INTEGRATED RISK MANAGEMENT IN THE DIGITAL AND PANDEMIC ERA: LEVERAGING ON BUSINESS MODEL CANVAS FRAMEWORK FOR AN ENERGY SERVICES COMPANY

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ABSTRACT: Businesses across all sectors are affected by the pandemic and are facing a formidable challenge in terms of digitalisation. The best way to evaluate a company's performance is by having a deep knowledge in their risk management. It is very important that the company have a proper risk management system in place to manage their various risks. This is a requirement for a business company in order to have a proper continuity in operations during this pandemic and digital era. The risk management is a vital part of any company's operations to help them prepare and mitigate against the risks that have been identified. This study aims to explore the various aspects of risk management in Energy Services Company and to discuss the business model using Business Model Canvas [BMC] framework that will enable the company to identify its strategic assets. Thus, building a more effective and relevant Integrated Enterprise Risk Management [IERM] and Risk Management System to ensure business continuity, sustainability, and relevancy.

KEY WORDS: *Pandemic, Digitalisation, Energy Services, Integrated Enterprise Risk Management, Business Model Canvas.*

1. INTRODUCTION

In business, risk management is defined as the process of identifying, monitoring and managing potential risks in order to minimise the negative impact they may have on an organisation (Aven, 2016). Every business is exposed to a variety of threats, especially in this digital and pandemic era. If the risks are not taken care of, it may affect the progress of business continuity of an organisation and eventually lead to the destruction of the organisation.

The global economy has now sunk to its deepest crisis in peacetime due to the pandemic (The Global Risks Report, 2021). Other than that, digital transformation also may threaten the business of energy services if it's not managed properly (Giraldo, la Rotta, Nieto-Londoño, Vásquez, & Escudero Atehortúa, 2021). Thus, it is very important for the company to have a proper risk management in order to identify and mitigate any potential risks that may occur. The main goal of risk management is to ensure business continuity and raise the overall knowledge of the company about the

existence of any risks or threats and how to reduce and minimise the impact of such threats to ensure business continuity through Integrated Enterprise Risk Management [IERM] implementation.

2. METHODOLOGY

The world is altering in response to the threats. The business model has shifted to system integration in order to ensure business continuity and efficiency. The organisation requires a thorough risk management strategy that can detect threats. Risk management must be assessed on a regular basis to ensure that it remains relevant in the digital age and in the face of major movement that is emerging around the globe. This paper explores the risk management impact based on literature reviews.

3. LITERATURE REVIEW

3.1. Definition of Risk Management on ISO 31000:2018

Risk management is defined as a set of coordinated activities to direct and control an organisation with regard to risk. According to ISO 31000, risk management process is a "systematic application of management policies, procedures and practices to the tasks of communication, consultation, establishing the context, identifying, analysing, evaluating, treating, monitoring and reviewing risk" (International Organization for Standardization, 2018).

3.2. Risk Management Process

According to ISO, managing risk is based on the principles, framework and process outlined in this document, as illustrated in Fig. 1 (ISO 31000:2018 Risk Management Guideline, 2018). These elements may already exist in full or in part inside the business, but they may need to be altered or improved in order to ensure that risk management is efficient, effective, and consistent.

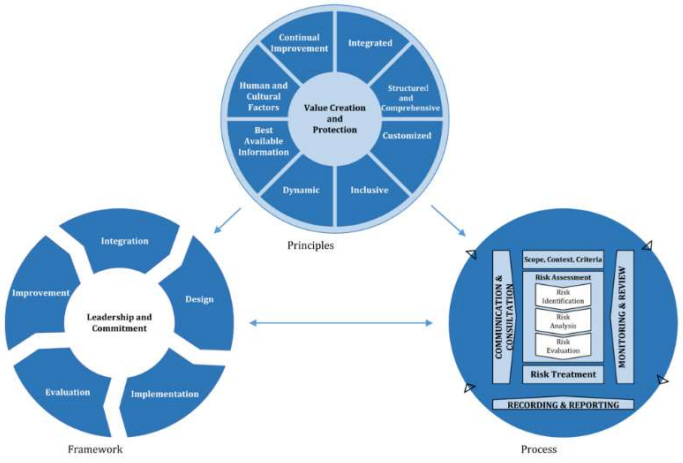

Fig. 1. ISO 31000:2018 process guidelines

The purpose of risk management is the creation and protection of value. It improves performance, encourages innovation and supports the achievement of objectives.

The principles outlined provide guidance on the characteristics of effective and efficient risk management, communicate its value and explain its intention and purpose. The principles are the foundation for managing risks and should be considered when establishing the organisation's risk management framework and processes (International Organization for Standardization, 2018). These principles should enable an organisation to manage the effects of uncertainty on its objectives.

The purpose of the risk management framework is to assist the organisation in integrating risk management into significant activities and functions. The effectiveness of risk management will depend on its integration into the governance of the organisation, including decision-making. This requires support from the stakeholders, particularly the top management (Hasni & Ahmad Dahlan, 2020).

The risk management process should be an integral part of management and decision-making, and integrated into the structure, operations and processes of the organisation. It can be applied at the strategic, operational, programme or project levels. There can be many applications of the risk management process within an organisation, customised to achieve objectives and to suit the external and internal context in which they are applied.

3.3. Impact on Digital Transformation toward Energy Industry

The digitalisation of an energy system should not be viewed as a danger to an existing infrastructure; rather, it presents an immense opportunity to address the industry's most pressing issues. At the same time, from a whole infrastructure standpoint, getting into it and making it a new normal is difficult. It has the potential to increase energy security, fairness, and environmental sustainability, but it comes with additional system security needs, privacy issues for individuals, and some possible economic disruption (Verma et al, 2020). To make the most of the digital transformation, relevant and robust preventative and corrective measures must be developed, analysed, tested, and applied.

3.4. Integrated Enterprise Risk Management Framework

Today's businesses are exposed to a wide range of risks (e.g., policy, program, operational, project, financial, human resources, technological, health, safety, political); high-level, high-impact risks, as well as risks that express themselves on the need of coordinated, systematic corporate response (Integrated Risk Management Framework, 2001). Integrated Risk Management requires an ongoing assessment of potential risks for an organisation at every level and then aggregating the results at the corporate level to facilitate priority setting and improve decision-making. IERM should become embedded in the organisation's corporate strategy and shape the organisation's risk management culture. In fact, according to ISO 27001:2013, the stand is applicable to all organisations, regardless of their type, size or nature (Thalmann, Manhart, Ceravolo, & Azzini, 2014).

4. DISCUSSION

4.1. Risk Management Framework for Energy Services Company

Energy Services Company adopted the ISO 27001:2013 and ISO 31000:2018 process guideline as shown in Fig. 2 and Fig. 3.

Fig. 2. Process from ISO 27001:2013 guideline

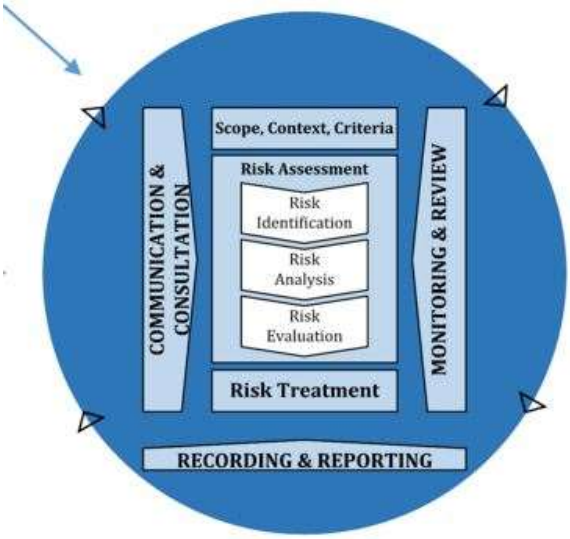

Fig. 3. Process from ISO 31000:2018 guideline

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an organisation, customised to achieve objectives and to suit the external and internal context in which they are applied.

4.2. Risk Categories in Energy Services Company

The organisation has classified risk into five categories based on its existing Risk Management Plan: Strategy Risks, Reputation Risks, Technology Risks, Financial Risks, and Operation Risks.

4.3. Strategy Risks

Strategy risks are the risks that could affect the business survival and growth. The examples include situations that may affect in securing projects or loss in tender biddings.

4.4. Reputation Risks

Reputation risks are the risks that can affect the name and reputation of a company. The examples of potential situation that can occur to this risk are a delay in project or a failure in completing the project.

4.5. Financial Risks

Risks to financial are something that affect the company's finance or project's finance. The examples include an insufficient capital to begin projects or underestimating the cost of projects.

4.6. Operation Risks

Operation risks are the risks that affect the company's business. The potential operation risks are something that can interrupt the daily business with clients or vendors. The human component plays a big role in operational risks such as mistakes or failures caused by employees' actions or decisions.

4.7. Technology Risks

Technology risks, or information technology risks, are the potential for any technology failure to disrupt a business. Companies face many types of technology risks, such as information security incidents, cyberattacks, password theft, service outages, and more.

4.8. Risk Matrix

The risk assessment is measured by a risk matrix. The risk matrix is based on two intersecting factors: the likelihood that the risk event will occur, and the potential impact that the risk event will have on the business. In other words, it is a tool that helps you visualise the probability and the severity of a potential risk. Fig. 4 shows an example of the risk matrix.

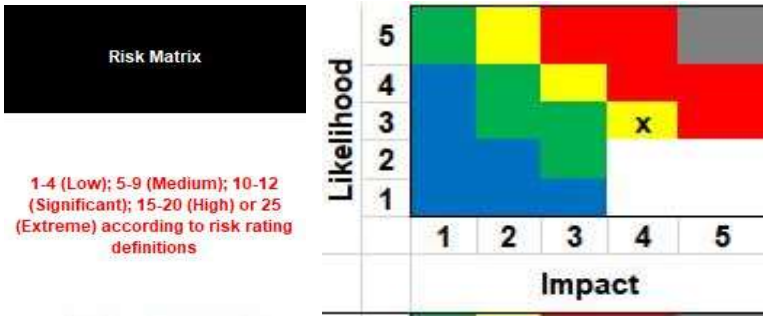

Fig. 4. Example of Risk Matrix

5. BUSINESS MODEL FOR ENERGY SERVICES COMPANY

The Business Model using the Business Model Canvas [BMC] framework can help with risk management concepts and implementation by first identifying the critical and the key assets and processes, then developing risk registers for each key asset. The items stated under the nine BMC blocks, namely Key Resources, Key Activities, Key Partners, Value Propositions, Customer Segments, Channels, Customer Relationships, Cost Structure, and Revenue Stream, can be used to identify the key assets and processes of Energy Services Company. As a result, the organisation will be able to better formulate and develop an effective integrated risk management strategy.

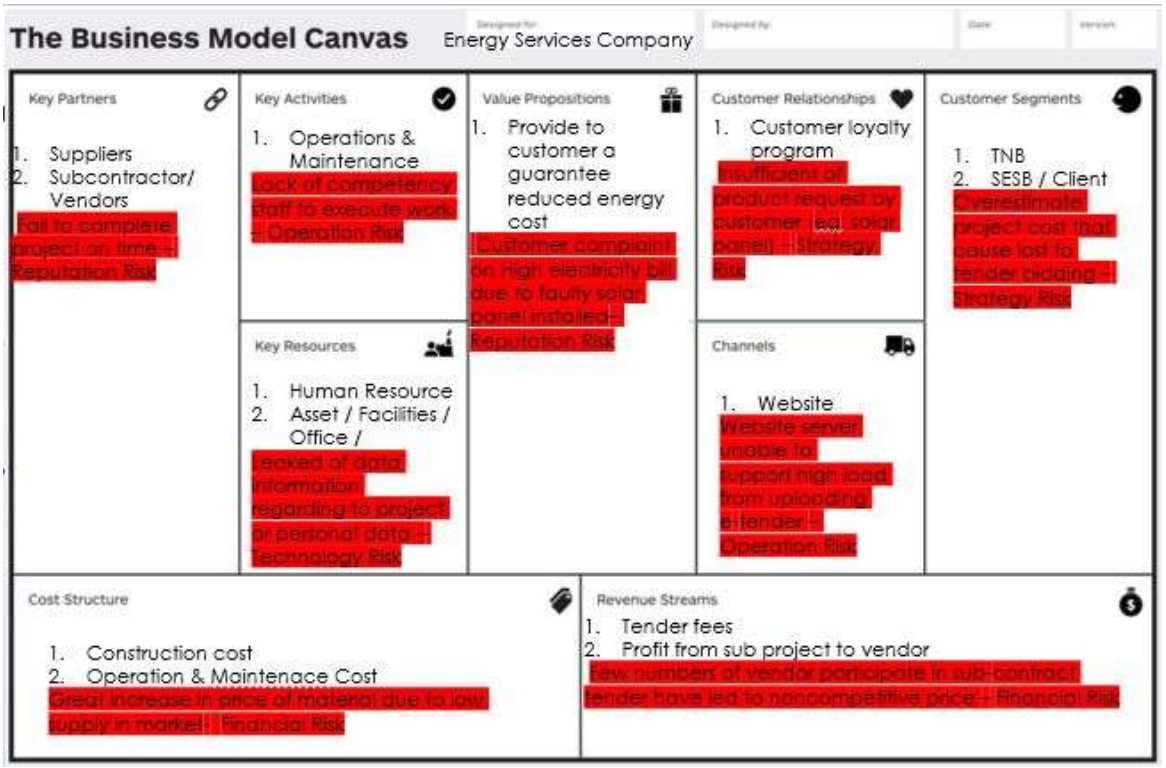

Fig. 5. Sample of Selected High-Risk BMC of IERM for Energy Services Company

a. Suggested Mitigation Plan from Sample High-Risk BMC of IERM

Fig. 5 shows the example of selected high risks for the Enterprise Risk Management (ERM) business model of Energy Services Company. Several mitigation plans have been taken into account to ensure the business continuity. The risk mitigation of the selected high risks of business models has been identified and suggested based on the segments in the Business Model Canvas (BMC).

i. Key Partners

Reputation risk is one of the risk categories that has been identified in the key partners segment. Fail to complete the project on time can lead to a bad reputation and an unsatisfactory client. Rather than the reputation risk, it also relates to the financial risk where the delay in the completion of a project can lead to payment penalties and late payment from the client. This can also affect the company's financial performance and sustainability. To mitigate and lower the risk, the project leaders supported by engineers or staff have to monitor closely the project timeline and have a proper project management methodology.

ii. Key Activities

Key activities segment highlights the company's main activity or the nature of business. Energy Services Company provides service and maintenance as one of their type of business activities. One of the operational risks that has been identified is the lack of competent staff to execute work assignments. This operational risk, if not mitigated, will interrupt the company's business. To mitigate and reduce the risk, the human resources department has to ensure that the company has enough pool of talent and has to provide sufficient training to the staff with proven methodology.

iii. Value Propositions

The value propositions segment lists the benefits provided to customers through the company's services and goods. This section is crucial for determining the quality of items and services when they are reviewed by customers. Reputation risk is among the risk categories that has been identified, where the customers complained on their sudden increase in electricity bill due to the faulty solar panel installed. To mitigate this situation, a follow up and routine maintenance need to be done frequently to avoid such incidents from happening.

iv. Customer Relationships

The customers provide the company with income and revenue, so the corporation must have a solid relationship with them. This customer relationships segment determines the type of relationship that a company can have with its customers. Similarly, if there are threats to the customer relationship between the corporation and their customers, bad things can happen. One of the high risks that can be identified in this segment is an insufficient product request by customers (e.g. solar panel). This can be classified as the strategy risk as it can affect the business growth in securing

new projects, revenue, and profit. To mitigate this type of risk, the company must have a few other trusted and competent partners, vendors or suppliers that can overcome shortage of inventory and regularly checks on the availability of the products with vendors.

v. Customer Segments

This section of the Business Model Canvas (BMC) helps companies to identify people or organisations that they can offer services or do business to generate revenue. This integrated enterprise risk management has identified one of the sample high risks associated with the customer segments which is the overestimated project cost that can lead to loss of tender bidding. In other words, fail to secure. This can be mitigated by conducting a thorough project estimation with a highly knowledgeable person regarding the type of project. On the other hand, securing a strong political support can also add advantages in securing projects.

vi. Key Resources

This segment highlights the asset that operates the company. One of the risks or uncertain events that can occur to this segment is the leaked of data information regarding the projects or personal data. This risk can be categorised as the technology risk. The impact to this event can cause in failure to get competitive price from a vendor or social media harassment. The proposed mitigation to reduce or avoid this risk is by having an in-house training for staff to educate and a training on data and privacy policy.

vii. Channels

This segment focuses on how the company can provide a communication channel to its current and potential clients or vendors. Energy Services Company usually uses a website as a medium to interact with clients or vendors. One of the sample high risks that can occur to this segment is the operational risk where a company website is down, which can cause many disruptions. For example, a website server is down due to the inability to support the high load from uploading e-tender. The mitigation to this event is to monitor system performance regularly that includes checking of computer servers that are capable to receive high load at one time. By having this mitigation plan, vendors can get a smooth process in submitting tender document.

viii. Cost Structure

The cost structure segment establishes how much it will cost the corporation to run its business models. Everything that contributes to the company's value proposition, such as the maintenance cost, and the project development cost, will be considered a cost. For the high risk in the cost structures segment, that is a great increase in cost material due to the low in supply in the market. This financial risk can affect company’s profit and budget. To mitigate this risk, the company has to make a good long-term relationship deal with all the available suppliers to secure good price of material.

ix. Revenue Streams

The revenue streams segment is the company's revenue that is tied to the customers section. This is most likely the revenue generated by the company's customers or clients. The sample of high risk that has been identified is the financial risk, where a few numbers of vendors participating in a sub-contract tender have led to a noncompetitive price. A proposed mitigation to this risk is to have this project to be advertised in all medium of communication which includes newspaper, television, internet and radio. This way, it can reduce the risk of having a few numbers of vendors participating in tendering.

6. CONCLUSION

The risk management must be comprehensive in all aspects since it has become a key instrument in risk avoidance, mitigation, and control. Integrated Risk Management provides systematic mitigation techniques for asset, information, and business continuity. It is critical to strengthen and integrate a company's risk management in order to give early preparedness and mitigation to avoid any threats.

This paper demonstrates how the Business Model Canvas (BMC) framework may aid and facilitate the concepts and implementation of an Integrated Enterprise Risk Management. To ensure business continuity, the organisation must first identify its important assets, then create a risk register for each essential asset. The items mentioned under the nine Business Model Canvas blocks, namely Key Resources, Key Activities, Key Partners, Value Propositions, Customer Segments, Channels, Customer Relationships, Cost Structure, and Revenue Streams, can be used to identify the company's key assets. As a result, the organisation will be able to formulate and construct an effective Integrated Risk Management System.

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