A Sustainable Industrial Development Approach: Enterprise Risk Management in View

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Abstract-
The need to improve upon organizational performance and operational effectiveness call for sustainable industrial development and Risk management initiatives to deliver new corporate business models. An organizations interest to integrate and implement strategic approaches to identify, access and prepare against uncertainties through its business activities hold more benefits as per increased productivity. The authors' investigation via an in-depth interview comprising of the senior and mid-level management staff of a steel-product manufacturing company in Nigeria subscribes to a single case study. We explore the implementation challenges of Enterprise Risk Management (ERM) in the supply chain of manufacturing firms. The research infers the case firm; having implemented and successfully demonstrated the ISO90001 and ISO13000 (quality and environmental standard), struggles to register any benefits with the ERM-ISO31000 operative. The findings further point at the managerial disconnect to effectively communicate the objective and the changing cultural practice. Also, notable was the worker's perception of lacking the necessary information communication assistance to influence the ERM execution. The investigation contributes to the case firm understading of ERM and successful approach towards its implementation.

Keywords: Industry, Manufacturing, organizational performance, Enterprise risk management

1. Introduction

The managerial approach concerning the adoption enterprise risk management (ERM), to reduce the negative impact of risks, attracts growing research interest [1]. Risks consideration regarding business losses, from lack of customer satisfaction to liabilities, environmental degradation, and impact on societal and cultural values owing to different levels of organizational operations is an industrial concern. The concept of ERM which considers portfolio risk management in organizations is extensive [2]. A new era of competition is characterized by moving away from aggressive selling and large marketing budgets, to a dynamic market, based on how well businesses extend their capabilities and competencies; agile supply chains responding to market demand faster and with more flexibility than their competitors. Understanding the challenges of ERM implementation according to Zhao, Hwang and Low [3]; managerial preferences and change resistance, lack of qualified and trained personnel to implement ERM, rigid organizational culture, and poor perception of the overall benefits of ERM. Sharing sensitive data and information or the lack of unified and verified risk assessment models forms part of the confrontation to ERM implementation.
There is a need to access ERM implementation possibility in specific organizational sectors based on the industry-type, implementation strategies, and location parameter. Although from literature [4] a general view on the implementation challenges of ERM is presented, there is more to be done to identify ERM disputes in specific organizations having different objectives, levels of risk tolerance and diversified risk appetites [5]. Also, whether an entity’s selection of the risk management style and framework, such as ERM, is influenced by its business model or design [6]. Furthermore, since the ERM implementation challenges have mainly been studied within the context of business experiences in different locations, there exists a gap about whether ERM implementation encounter are influenced by industry and the physical situation of those implementing enterprise.

The purpose of this research which adopts a case study is to access ERM implementation challenges within the context of a supply chain of a single manufacturing company in Nigeria. The study attempts to answer the following question: to what extent do the challenges experienced in the implementation of ERM as a risk management approach in a supply chain impart steal companies in Nigeria. The subsequent section gives a detailed review of relevant literature and concepts, followed by the methodology, findings, and concludes concerning the implication, limitations, recommendation, and future outlook.

2. Risk Consideration
2.1 What is Risk?
Risk has been defined as: “an event that causes a negative impact and can counteract value creation” [6]. We learn that risk entails an element of unpredictability and an undesirable outcome such as a loss. From a corporate enterprise perspective, risk can have an undesirable adverse impact on a firm’s operations strategy, competitiveness, finances, reputation, and compliance obligations; hence the need for risk management [7]. The early twentieth century attracted government interest to concerted risks and risks control, inspiring research in different fields of study and have resulted in the establishment of numerous standards according to the country and enterprise interest [5].

2.2 Enterprise Risk Management
The routine of events and process put in place to identify activities and access potential causative disruptive agent against organizational performance and effectiveness while preparing to manage it, draws emphasis to the concept of ERM. Due to changing business environment which is becoming more complex as a result of deregulation, globalization, downsizing, and technology advancement, businesses are faced with a broad spectrum of risks that have to be managed holistically if they are to be profitable; thus, promoting their interest in ERM [8]. Four pillars determine ERM success, which is: risk – strategy, assessment, governance, and structure [9]. However, additional prerequisites which drive ERM could ask, to answer the following question: period it will take to achieve a specific results, origin of the risk, probability of the effect that it can cause, what odds favor the company, how prepared is the enterprise and are the staffs enlightened to deal with the incident.

2.3 Enterprise Risk Management and Manufacturing Industry Supply Chain
Nowadays the speed of technological evolution, energy management, and environmental security are detrimental for sustainability and industrialization. Otherwise, our current
creations may contribute to the future horror that threatens our existence (anthropogenic climatic situation). Hence, have led to the birth of the Sustainable Development Goals (SDG), attracted intergovernmental collaborations, prospecting to achieve the seventeen agendas of the SDG [10]. The later finds relevance also in industrial operational effectiveness and the manufacturing sector. Especially, from the scope of supply chain management which organizes the different processes for suppliers to meet customer satisfaction through cost-effective order fulfillment, targeting current and future profitability [5][11]. The risk management perspective in supply chain activities concentrates on avoiding low performance, responsive and productivity in business operation.

The steal-product manufacturing company’s value chain consists of the following operations: material exploration and costing and selection, to the pre-processing and transportation under different safety consideration and using various means of transport, and down to the activities entailing process operations, changing the shape configuration, designing, building the product and finally, marketing of the products. These value chain operations lead to interactions with other players, and elements (weather, government policy, deregulation, globalization, downsizing, and technology advancement.) that can affect the of the enterprise projection. Not to mention the supply and demand risks which affects development of a manufacturing firm decision bureaucracy, sourcing strategies, transit time and seasonal demand variation, etc.

3. Methodology
3.1 Research Design and Sampling Technique
The case firm understudied in the present paper has a national presence in Nigeria, with production operations and a head office in Kaduna, thus, a single case study research approach. This was to support the study’s aim of investigating a case of a manufacturing supply chain, by gathering real-life experiences from participants through a cross-sectional design, where participants were interviewed once to capture their experiences at that particular point in time. The company boasts about ISO 90001 certification (Quality management) and other relevant organizational standards for their business operations and had recently introduced ERM (ISO31000), but implementation challenges frustrates the process. Hence, the author centers on the experiences of the workers. In this study, practitioners responsible for ERM implementation and relevant senior management were interviewed, then follows the selection of participants who have had experience in the implementation of ERM in the business’ supply chain.

3.2 Data Collection
A face-to-face interview which took a semi-structured format was conducted in an enclosed office at different times based on the availability of the participants’ (eleven). These process enabled the researcher to ask predetermined questions with flexibility, and gaining clarity of what is discussed. A discussion guide with open-ended questions was also developed, incase participants wanted to respond differently as in [12]. Because the researcher is a mid-level manager at the firm with informed knowledge of the capability of some of the workers, a case of no bias was agreed. Participants were requested to sign consent forms in which they agreed to their voluntary participation. A request was then made to audio-record the interview. The interviews lasted from 10 to 20 minutes, with an average duration of 15 minutes. Data which were transcribed from the interview were organized and computed in a spreadsheet on the same day/session held.
3.4 Data Analysis

A thematic analysis technique was adopted to analyze the data, thereby identifying meaningful patterns across the data. An iterative process of data coding and codes splitting led to the development of the final codes that were closest to the study topic. The features in the codes were reviewed and clustered into sub-themes to conform with the challenges identified in Ref. [5]. The themes were defined to ensure an understanding of the context in which they were used in the study. To link the findings to the topic, the main themes and the sub-themes were then linked together with raw data extracts from the interviews.

4. Results and Discussion

Table 1 below lists nine ERM implementation challenges according to John and Betty (2016) which is used to make inference for the sub-theme during the interview process. The table indicates which of the implementation challenges were mentioned by participants.

Table 1. Themes used in study and corresponding to ERM challenges of implementing [5]

| Participant | Misconception | Organizational internal challenges |
|-------------|---------------|-----------------------------------|
|             | Boards of directors concern | Cultural change | Not recognizing ERM as change | Training without risk workshops | Identifying too many risks | No timeframes | Not making ERM enjoyable or meaningful | Not applying a KISS mindset |
| P1          | N.a           | X        | X        | X        | X        | X        | X        | X        | X        |
| P2          | N.a           | X        | X        | X        | X        | X        | X        | X        | X        |
| P3          | N.a           | X        | X        | X        | X        | X        | X        | X        | X        |
| P4          | N.a           | X        | X        | X        | X        | X        | X        | X        | X        |
| P5          | N.a           | X        | X        | X        | X        | X        | X        | X        | X        |
| P6          | N.a           | X        | X        | X        | X        | X        | X        | X        | X        |
| P7          | N.a           | X        | X        | X        | X        | X        | X        | X        | X        |
| P8          | N.a           | X        | X        | X        | X        | X        | X        | X        | X        |
| P9          | N.a           | X        | X        | X        | X        | X        | X        | X        | X        |
| P10         | N.a           | X        | X        | X        | X        | X        | X        | X        | X        |
| P11         | N.a           | X        | X        | X        | X        | X        | X        | X        | X        |

The current research did not consider the ‘misconception-criteria,’ as a challenge in the case firm for ERM implementation. The authors regard the concept to be relative but non-applicable in the present study.
4.1.1 Boards of Directors Concern
A lack of ERM management interest, as it concerns senior managers, was cited by all participants as an implementation challenge. It is possible that a majority of the management board does not have adequate knowledge about risk or may not fully understand their roles.

4.1.2 Cultural Change
All participants mentioned ‘changing the culture’ as one of the main challenges of ERM implementation. Resistance to cultural changes affects the vision of an enterprise since workers involvement in developing a broad-based action plan to control the organizational change, efforts are relaxed. In our investigation, cultural change and resistance to embracing ERM as a risk management tool was identified to be among the top challenges.

4.1.3 Not Recognizing ERM as Change Management
All participants cited mismanagement conduct to support the ERM objectives and the supply chain business strategy. Also, it was noted that critical information’s are disseminated differently and among supposed highly regarded/special groups. For instance, they felt that some of the supply chain strategic objectives, such as dealing with risk emanating from sole source suppliers, industrial action in supplier companies, possible supplier bankruptcy, and materials price fluctuations, are not adequately addressed by the firms ERM objectives.

4.1.4 Training Without Having Risk Workshops
Notably that in the past, ERM was only trained to senior executive managers,’ however due to changing business strategy and more call for sustainable intervention, the consideration had changed. Regardless, in this study Inadequate training of personnel and other key facilitators responsible for ERM advocacy and implementation was identified by all participants as presenting implementation challenges.

4.1.5 Identifying Too Many Risks
Participants identified a lack of understanding of the background of implementation that will benefit the company with regards to business risk or as an important implementation challenge to be resolved. It is important to enlighten staff about the relevant value of the different list of risk management benefit and the priority level.

4.1.6 No Timeframes
Combining the technicality and complexity involved the business case of this research study, with the tendency to identify specifically the time frame before ERM implementation is observed becomes a probable cause of reason and judged to pose a challenge. Workers are under self-pressure therefore to deliver or not.

4.1.7 Not Making ERM Enjoyable or Meaningful
Although, the propensity to a network is the social call, even while on the job. The majority of participants in the study do not view the rigidity of ERM and its processes as posing any significant challenges to its implementation. As such, ERM ensures consistent treatment and responses towards risk, and provide response to the risk management requirements as per the case company’s nature of business.
4.1.8 Not Applying a KISS Mindset
The misunderstanding that only certain things can bring about specified outcomes: most participants identified the lack of relevant and appropriate information technology tool to facilitate and support ERM implementation as a challenge.

4.2 Lessons Learnt
The findings which concerned the board of director’s interest for ERM implementation is dependent on the business approach to tackle risks. The lack of ERM support by top management, such as senior managers, was found to be among the top ERM implementation challenges and aligns with ref [13]. However, this finding contradicts the ERM assertion that views senior management’s as active support of ERM at a given time [9]. This research unveils an existing situation which proofs that the ERM processes has not been implemented collective across-boards, within the supply chain structure of the firm but rather was initiated at managerial level and a select of departments. Cultural change management becomes futile or as it pertains to the difficulties through which businesses prevails when it fails to embrace the prevalence of ERM as a new business-wide risk management approach. Discussions concerning literacy level requirement of ERM implementation challenge among senior management to separate their business strategy from ERM objectives was also identified.

Further findings indicated gaps within personnel development about the identified lack of ERM knowledge and training. This finding agrees with the scenario; where organizations and industries that lack of adequate training in ERM implementation for the relevant staff poses implementation challenges [6]. Also, the misconception about the sub-theme of identifying too many risks takes a look at organizational design and challenges to ERM implementation in the case firm. It goes to say that the perspective of not making ERM fun undermines the objective of the firm if the complex nature of its supply chain Identified in the steel-product manufacturing firm agrees with the prescriptive and the rigid nature of ERM implementation at all times in the organizational operation process. Hence, a more precise ERM framework with flexible description is required as necessitated by Singhal et al. [14].

Finally, on ‘Not applying a KISS mindset’ considers the effectiveness of ERM dependent on the structure of the supply chain risk management approach, whether versatile to incorporate suitably and the relevant information technology tool or software to support ERM implementation. Regardless, it is observed that the participant all push for advancement to this course. This is already an implementation challenge as workers do not feel to have what is required to drive the process and supports the claim that ERM is a difficult framework to support without information technology advancement [5]. In conclusion to the findings which indicate that ERM has not effectively assisted the case firmly in managing its supply chain risks, and with regards to its location being in a central business area. The Organizations’ effectiveness is threatened by the challenges identified above, necessitating action but in a progressive, manner which integrates dialogue and through the most effective process of enlightenment, reassessment and onward deployment/engagement.

5. Conclusion
The study’s findings have a specific impact on the management of the case firm. The role of the enforcers and practitioners in ERM implementation has shown to be pivotal to its success and
grately impact the overall process. The results indicate that, before the roll-out of ERM, management and general employee training through ERM business case workshops or other relevant educational engagements, and incorporating ERM principles in supply chain strategy crafting activities, should be set as prerequisites. This will ensure for other possible challenges, such as resistance to ERM and a lack of alignment between different functional strategies and ERM objectives to be eliminated. More so, the training of personnel responsible for ERM implementation, such as risk aversion practitioners, should also be as a priority to the case firm. ERM implementation should be supported by a fit-for-purpose information technology system or tool. Adequate time should be spent on researching the most appropriate information technology system, and the necessary investment should be made in such a system. A return on this investment would be a successfully implemented ERM, enabling business competitiveness over others [16]. This competitiveness would allow the business to continue playing its critical role in the economy, uninterrupted by negative risk consequences.

5.1 Limitations, recommendation, and future outlooks

The findings of the study are based on a single steel-product manufacturing firm, with potentially different results, if other steel-product companies were to be considered. Therefore a future research study could include multiple single steel-product businesses, confined to the supply chain processes, to compare and validate the findings of this study. Future research area could be on the analysis of ERM implementation challenges in a business operating in another sector and a function other than the supply chain. The study has analyzed ERM implementation challenges inbound (focusing on internal organizational problems) of a firm’s supply chain. Further studies could entail in-depth ERM implementation challenges in the outbound supply chain. The study did not look at the correlation between different business’s or characteristics, e.g., type of business, its structure and complexity, and their influence on ERM planning and implementation decisions. Future research could also be a quantitative study on the correlation between these variables.

Reference

[1] A. Ghadge, S. Dani, M. Chester, and R. Kalawsky, “A systems approach for modelling supply chain risks,” *Supply Chain Manag.*, 2013.
[2] M. J. Khan, D. Hussain, and W. Mehmood, “Why do firms adopt enterprise risk management (ERM)? Empirical evidence from France,” *Manag. Decis.*, 2016.
[3] X. Zhao, B.-G. Hwang, and S. Pheng Low, “Enterprise risk management implementation in construction firms,” *Manag. Decis.*, 2014.
[4] L. Paape and R. F. Speklé, “The Adoption and Design of Enterprise Risk Management Practices: An Empirical Study,” *Eur. Account. Rev.*, 2012.
[5] J. R. S. Fraser and B. J. Simkins, “The challenges of and solutions for implementing enterprise risk management,” *Bus. Horiz.*, 2016.
[6] P. K. Gupta, “Risk management in Indian companies: EWRM concerns and issues,” *J. Risk Financ.*, 2011.
[7] A. Jalal-Karim, “Leveraging enterprise risk management (ERM) for boosting competitive business advantages in Bahrain,” *World J. Entrep. Manag. Sustain. Dev.*, 2013.
[8] S. Z. A. Rasid, C. R. Isa, and W. K. W. Ismail, “Management accounting systems,
enterprise risk management and organizational performance in financial institutions,”
Asian Rev. Account., 2014.

[9] N. Gatzert and J. Schmit, “Supporting strategic success through enterprise-wide reputation risk management,” J. Risk Financ., 2016.

[10] United Nations, “The Sustainable Development Goals Report,” United Nations, 2016.

[11] P. Onu and C. Mbohwa, “Sustainable Supply Chain Management: Impact of Practice on Manufacturing and Industry Development,” IOP Conf. Ser. Mater. Sci. Eng., 2019.

[12] J. W. Creswell, Educational research: Planning, conducting, and evaluating quantitative and qualitative research. 2012.

[13] B. Y. Renault, J. N. Agumba, and O. A. Balogun, “Drivers for and Obstacles to Enterprise Risk Management in Construction Firms: A Literature Review,” in Procedia Engineering, 2016.

[14] P. Singhal, G. Agarwal, and M. L. Mittal, “Supply chain risk management: Review, classification and future research directions,” Int. J. Bus. Sci. Appl. Manag., 2011.