viable factor for research (Sekaran & Bougie, 2013). They are the outcomes or results of the influence of the independent variables (Creswell, 2014). As for independent variable (predictor variables or exogenous latent variable), it is one that influences the dependent variable either a positive or negative way (Cavana, Delahaye, & Sekaran, 2001; Sekaran & Bougie, 2013).

The dependent variable for this study is ERM implementation, which is measured by the four dimensions namely risk identification and risk assessment; risk treatment; monitor and consult; communicate and consult. Based on the literature, the independent variables under risk culture are risk policy and risk appetite; key risk indicators; accountability; incentives; risk language and internal relationships. In summary, this paper proposes the conceptual framework to test the significant influence of risk culture on ERM implementation in Malaysia.



**Figure 1:** The Proposed Conceptual Framework

## RESEARCH METHODOLOGY

The target population for this study are the construction companies listed under the main board of Bursa Malaysia. PLCs are usually large size company with more complex operations, volatile earnings and most probably exposed to threatening events (Waweru & Kisaka, 2013). Therefore, a large size company is more likely to adopt ERM in their operations (Waweru & Kisaka, 2013).

This study will conduct a questionnaire survey as the research method. Firstly, the questionnaire is pre-tested to examine content validity and face validity before proceeding with the pilot study. The pilot test will involve respondents in the construction industry with experience in implementing ERM. Then, the questionnaires can be posted, emailed electronically or personally handed to the construction PLCs. Data collected from the questionnaire will be analysed using software called PLS-SEM.

PLS-SEM focuses on the prediction of a specific set of hypothesized relationships that maximizes the explained variance in the dependent variable. It is more likely to render a specific relationship significant when it is, in fact, significant in the population due to its' greater statistical power (Hair et al., 2017). Other than mining data from different sources in a short time, the cost of the software is also reasonable and it is user-friendly software.

## CONCLUSION

This study proposed a conceptual framework to investigate the relationship between risk culture and ERM implementation. The risk culture namely risk policy and risk appetite; key risk indicators; accountability; incentives; risk language and internal relationships are expected to have significant and direct effects on ERM. This study is important to determine the risk cultures' factors that might enhance the ERM implementation especially among construction public listed companies in Malaysia. Future studies can focus on the other factors that might influence its' implementation in an organisation such as the effects of risk culture and Chief Risk Officer on the relationships between top management support and ERM.

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