ROADMAP FOR EFFECTIVE IMPLEMENTATION OF ENTERPRISE RISK MANAGEMENT (ERM) AND ITS IMPACT ON PERFORMANCE IN OIL & GAS SECTOR OF PAKISTAN

Muhammad Owais Munir.
University of Engineering & Technology, Taxila.

Citation: Munir, M.O. (2018). Roadmap for effective implementation of Enterprise Risk Management (ERM) and its impact on performance in oil & gas sector of Pakistan, Journal of Strategy and Performance Management, 6(1), 37-50.

ABSTRACT

In present complex and dynamic business environment, Enterprise risk management (ERM) plays a vital role. Most of the organizations have failed to understand the horizon of risk management against risk exposure. This results in unsatisfactory risk practices which in turns reduce performance of organization. By nature a risk is unpredictable therefore more cautious companies give high importance to risk management to avoid unforeseen situations. Without proper risk management, organizations not only expose themselves against hazards but also their stakeholders, employees, customers and in some cases community suffer. The implementation of risk management should not be silo based or limited to specific functions, instead scope and scale must cover overall enterprise. ERM is enterprise level continuous process, use to identify all events either risk or opportunity that could impact on a company's objectives. ERM provides opportunity to review broad risk profile and undesirable events that may affect the organizational objectives and hence degrade the performance. Oil & gas industry plays a crucial role in country's development and economy, therefore it has strategic importance not only at organization level but also at country level. This sector has inherent high risks, large & complex operations and stringent regulatory requirements. These risks in Oil & gas industry are reasonably significant in nature and their impact is catastrophic and can give extreme damage to the company’s core objectives. The current financial crisis of the country has made a negative impact on the oil and gas sector and has caused a steep decline in market prices. Under these circumstances requirement of comprehensive and established ERM system is deemed necessary.

In Pakistan risk management is regulated under code of corporate governance rule, 2013. However, implementation of ERM in Pakistani industries is on adhoc basis and is not matured. The implementation of ERM in Oil & Gas companies depends on internal and external factors, organization culture, inherent risk related to business and industry characteristics. Our research is aimed to provide a road map to effectively implement the Enterprise risk management framework in Oil & Gas sector of Pakistan. Both qualitative and quantitative approaches are used to achieve the objectives of this study. Interview from renowned Oil companies experts and survey from risk practitioners to identify present risk management status and ERM implementation significance.
Thorough study of ERM frame works, their core elements and comparison has been carried out. It is noticed that companies prefer to adopt ERM in gradual step rather than moving directly to some desired end level. Furthermore, the effectiveness of ERM depends on risk management process, risk appetite and interest of senior management. ERM provides value addition in a sense by controlling risks and negative impact on company’s strategic goals. The implementation strategy is based on identification of key success factors, mitigation of challenges and formation of processes & tasks list for practical adoption. After analysis, a comprehensive model for implementation of ERM has been proposed and its impact on performance of organization has been discussed.

Keywords: Enterprise Risk Management, Implementation factors, ERM Frameworks, Risk Management, Risk Management in Oil & Gas, Strategies for ERM Implementation, Performance Measures.

INTRODUCTION

Risk management is an essential element of modern business operations and is based on identification, assessment and mitigation of hazards. Risk to any company varies depending upon physical location, organization structure, culture and specific discipline. Risk management components can be tailored according to need and requirements of organization keeping business structure and inherent risk in mind (Purdy, 2010). Oil and Gas business is by nature strategic for any country and nature of risks are diverse & quite complicated. These risks in Oil & gas industry are reasonably significant in nature and their impact is catastrophic and can give extreme damage to the company's core objectives. Therefore, it requires comprehensive risk management techniques (Ezuma, 2016). The current financial crisis of the country has made a negative impact on the oil and gas sector and has caused a steep decline in market prices. Nearly all the companies in Oil & Gas business are aware of criticality of risk management and have some sort of risk management models or framework implemented to avoid mentioned risks, but risk management at functional level or operational level does not guarantee hazard free environment. A complete risk management framework that would oversee all risks and their impact on strategic objectives of company is required.

The emphasis is shifted from well-known finance risk or operational risk management to strategic risk management and application of risk management at enterprise level. Frigo, 2011 emphasize that in highly uncertain environment it is necessary to link risk management with strategy. Gate, 2012 revealed that all over the world companies are adopting ERM in order to identify and manage risks. Because Enterprise risk management (ERM) provides a bridge between operational, financial, project, tactical risks and strategic objectives. It provides a complete approach to identify, assess, prioritize and mitigate those risks. There are various risk management framework developed by different bodies. Out of these frameworks COSO and ISO31000 are very much acceptable in the industry. Protiviti, 2006 report has mentioned core reasons of ERM implementation which are, align strategy & culture, enhance corporate governance, build stakeholder confidence and response to new challenges.
It is noted by William, 2013 that requirement of ERM in oil & gas has taken much importance as it provides integrated assessment of portfolio risks and safety margin based on holistic approach. Therefore, necessary to review the present status of ERM in Oil and gas sector of Pakistan; find out the factors effecting its implementation and devise the methods and techniques to align risk & strategy at enterprise level so that an overall high performance could be achieved. Literature on impact of ERM on entity performance does not provide a very clear picture.

Present literature indicates that little research has been conducted to explore the ERM implementation and its effectiveness in Oil & Gas sector particularly in this region. Specifically no research is found regarding ERM implementation and practical adoption in true spirit in Pakistan. There are risk management models like OSHA 18001 or Duo Port implemented in Oil and gas companies, but their focus is on process, operation and human safety. Even in some organizations ERM is implemented but at adhoc level and no roots throughout the company. Successful implementation of ERM depends on internal environment and culture of organization. (RMA, 2016). However, there is no implementation plan available to identify the phases and steps require to adopt ERM in Pakistani culture. Further, it is critical to develop a realistic and practical linkage between performance and ERM implementation in Oil & gas sector of Pakistan. This will provide extra edge and support for stakeholders, customers and board members.

**OBJECTIVE**

The focus of study is to identify the best suitable frame work for O&G companies of Pakistan and device a complete roll out program for effective implementation and hence value addition. The objectives of research is to identify major ERM frameworks, key success factors, major challenges and phases & steps required for ERM implementation. Further, investigate impact of ERM on performance of Oil & Gas organizations.

**LITERATURE REVIEW**

There are several definitions of risk and risk management depending on core area of business. ISO Guide 73 defines risk as “effect of uncertainty on objectives”. Risk management define as “the culture, processes and structures that are directed towards the effective management of potential opportunities and adverse effects” (AS/NZS 4360:1999). Risk assessment is process of measuring and ranking so that risk could be managed properly (Curtis et.al, 2012). In Pakistan, SECP has mentioned comprehensive risk management requirements under which, it is mandatory to prepare policy on risk management (SECP, 2013). However, it is observed that companies are unable to implement proper risk management due to lack of skills and expertise (Anwar, 2017). Risk can be classified as strategic risk, operational risk, financial risk and compliance risk. (Wei Li, 2012). COSO understands that the company’s objectives are influenced by four types of risks strategic, operations, reporting and compliance (COSO, 2004). Srini, 2016 noted that operational risk management is already in place in Oil & gas sector, however, this risk management at functional or department level didn’t guaranty proper and effective risk
mitigation. Several companies have now adopted integrated approach and implement ERM with their present risk management frameworks. Casualty Actuarial Society (CAS) defines ERM as “the discipline by which an organization in any industry assesses, controls, exploits, finances, and monitors risks from all sources for the purpose of increasing the organization’s short- and long-term value to its stakeholders”. ERM can be effectively implemented by identifying the objectives for ERM, scope of ERM, organizational structure for ERM program and tools require to implement ERM (Jerry Miccolis, 2003). The initiating point of Enterprise risk management is based on risk appetite. COSO, 2004 defines risk appetite as “The amount of risk, on a board level, an entity is willing to accept in pursuant of value”. Basic ERM frame work comprise of company’s environment, infrastructure, process and execution (Talha, 2014). Major ERM frameworks are COSO, ISO 31000 and GRC (Governance, risk, compliance). Effective implementation of ERM in any organization is based on accurate selection of ERM frame work, identification of phases and steps requires for implementation, understand factors effecting the adoption and major challenges faced by companies during execution. ERM implementation phases should be in line with organizational characteristics, objective of company, need of stakeholder, comprehensive and dynamic (CIIA, 2012). Literature review reveals that most of the ERM frame works has common steps. Common ERM implementation phases identified in different studies includes set strategy and integrate with risk, identify risks, assess risks, treat risk, control risk and communicate risks (William et. al, 2011; PMBOK5, 2016; Frigo et. al, 2009; Barbara et. Al, 2013). In his case study research Nilly, 2013 recognized four phases of implementation as risk identification & assessment, mitigation & reporting, establish risk policy and risk infrastructure.

Risk management literature has sufficient discussion on factors effecting implementation of ERM in financial organizations. However, not much has available on ERM implementation in Oil & gas from management & strategic point of view. Four main factors that can effect ERM implementation are culture, process, structure, infrastructure (Kittipat et. al, 2014). Nearly all literature identifies the importance of ownership from senior management (COSO, 2004; Vernon L et. al, 2015; Nilly, 2013; Frigo, 2011; Yegon, 2014; William, 2011; Hosseini et. al, 2016). Most of the studies highlight culture as prime factor for ERM implementation (Frigo, 2012; Nazir, 2011; Vernon, 2015; Nilly, 2015; Purdy, 2010; Prapawadee et.al, 2009; William, 2013). Another important success factor is development of ERM committee. (ISO 31000, 2010; Purdy, 2010; Prapawadee et.al, 2009; Ganesh L et.al, 2014; William, 2011). Beenie et.al, 2014; Prapawadee, 2009; Frigo, 2011; Kittipat et. al, 2014 all suggests training of people about risk as a major success factor. For effective implementation of ERM it is better to designate dedicated chief risk officer to oversee the risk management (Zurich et.al, 2012; Kerstin, 2014).

A survey conducted by ICA, 2009 deduced that 47% companies consider embedding risk management in culture as major challenge in addition to quantifying risk, quality of information and difficulty in integrating risk management with other business process. (William, 2013) recognized unrealistic expectations, fail to develop risk culture, fail to define risk appetite, lack of alignment between risk strategy & business strategy, poor data management and untrained resource, as main challenges for effective implementation of ERM. RMIA, 2015 in their study argued major challenges in ERM implementation are
Communication of risk, Establish scope, risk policy and criteria, accurate assessment of risks, Risk treatment, Monitoring and control of risks.

Literature on impact of ERM on entity performance does not provide a very clear picture. Gates, 2012 established that ERM improves risk management and better management decision which in turns efficiency and performance of company. ERM has significant impact on performance and organization identify area of improvement & enhance their governance (Ai Ping, 2015; Gates, 2012; Kashif, 2015). However, (Jan Kopia, et al. 2017; Kittipat et al. 2016; Genrikh, 2015; Manab, 2013) concluded through their study that there is weak or probably no correlation between ERM and company performance. Protiviti, 2016 indicates that ERM improves business performance through reduction in operational losses & surprises, improve regulatory compliance and improve change readiness.

RESEARCH METHODOLOGY

Classification

Overall, it's an exploratory study since no sound theoretical basis was available in context, and various ethnographic aspects suggest that a standardized solution may not provide useful solution until all contextual aspects are studied. Multiple case studies using qualitative (Interviews & Observations) and quantitative (Surveys) techniques have been used. Data Analysis approach is a mix of deductive and inductive methods. In Inductive part, thematic analysis, discourse Analysis and grounded theory have been used. In deductive part, correlation analysis has been used.

Methods

Research methodology is based on mixed approach and have utilize both qualitative and quantitative approaches. Interviews were conducted with individuals involved in Risk management implementation, risk assessment, strategic planning and enterprise risk management. The sample size is quite limited because the awareness about enterprise risk management from strategic point of view is not common. Limitations in its scope because of its narrow time and locality constraints (only Pakistani companies). Data is collected from Pakistan Petroleum Limited, Oil & Gas development Authority, MOL and consultants working for risk management in Oil & gas sector. The figures will be cross sectional in nature as they will be collected only over a single period of time. For qualitative analysis of interview data, themes were developed and well know analytical technique “Pareto Analysis” was carried out to identify vital and trivial themes. These vital themes along with concepts highlighted in literature review are utilized to develop survey questionnaires to further validate the in Pakistan context. Quantitative data derived from the survey questionnaires was analyzed using SPSS. Frequency and percent values will also be taken into account to conclude the results using MS Excel.

DATA ANALYSIS AND DISCUSSION

Analysis of Interview Data: The interview of ten (10) industry practitioners with relevant experience in risk management practices were conducted. From each interview similar
ideas are grouped together into specific themes and assign code. The detail of analyzed data, trivial and vital themes against each specific question is tabulated below.

<table>
<thead>
<tr>
<th>Vital Themes</th>
<th>Trivial Themes</th>
<th>Vital Themes</th>
<th>Trivial Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significance in implementing ERM in Oil &amp; Gas sector of Pakistan</td>
<td>Factors contributed for successful implementation of ERM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management Commitment</td>
<td>ERM Committee</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td>Integration with existing RM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ERM experts &amp; Training</td>
<td>Business sector</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk aware culture</td>
<td>Risk aware culture</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Challenges faced in ERM implementation

- Insufficient resources
- Lack of awareness
- Risk management process
- Training of Employee

Steps or phases requires for effective implementation of ERM

- Appointment of CRO
- Risk documentation
- Determine Risk appetite
- Define risk terminologies
- Budget Allocation
- ERM framework selection
- Gap analysis
- Monitoring & control of ERM program
- Communicate ERM

Impact on performance of organization

<table>
<thead>
<tr>
<th>Performance measure to indicates the ERM effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production</td>
</tr>
<tr>
<td>Reduce cost of risk</td>
</tr>
<tr>
<td>Reduce compliance cost</td>
</tr>
<tr>
<td>Enhanced Management</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Analysis of Survey Data

Quantitative data analysis is carried out to validate the themes generated through interview data. The questionnaire was distributed in hard and soft form, however, only Thirty (30) replies were received from Oil & gas industry. Distribution of the respondents with respect to their age group, gender and department is tabulated below.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Respondents Age Group</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>21-29</td>
<td>30-39</td>
<td>40-49</td>
<td>50-59</td>
</tr>
<tr>
<td>Male</td>
<td>1</td>
<td>5</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Female</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
<td>7</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td>%</td>
<td>3.3%</td>
<td>23.3%</td>
<td>36.7%</td>
<td>23.3%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Department</th>
<th>Level in Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance</td>
<td>Junior</td>
</tr>
<tr>
<td>Operation &amp; Production</td>
<td>1</td>
</tr>
<tr>
<td>Audit &amp; Compliance</td>
<td>1</td>
</tr>
<tr>
<td>Quality, Health &amp; Safety</td>
<td>1</td>
</tr>
<tr>
<td>Others</td>
<td>0</td>
</tr>
</tbody>
</table>
Strategic and operational & production risks are considered as most critical in nature in Oil and gas companies with cumulative percentage of 50.8%. This substantiates the requirement of ERM, as it will address strategic and operational level risk with better approach. The analysis of data collected from questionnaire survey and respondent’s replies are consolidated in the table above.

<table>
<thead>
<tr>
<th>Description of Response (Full Sample)</th>
<th>Not at All</th>
<th>Minimally</th>
<th>Some what</th>
<th>Mostly</th>
<th>Extensively</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1 To what extent has the complexity of risks increased in Oil &amp; gas business?</td>
<td>0.00%</td>
<td>3.30%</td>
<td>26.70%</td>
<td>50.00%</td>
<td>20.00%</td>
</tr>
<tr>
<td>Q2 To what extent Oil &amp; Gas companies faced an operational surprise or risk scenario?</td>
<td>0.00%</td>
<td>6.70%</td>
<td>43.30%</td>
<td>40.00%</td>
<td>10.00%</td>
</tr>
<tr>
<td>Q3 How would you describe the current status of risk management strategy or program at your organization?</td>
<td>Defined &amp; implemented</td>
<td>In progress</td>
<td>Future Plan</td>
<td>No Plans</td>
<td>Other</td>
</tr>
<tr>
<td>Q4 Compared to a year ago, how would you describe the current level of interest by Management &amp; Board in Risk Management in your company?</td>
<td>Higher</td>
<td>Lower</td>
<td>About the same</td>
<td>Don’t Know</td>
<td>Other</td>
</tr>
<tr>
<td>Q5 Organizational Risks are communicated and discuss with employees?</td>
<td>Not at all effective</td>
<td>Not so effective</td>
<td>Somewhat effective</td>
<td>Very effective</td>
<td>Extremely effective</td>
</tr>
<tr>
<td>Q6 How effective is Enterprise risk management (ERM) training program for employees at all levels in your organization?</td>
<td>3.30%</td>
<td>30.00%</td>
<td>53.30%</td>
<td>13.30%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Q7 What is the maturity level of above selected ERM practices in your organization?</td>
<td>Robust</td>
<td>Mature</td>
<td>Evolving</td>
<td>Developing</td>
<td>Immature</td>
</tr>
</tbody>
</table>

We have developed a list of factors effecting ERM on basis of previous studies and interview from industry experts and received responses against likert scale. The internal consistency of items and to measure reliability scale, SPSS is used to calculate the value of Cronbach’s alpha. The calculated value is 0.921 indicates that items have relatively high internal consistency.
From analysis it reveals that 56.7% understand that most significant factor that can affect the ERM implementation is Top management support in addition to appointment of CRO (43.3%) and Communication of ERM policies & procedure (40.0%). Identified challenges faced during ERM implementation has Cronbach’s alpha value is 0.712 indicates that items have relatively high internal consistency. Survey participants responded against three options “Not a challenge”, “Moderate challenge” and “Significant challenge”. Insufficient resource (63.3%), Lack of ownership (60%) and poor organizational structure (40%) are major challenges faced in ERM implementation.
Form reply against list of steps and key elements, most important step is connection of risk with strategy (96.7%) which is basic theme of ERM and communication of risk (90%). Identification of risk (83.3%) is also major step but controlling & treatment of risk is more vital (93.3%) to gain benefits from ERM process. Objective setting, risk monitoring, development of policy & procedure have equal importance (86.7%). About 90% of the respondents believe that there is significant relation between implementation of enterprise risk management and performance of organization. From analysis it reveals that Reduction in risk cost (23.3%) is most favorable performance measuring tool and can easily be calculated over a period of time. Similarly, enhanced management and increase in profit also shows the performance of organization.

FINDINGS & CONCLUSIONS

Findings

We have proposed the roadmap for effective implementation of ERM, pictorially depicted below. Enterprise risk management life cycle comprise of 04 process groups and 43 process elements. The process groups are initiation, planning, execution and monitoring & control. Time frame of each task and element against process group depends on scope of ERM and company's internal structure. Initiation is the first process group and main purpose is to formally start the ERM implementation program. The BoD recognize the requirement of ERM and develop policy, procedures and set the objectives of ERM. The scope of ERM includes high level requirements, objectives, success criteria and implementation methodology. Formulate risk management committee and assign roles and responsibilities to chief risk officer. Effective and gradual implementation of ERM in oil & gas sector is based on proficient planning. Allocation of resources which includes both human and material resources, are main tasks of planning. Assign proper roles and responsibilities with authority will ensure that every individual knows his task and relevant KPIs. The planning process group comprise of 08 processes. Main function of execution process group is to coordinate stakeholders and resources to execute all the activities as per agreed plan within target time frame. This process group takes maximum of resources and time and majority of work is conducted under execution phase. Execution phase comprise of 14 elements. Last process group ensures the effective implementation of ERM and have greater impact on performance of organization. Activities that measure and evaluate the progress of risk management plan, risk response plan and overall progress of ERM implementation are involved. Main function is to compare the actual measured results with planned.

The research model shows impact of ERM process groups and processes on performance of organization. It is practical to measure the performance impact of ERM implementation with respect to 04 major objectives. If these objectives are achieved with in risk appetite then performance is consider as optimum, otherwise risk beyond tolerance limit will be consider as poor performance. The risk appetite and tolerance limits are mentioned with corresponding color bar against these objectives. A consolidated list of performance indicator to measure effectiveness of ERM as identified through survey and interview are appended below:
Most of the industry practitioners emphasized that performance of ERM cannot be evaluated in single time frame. Since ERM is a continuous process so heat maps represents accurate level of ERM effectiveness. If number of high level risk with projected cost of risk have decreasing trend after implementation of ERM in heat map, this shows increase in performance.

Conclusion

Our study indicates that operational, technical and process related risks, which are inherent to Oil & Gas sector, if dealt in isolation and are not considered at strategic level, may cause failure of complete organization. Therefore, enterprise wide risk management is necessary to oversee strategic impact of risks and control them accordingly. Research reveals that it is high time to adopt and implement ERM practices in Oil & gas sector of Pakistan. All the respondents are convinced that survival of Oil & Gas companies is highly dependent on integrated risk management practices. Qualitative and quantitative analysis indicates that enterprise level risk management is under developing phase. Our research provides a road map for effective implementation of ERM in Oil & Gas industry. The gradual adoption of ERM reduces operational surprises, improve risk response and targeted identification of multiple risks. The research reveals that ERM program drives from top management in coordination with risk management committee and chief risk officer (CRO). Research shows that the main risk management techniques; identification, assessment and treatment remain the same. On the basis of this information, risk profile, heat maps and risk register are developed for taking appropriate decisions. From the research, it is obvious that implementation of ERM has a significant impact on performance of an organization. The performance level is measured through trends in production improvement, reduction in risk and compliance cost, better management decisions and motivational traits of employees. Achieving KPI's in targeted time frame and defined risk appetite is actually a real performance.

REFERENCES


