

The Digital Transformation of a Telecommunication Company in the Post Pandemic Era and the Strategic Roles of an Integrated ERM

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Abstract: Digital is the new normal. The emergence and evolution of the information technology (IT) and digital helps many organizations especially enterprises to achieve their business model targets. The evolution of the information technology (IT) and digital, somehow, realized many organizations to enhance or change their existing traditional business model to become more digitalized. Organizations should leverage the information technology to sustain their enterprise and adapt innovative business models align with the new normal. The existing emergence of new start-up organizations with innovative business models, and the re-positioning of incumbent organizations with innovative business models and digital transformation have created fierce competition in the market place. Thus, forcing organizations to change and transform their business models and strategies as well. Hence, the new digital transformation strategy brings new enterprise risks, unique challenges and opportunities. It is important for each organization, nowadays, to have an Integrated Enterprise Risk Management (IERM) that integrated with the information technology that help their businesses becoming more successful. This paper offers IERM business model for a telecommunication company with focus on achieving business plan objectives and goals, and integrating the ISO 27000 Information Security Management System (ISMS) standards and ISO 31000 Risk Management. The design thinking approach has been adapted in the paper to understanding the challenges of telecommunication companies to formulate and recommend a business models for an Integrated Enterprise Risk Management (IERM). This recommendation includes identifying of strategic assets and associated risks, suggested and identified mitigation actions for strategic assets with high risks and enhance the control mechanism. This should be done by building conceptual business model using modelling tool such as Business Modal Canvas (BMC). The approach includes conducting literature review, bench marking, and interviews for understanding and managing the high risks in implementing the business plan successfully, by formulating an (IERM) for telecommunication industry. The recommendation is to offer assistance to telecommunication-related organizations navigate a digital risk transformation, now and in the long term. This includes identifying of strategic assets and associated risks, suggested and identified mitigation actions for strategic assets with high risks and enhance the control mechanism.

Keywords: Integrated, ERM, BMC, Telecommunication, Strategic business plan, digital transformation, Information technology.

I. INTRODUCTION

Each organization has their own strategic plan that associated with the achievement of an organization outcome and roadmap. Consequently, the risk also emerge with the strategic plan of an organization. This uncertainty events or risk will disrupt an organization to achieve the accomplishment of the outcomes. Each single changes of strategy that been made might established new risks and replace the existing risks. To completely established the strategic plan,

organizations should implement Enterprise Risk management (ERM) and make sure it been conducted consistently [1]. The concept of Enterprise Risk Management (ERM) has changed the perspective of many organization chief to implement and establish it to enhance the management of risk in an organization. Management leader realized that it is more relevance, nowadays, to be proactive rather than subjective in risk management for an organization. The goal of the Enterprise Risk Management (ERM) is to establish comprehensive sight of the risks that are notable to disrupt the achievement of the successful outcomes for an organizations and to treat or mitigate the risks emerge [2]. One Insurance Solution person explained that, “Enterprise risk management is a process, effected by an entity’s board of directors, management, and other personnel, applied in a strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives” (Andrew Waters, 2014), an explanation what Enterprise Risk Risk management (ERM) is all about.

Organizations have started on digital transformation approach to compete with other competitors especially the new comer or start-up that could be one of the disruption for the organizations’ outcomes. Especially nowadays, the emergence of technology in the new era of the Fourth Industrial Revolution (IR4.0) and the pandemic Covid-19 outbreak enforced the management leader to change the traditional business functions to digitization [3]. Consequently, the establish of digital transformation create a risks for an organizations that affect the outcomes. Many interactions especially with customers, partners, and suppliers have been easier due to the changes of business models by the existence of digital transformation. Apart from the good results, there are also external and internal threats exist particularly new threats creating disaster for an organizations [4]. These include many organizations start to implement Bring Your Own Device (BYOD) approach for their staff, the leverage of internet that encourage staff to work from home, and the large database of the customers that crucial for organizations business models. Organizations that established and implements integrated Enterprise Risk Management (ERM) with digitization need to comply both ISO 27000 Standards for information security management system and ISO 31000 Standards for risk management of an organizations. These ISOs give guidelines and code of practice for organizations to assist them implement Enterprise Risk Management (ERM) and to reduce risks to the acceptance level.

Therefore, organizations that have had change their business models from traditional to digitization or add a new digitization business models must establish and implement Enterprise Risk Management (ERM) that integrated with digital transformation to become more sustainable in the era of IR4.0 and the emerge of mega trends. There are also a challenge or difficulty for an organizations especially top level management to implement integrated Enterprise Risk Management (ERM) with digital platform successfully. For the instances, lack of communication between risk manager and the top management or board that could end up implementing ineffective safeguards. Apart from that, risk management process only been done and carry out by risk manager alone and not contribute by others head of department that will make risk management process not successfully implemented to reduce and prevent the risks [5]. No exception for the telecommunication company to establish the integrated Enterprise Risk Management with digital transformation as the company’s core business heavily relying to digital transformation. This paper aims to understand the existing implemented integrated Enterprise Risk Management (ERM), identified the challenges face by the company to carry out the existing business models, formulate business model options for the company using Business Modal Canvas (BMC) and give suggestions for the most viable options to enhance the business models. The idea to identify business models is focusing on integrated Enterprise Risk Management (ERM) with digitization.

II. OBJECTIVES

The main outcome of this research is to formulate several business models for the telecommunication company and propose it to the interviewed staff in order to choose the most viable option as the enhancing ERM business models for the company. The core businesses of the company are digital telco, digital businesses, and infrastructure. The solution is using the conceptual approach, Integrated Enterprise Risk Management (IERM) Business Model Canvas (BMC) has been established and assisted interviewed staff to had a better view about the business models of the company. The proposed Business Model Canvas (BMC) should emphasized the most viable option of business models of the company that been choose by interviewed staff. Hence, to reduce the complexity and challenges face by the company to achieve successful business plan. With this opportunity, the emphasized business models could be seen by the top management thus, assist them focusing the risks for that business models that will disrupt the achievement of business plan. Prior to formulate business models, important to understand the core business of the company, the initiatives, and the outcomes to identify

the risks that disrupt the company's business plan achievement. Likewise, literature review, bench marking, and interview the staff of the telecommunication company need to be done to gather useful information and to identify the challenges face by the company to implement their business plan successfully. The contribution of the top management especially C-level manager and the board is crucial to review the Integrated Enterprise Risk Management (ERM) business models that been proposed and emphasized by the interview staff.

III. PROBLEM STATEMENT

Many organizations have their own Enterprise Risk Management (ERM) that crucial to ensure the successful of their business plan thus, achieved the outcomes of the company. Recently, the emergence of digital transformation has forced the organizations to change their business models towards more digitization to compete with the other competitors, adopt in the Industrial Revolution (4.0) era and outbreak of pandemic Covid-19, and assist in competitive advantage. For example regarding the changing of business models, media and entertainment (M&E) industry will experiences a disruption and uncertainty about the durability to become more sustainable in digital transformation. Consumers would expecting strong data protection, easy digital channels or platform, and many value can be deliver from (M&E) through digitization [6]. Consequently, more risks emerged through the digital transformation such as breaches of data and loss of reputation if the technologies are not managed properly. It is crucial to know the factors and outcomes that may introduce digital risks of adopting digital transformation for an organization [7]. This is why it is important for organizations to have their own Enterprise Risk Management (ERM) to reduce and mitigate the risks. The satisfaction of customers is the reason for organizations to gain the profit and achieved the outcomes. Customers will move and doing business with other competitors and some of it will mentioned about the situation on social media and this might affected the organizations reputation [8]. Telecommunication company also dealing with a lot of customers that use their services and products. The amount of risks regarding the customers are enormous and this will make more difficult and challenging to implement the business plan of the company. This is due to CRM of an organizations approach was not thoroughly planned and data flow in an organizations not widely distributed throughout the department within organizations [9]. Apart from that, another challenge is the difficulty to adopt and embed rapidly involving IR4.0 technologies in order to maintain market relevance. For instances, manufacturing technology in Malaysia is still struggling to adopt IR4.0, and many organizations still stick at Industry 3.0 due to insufficiency of data security and skills needed in digitizing the organizations business processes [10]. This will give impact to the business plans and outcomes for the company.

IV. LITERATURE REVIEW

A. Improving and ensure the CIA of information technology and database

This segment is the most crucial part to determine the successful of the business plan of the company. Moreover, the leveraging of digital transformation in the telecommunication company that integrated with Enterprise Risk Management (ERM) for the company had made top management and risk manager emphasized this particular segments and take it seriously. Before establish Integrated Enterprise Risk Management (IERM), remember to keep the CIA triad in information security policies. "Confidentiality, integrity and availability, also known as the CIA triad, is a model designed to guide policies for information security within an organization" (Margaret Rouse). It will make the company easier to make successful decision making about the three elements of CIA in information technology and database of the company. The implementation of CIA triad in the Enterprise Risk Management (ERM) has a several stages. Firstly the prioritize stage is to identify and prioritize the most valuable assets for achieving organizations goals. Second is the plan stage. This stage require to create a plan to protect, prevent, and detect information security threats. Third stage is the protect stage that need to evaluate the impact of the risks towards the business models and develop the controls to reduce the vulnerabilities that associated with the risks. Final stage is preserve stage. In this stage, the controls plan need to monitor and review periodically in order to do some enhancement regarding the effectiveness of the controls [6]. ISO27000 Standards will assist company or organizations to establish risk management and provide code of practice. According to Luke Erwin (2020), "published by ISO (the International Organization for Standardization) and the IEC (International Electrotechnical Commission), the series explains how to implement best-practice information security practices and it does this by setting out ISMS (information security management system) requirements". Telecommunication company also predominantly involves in digitization and digital transformation that been part of their core business and business models. For instances, they had developed their own e-wallet application and have their own server to carry out their core business. Hence, Enterprise Risk Management (ERM) must be established with the integration of digital transformation to

mitigate the risks that disrupt the business plan of the company. Likewise, the information and data could have been more secured with the adoption of ISO27000 for information security risk management system.

B. Emergence of digital transformation and IR4.0

Nowadays, the emergence of digital transformation throughout the world had led to Industrial Revolution (IR4.0) and create somehow called 'mega trend'. Mega trend could forces changes in global and daily routines of people because it is a pattern that could affect how people live and work. Elements of mega trend are social, economic, political, environmental, or obviously technological changes that are slowly to shape but can instigate many activities, processes and perceptions for a decade [11]. This mega trend make the implementation of the traditional business models is not relevance for organizations in this IR4.0 era and this forced many organizations to change drastically their business models to create competitive advantage. This is due to the spreading of pandemic Covid-19 that related to the megatrends. The pandemic had disrupted many organizations especially the manufacturing industry. During the pandemic, they had to operate on a reduced capacity. Consequently, it will force the industry to consider operate with digitization such as the running of a fully automated factory with minimum human on site and the use of IoT [12]. Otherwise the organizations can not achieved their business plan goals and outcomes and also would not be able to compete with new innovative business start up. Telecommunication companies can not fully rely on their traditional business models such as only sell the network coverage to their customer. They need to leverage the digitization such as the usage of e-wallet and IoT technology that helps them to save costs, maintenance, labor and enhancing productivity [13]. The risks occur from the digital transformation could adversely affected the business performance of organizations and this will make many top management worried about it. CEOs and CROs tend to be cautious when considering the very idea of a digital risk transformation, wondering just how far they can automated crucial processes and rely on automated decisions [14]. Furthermore, it is relevance for all organizations to integrated Enterprise Risk Management (ERM) with digital transformation as cybersecurity preparation.

C. Customers relationship management

Organizations main revenue is from customers and the more customers they obtained, the more convincing for the company to achieve the business plan and the outcomes. In other word, it helps the organizations or company to survive. Therefore, Customer relationship management is important for organizations to carry out to create more satisfying customers about the services and the products. To carry out customer relationship management, organizations especially top management to have a look for the risks and identified it by establish Enterprise Risk Management (ERM) integrated with digital transformation. For instances, social media, email and company websites can be a medium to interact with customers and could also give information and up date about new products to the customers. Some of the platform like social media and email provide low-cost budget for organizations that can maximize customer relations during crisis of pandemic Covid-19 [15]. If organizations do not establish and implement this particular risk, the impact would be disastrous. In term of telecommunication company, if their e-wallet application or official website suddenly having a down time about ten minutes, they will loss many of their revenue due to stop of their business functions. Data breach is one of the risks that also related with customers because not only the company need to pay additional security costs to treat it but the company also need to spend on compensating of affected customers [16]. This shows that how crucial for organizations to have Enterprise Risk Management (ERM) integrated with digital transformation.

D. Review and monitor the decided safeguards and controls

The main purpose for an organizations established and implemented Enterprise Risk Management (ERM) is to do the decision making to review and implement safeguards or controls to mitigate and reduce the risks to acceptable level. Prior identifying risks and the likelihood of the uncertain events to occur, the risks need to evaluate in order to review and decide the best option of safeguards or controls to the assets. It is better for organizations to not only review the chosen safeguards or controls but also need to implement the safeguards as an exercise before the real events occur. Safeguards and controls need to be reviewed and monitored regularly and periodically in case any important events occur such as the change of policies or procedures of the company, changes of business models and also emerging of new threats due to sophisticated technology. Obviously, telecommunication company is more vulnerable to expose with the risks that associated with the digitization. Telecommunication company need to review and monitor all the safeguard and controls regularly of all the digital and information security assets to make sure any risks can be reduce and prevent.

E. Involvement of third parties

Organizations can not avoid from the involvement of the third parties in their business models and business processes. Third parties somehow can give a lot of benefits and also create disaster for organizations. Therefore, organizations might include third parties and the risks associated with it to the Enterprise Risk Management (ERM). Risks and threats that associated with the third parties and their ecosystem create more complex and difficulty for organizations. Plus, organizations that really depend on third parties to bring more values for organizations and give more freedom for third parties to involve in business plans of the company also could create disaster for organizations. Organizations that establish requisites or strict conditions to be appointed to the third parties is likely to have effective Enterprise Risk management (ERM), could convincingly facing the loss of the organizations, and make the businesses more sustainable [17]. Unfortunately, it is not easy to control every movement or decisions of the third parties and somehow each decision their made can affected the organizations even though the cause come from the third parties. In term of telecommunication company, it might implement the requisites that focusing on the involvement of third parties but as mentioned before, it is still difficult to has fully control of the third parties. For instances, the company can control the third parties access in and out of working place particularly for maintenance but in term of digital transformation it would be hard for an organizations to control the third parties from access the server of an organizations for job purpose.

F. Information security governance

Every organizations have their own governance, policies and procedures to establish and implement Enterprise Risk Management (ERM). This policies and procedures were established and decided by top management and board that align with the business plans and outcomes of an organizations. All staff need to comply and adhere with organizations policies and procedures when doing their jobs. If somehow, there is a disobedient from adhere the policies and procedures from staff whether with intention or mistakes, there is no exceptional and must responsible for the wrong doing. Likewise, organizations also should emphasized policies and procedures associated with digital transformation. Organizations should integrated the Enterprise Risk Management (ERM) with digitization thus, can enhance the organizations policies and procedures. Hence, the adoption of ISO27000 information security management system is important for an organizations to establish and implement to assist in risk management process. In term of telecommunication company, the compliance of the company's policies and procedures need to emphasized to the customers too especially when dealing with digitization. Apart from reducing risks for organizations, the customers also gain benefits when comply with company policies and procedures. Things can be complicated and create difficulty for the company if there is a changes of government policies or a new policies are created that emphasized in usage of digitization of enterprise. The company also need to change or enhance new policies and procedures that might affected company's current business plan and all staff.

G. Benchmarking

Each company or organization has their own Integrated Enterprise Risk Management (IERM) established and implemented and obviously different between each others. This differences are because each company or organization has their difference business plan and core businesses. Even though some company has same core businesses like a case of a telecommunication company, it still develop different IERM. Some organization like small businesses that using digitization as core businesses still depending on traditional risk management rather than IERM. This is due to top management did not see the importance of establish and implement IERM and somehow would not prepare for the impact and loss if risks occur. Established IERM enhance strategies and appliances used to identify risks and carry out risk treatment consistently. Plus, could establish and implement the safeguards and controls very cost-effective [18]. To differentiate the IERM of the studying telecommunication company with others, the two example of others company those are company A and company B that have the same core businesses with this telecommunication company.

1. Company A

Company A is telecommunication company that has same core businesses as the studying telecommunication company. Both company aim to be number one telecommunication company in the regional area and means that their outcomes and value creation might be slightly the same. Both company also had changed their business plans that rely heavily on digital transformation. This shows that both company have established and implemented Integrated Enterprise Risk Management (IERM) with digitization but might slightly a bit. Company A has focusing on the security of their retail analytics operations. The retail analytics is the company main sources of collecting information about the demographics of it

customers. Usually the company got data from surveys and interviewed and it been save in company's data centre to doing research. Company A successfully secured the data by implementing Integrated Enterprise Risk Management (IERM) that integrated with digitization to identify the risks and reduce the risks. Company A take seriously to secure clients data by implement procedure controls that only the authorized person can access the data. The data also been kept in company data centre rather than save in public cloud. All raw data been collected will directly save to the company data centre before being review and study. Company A also has developed iot products to it customers. The safety of it technician to maintain the iot products is the main priority for the company. The company had developed a controls and safeguards that is called mDrive focusing on travelling staff. The digitization system operates by monitored vehicle real-time geo location, utilized and auto reporting for speed violation (SV), hard-acceleration (HA), hardbraking (HB), distance travel & fuel consumption monitoring.

2. *Company B*

Company B emphasized on the communication between it and customers and believed that the long term connection with customers is what matter most. Just like other telecommunication company, its has many expertise in digitization and has its own Integrated Enterprise Risk Management (IERM). The company also emphasized the secure and safety environment for its customers to use their products and services. Involved and prioritized the third parties also one of the main business plans for the company as its heavily rely on third parties to establish the company's initiatives. One of the risk that the company might faces is to deliver safety and secure products and services through digital transformation to the customers. The emergence of technology in IR4.0 era and the demand from the customers for connectivity and technology evolve, the company could be impacted with many risks associated with it. Plus, the importance to evolve and enhance the services and products align with digital transformation is to make the company become more competitive advantage and maintain the communication with customers. The mitigation action to take to reduce and treat the risks is explore and expand the most cost-efficient digital channels and platform that emphasized the information security and offer the products to customers for them to experience new digitization environment. Apart from that, the risk that the continuously engagement of communication with customers been depleted might affect their business plan and the value creation. The company should enhance their potential by also targeting children by serving beneficial digital platform for education purpose. The company had developed initiatives that is called JomStudi as an interactive platform for children to gain knowledge and could help parents too. Likewise, the company also facing a risk associated with the management of its staff particularly in HR management. The staff might have difficulty to do their operating processes and this might affected the business performances of the company to achieve the outcomes. The development of altHR application as digital platform could particularly assists HR Department to do many processes on a single platform and somehow been sold to others so that anyone can get the benefits from it.

V. **METHODLOGY AND FINDINGS**

This section will discussing about the method used to collect and understand information regarding this research paper. The method that been used in this research paper is literature review and interview. The chosen company is related to telecommunication where its business cores are digital telco, digital businesses and infrastructure. To do this, one network security staff of the telecommunication company had been interviewed with a few questions. The questions include the establishment and implementation of Integrated Enterprise Risk Management (IERM) of the company.

Findings from the interviews include: The company is moving towards digital transformation. Furthermore, the company adopts ISO27000 Information Security Management System (ISMS) to assist in risk management. The other question is regarding the challenges facing by the company especially risk analyst and top management to accomplish the outcomes that is becoming new generation digital champion. There are several challenges that been answered during the interview. The challenge is on the breaches and loss of customers data and private information that been saved within the company server been breached and lost. Other challenge is new regulations and policies of digital transformation that could imposed by government and will affect the company business performance and reputations. Other than that, because of emerging of technology and mega trends, the company felt that they will left behind because they are not investing enough on digital transformation. Thus, losing the leadership and competitive advantage. The difficulty to control external stakeholders or third parties is another challenge that the company is facing. In addition, the company faced the challenge to create and promote the better products or services associated with digital transformation. After the first interview in getting information of the challenge faced by the company, the second interview was to discuss on the business models

option for integrated ERM using Model Canvas (BMC). The interviewed staff was asked to select the high risk factors that may impede the success of the company as well as on the most cost-effective mitigation actions plan and controls.

VI. INITIAL BUSINESS MODAL CANVAS (BMC)

According to Mike Ebinum (2016) “The Business Model Canvas (BMC) is a strategic management tool to quickly and easily define and communicate a business idea or concept. It is a one page document which works through the fundamental elements of a business or product, structuring an idea in a coherent way”. The right side of Business Model Canvas (BMC) focusing on business of an organizations and the left side focusing on customer. Both sides will intercept with value propositions at the centre of the table as a medium to exchange value [19]. Developing of Business Model Canvas (BMC) is so important because it can give tips to evaluate key elements of business and the relation with each other. It can help small business or start up to identify target market segments and can save time and attention by focusing on the particular market segments [20]. Business Model Canvas (BMC) also can be developed to many purpose such as in term of this research paper, it will be developed as integrated Enterprise Risk Management (ERM) for the telecommunication company.

TABLE I: PROPOSED BMC OF INTEGRATED ENTERPRISE STRATEGIC RISK FOR A TELECOMMUNICATION COMPANY

Key Partners	Key Activities	Value Proposition	Customer Relationships	Customer segments
Lack of controls of third parties when involved with digitization Failure to communicate well with business partners Hard to find the cost-effective suppliers for IoT products Not having long term strategic digitization plan with business partners Could not provide successfully digital (B2B) platform to stakeholders	Not integrated ERM with digital transformation Lack of investments in digital transformation Failure to spread the network coverage to rural areas Failure to develop the effective digital channels or platforms Digitization projects taken too long to complete	Business-to-Business (B2B) can not be carry out Bad customers experience on e-wallet Not beneficial connected agriculture program Bad customers experience on using network coverage Not convincing enough to achieve value creation through customers	Poor customer services The price of services and products is too much Slow in promoting and offering new products and services Not having a discount or to admire loyal customers Failure to attract new customers due to lack of marketing	Lack of staff talents in digital transformation Not convincing enough to investors or sponsors Not expanding the demographic of customer segments Not convincing enough to industry Not convincing enough to carry out (B2B) by clients
	Key Resources Breach of customers data Poor HR management Lack of creativity to create new ideas Malfunction of network coverage to customers		Channels Not utilized digital transformation Decrease of agent Down time of company official websites Not successfully helping customers operate (B2B)	
Cost Structure cost focusing on digital transformation maintenance cost of digital transformation business partners demand more payment		Not enough Increasing of Third parties or	Revenue Lack of sponsors and advertisements Poor management of revenue collection Digital transformation could not successfully generate revenue	Streams

Table I shown the initial Business Model Canvas (BMC) of integrated enterprise risk management strategic risk that was established from literature reviews and after collecting the information of the challenges faced and identifying the strategic assets of the company from the interviewing sessions. The initial BMC was then validated by the staff of the telecommunication company. This includes assigning the risks levels of the strategic assets following the block in the BMC.

VII. SELECTED HIGH RISKS OF BUSINESS MODEL CANVAS (BMC)

After the first interview on the challenge faced by the telecommunication company to successfully implemented business models, the initial BMC of integrated enterprise risk strategic had been established, highlighting the risks that could affect business performances. The second interview has been held to show the BMC of integrated enterprise risk strategic for the staff to choose and prioritized high risks for the company business models. Then, the safeguards and controls associated with each of the high risks need to be identified and suggested. After suggesting the safeguards and controls of

each of the high risks, the staff will review it and proposes to the top management. The staff would choose via the interview, the most viable options of the safeguard and controls measure for the particular strategic assets and this paper will suggest the enhancement of the selected options.

TABLE II: SELECTED HIGH RISKS BMC OF INTEGRATED ENTERPRISE RISK STRATEGIC FOR A TELECOMMUNICATION COMPANY

Key Partners	Key Activities	Value Proposition	Customer Relationships	Customer segments
Lack of controls of third parties when involved with digitization Failure to communicate well with business partners Hard to find the cost-effective suppliers for IoT products Not having long term strategic digitization plan with business partners Could not provide successfully digital (B2B) platform to stakeholders	Not integrated ERM with digital transformation Lack of investments in digital transformation Failure to spread the network coverage to rural areas Failure to develop the effective digital channels or platforms Digitization projects taken too long to complete	Business-to-Business (B2B) can not be carry out Bad customers experience on e-wallet Not beneficial connected agriculture program Bad customers experience on using network coverage Not convincing enough to achieve value creation through customers	Poor customer services The price of services and products is too much Slow in promoting and offering new products and services Not having a discount or to admire loyal customers Failure to attract new customers due to lack of marketing	Lack of staff talents in digital transformation Not convincing enough to investors or sponsors Not expanding the demographic of customer segments Not convincing enough to industry Not convincing enough to carry out (B2B) by clients
	Key Resources Breach of customers data Poor HR management Lack of creativity to create new ideas Malfunction of network coverage to customers		Channels Not utilized digital transformation Decrease of agent Down time of company official websites Not successfully helping customers operate (B2B)	
Cost Structure cost focusing on digital transformation maintenance cost of digital transformation business partners demand more payment		Not enough Increasing of Third parties or	Revenue Streams Lack of sponsors and advertisements Poor management of revenue collection Digital transformation could not successfully generate revenue	

VIII. SUGGESTED CONTROLS AND SAFEGUARDS OF THE HIGH RISK

According to the selected high risks Enterprise Risk Management (ERM) business model of the telecommunication company, several safeguards and controls had been established to mitigate the risks that can disrupt the achievement of the outcomes of the company. Most of the high risks that been identified are associated with the digitization of the company. Some of the risks that can harm business models already had their own safeguards and control but it need to enhance more. The risk mitigation and control for each of the selected high risks of business models by the staff had been identified and suggested based on the segments in Business Model Canvas (BMC).

1. Key Partners

Key partners is the segment that refers to network and connection of the partners or suppliers that make the business models become more effective (Anastasia Belyh, 2020). The risks that associated with this key partners segment of the telecommunication company are been identified and will be reviewed by the staff. For the high risk of hard to find the cost-effective suppliers for IoT products, the company can do survey for searching the best suppliers and make a great deal between suppliers. In addition, make a long term deal so that company can consistently depends on the dealing suppliers to get more IoT products. Another high risk is could not provide successfully digital platform (B2B) platform to customer. This risk includes in the high risk of the company because it can affect the outcomes of the company. To mitigate and prevent the risk, company could collaborate with partners to develop digital platform that create high value proposition for customers.

2. Key Activities

Companies usually have their own business activities to do an operation to gain revenue and achieve the company’s outcomes. Key activities segment in Business Model Canvas (BMC) will lists all of the activities of the company to

operate the business. In term of strategic risk Business Model Canvas (BMC), one of the high risk is lack of investment in digital transformation. To mitigate and reduce the risk, board, CIO and senior marketing need to carry out information sharing to deliver more information about digital transformation in company. Failure to spread the network coverage to the rural areas can be treat by enhancing the power of the existing network towers and allocate a budget to build new towers emphasized in the rural areas. The next high risk that associated with key activities is fail to develop the effective digital channels and platforms. The controls and safeguards for the risk is software engineer team need to identify the risks and determine the controls for each of the step before completing the digital channels and platforms.

3. Key Resources

Key resources is the most important segment in the business models. It list down all the company resources to operate the business. This integrated enterprise risk strategic is listing the risks or uncertain events that could occur for the key resources of the company. For instances, the high risk that been selected by the interviewed staff is the possible breach of customers privacy and data. For securing the data and privacy by preserving the CIA, the company already got its own policies and procedures about managing the data. The controls could be implemented by establish the privacy and data council of the company that fully responsible to manage the data by doing the auditing of the data and manage the ERM emphasized in data and privacy. Next is poor HR management. According to the literature review by referring the company B, they had develop an application that integrated all information and activities of HR together in one application to make easier for management process

4. Value Proposition (VP)

Value proposition segment list down the values that been given to customers through the services and products of the company. This segment is important to know the quality of the products and services when it been reviewed by customers. Value proposition is the intersection between the reason why customers prefer to buy or experience it that create a value for them and the products and services that been sold to customers [21]. Most start up companies fail because their create a new products or services before identifying the value proposition. Obviously they will not really know what value can they give to their customers with the new products and services. In this integrated enterprise strategic risk Business Model Canvas (BMC), it will determined the risks that can affect the value proposition to create value to customers. The high risk is (B2b) cannot be carry out or implement successfully. The controls can be done by improving the network coverage and offer the reasonable price of (B2B) pack. Another high risk in value proposition statement is the connected agriculture program not produce benefits to customer. The control that been suggested for the company is the CIO and CSO need to do review and monitor database and IoT use for the program. Another high risk is not convincing enough to achieve value creation for customers. For this risk, all staff including the board need to make review about customers satisfaction and complaint of the services and products and make an enhancement to improve the quality.

5. Customer Relationship

Company need to have a good relationship with customers as the customers will give the company's profit. This customer relationship segment determine the kind of relationship that company can communicate will their customers. Likewise, worse things can happen if there are risks occur to the customer relationship between company and their customers. The high risks can be identified in integrated enterprise risk strategy Business Model Canvas (BMC) such as poor customer services. The interviewed staff choose poor customer service as high risk because the company currently dealing with the risk. The controls or safeguards that been suggested are the company should hire and train customer service staff to deal with customers according to the section involved and recorded the conversation. Likewise, for next high risk, that is failure to attract new customers due to lack of marketing that been selected by the staff can be mitigate by hiring or creating new tasks for surveying duty to collect the information about the demographics and also the mega trend roles.

6. Customer Segments

Every company need customers that can give revenue to them in order to be more sustainable. This segment in Business Model Canvas (BMC) assist company to aim for people or organizations that can be serve and know demographic data about customers. This integrated enterprise risk management Business Model Canvas (BMC) will determine the risks associated with customer segments. For customer segments, the first high risk is lack of talented staff in digital transformation. This can be treat by creating new department that focusing in digitization and recruit expertise in digital platform. The second high risk is not convincing enough to the industry. The company should explain the policies and

regulations about information security of the company to convince other industry doing business with it. The third high risk is not convincing enough to carry out (B2B) by clients. This can be mitigated or treated by enhancing the network coverage of the telecommunication company and include IoT for the service align with digital transformation.

7. Channels

This channels segment emphasized how company can deliver value proposition to its customers and potential customers. Recently, many companies leveraged digital transformation as their channels to continue deliver value proposition to customers. Therefore, there will be risks associated with this channel that can affect the business plans of the company. Furthermore, the high risks of the channels segment are not utilizing or leveraging the digital transformation and not successfully helping customer carry out (B2B). The mitigation or control for the first high risk is the top management need to plan appropriate data security and skill sets needed in digitizing the company business processes. The control for the second high risk is the company should established and offered the particular plan or (B2B) set for serving other company to operate their businesses.

8. Cost Structure

Cost structure segment will determine the cost that company will take operate business models. Everything including salaries, maintenance, project development cost that help in delivering value proposition will consider cost for the company. Integrated enterprise risk strategy Business Model Canvas (BMC) determined the risks that will make increasing in cost structure that will male the company more losses. For the high risk in cost structure segments that is not enough cost for focusing on digital transformation, the CIO, COO and the top management should review the financial statement and allocate the budget for digital transformation within a long time period such as every five years. The other high risk is the increasing of maintenance cost associated with digital transformation. The company could reduce the maintenance cost by monitored and reviewed the digital channels or platforms periodically to prevent any malfunction that can lead to increase in the cost of maintenance.

9. Revenue Stream

Revenue stream segment is the revenue of the company that related with customers segment. This would probably the income that company got from customers or clients that buying and using their products and services. There is also a risks associated with revenue stream segment such as poor management of revenue collection and can affect the company's profit. One of the high risk that been choose is digital transformation could not successfully generate revenue. This high risk can be control or mitigate by having Integrated Enterprise Risk Management (IERM) established, implemented, and monitored successfully in order to gain more revenue particularly by leveraged the digital transformation.

IX. ENHANCEMENT OF MOST VIABLE OPTION INTEGRATED ERM BUSINESS MODEL

The option of integrated Enterprise Risk Management had been selected in second interview by the staff. There are two most viable option and the selected option need to do some enhancement of the controls and safeguards of its to make more successful. The first selected option regarding the risk of poor customer service in customer relationship segment. For the controls of hiring and train the customer service staff and put them in particularly section can be enhance by develop and implement chat bot for communicate with customers and reduce the workload of the staff. Second is fail to develop the effective digital channels. The suggested controls is the software engineer team need to identify the risks and determine the controls for each of the step before completing the digital channels and platforms. The safeguards could be enhanced by the hiring of effective system analyst team that collected information and customer requirements as the initial phase to develop digital platform.

X. CONCLUSION

In conclusion, this research paper emphasized the case study of telecommunication company regarding their establishment and implementation of integrated ERM. This research paper also assists to identify risks associated with the success of strategic business plan implementation of the company by establishing an integrated enterprise risk Management (IERM) by using Model Canvas (BMC) framework. By aligning the Integrated Enterprise Risk Management (IERM) with the core business and outcomes of the company, the risks for business model associated with

the success of the business plan can be identified, managed, and controlled. IERM helps and assists telecommunication company to establish and implement risk mitigation actions and controls of identified strategic risks and its risks. Besides, IERM also helps the telecommunication company to decide the cost-effective controls after having a review regarding the risks or uncertain events of the assets. In addition, it is important to clearly understand the core businesses, the goals and business models of an organization before establishing IERM to focus on managing risks for organizations' strategic assets. The establishment of the Integrated Enterprise Risk Strategic Business Model Canvas (BMC) had clearly helped the staff to review and decide the high risks of strategic assets. In future works, the Integrated Enterprise Risk Strategic using BMC can be added as one of the methods or frameworks for the telecommunication company to enhance their Integrated Enterprise Risk Management (IERM) with the guide from this research paper.

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