

Brunei Government Schools in Digital and Pandemic Era: Leveraging on Business Model Canvas for Public School's Integrated Enterprise Risk Management

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Abstract: Due to rapid changes in this present day, post Covid-19, and digitalization, the number of new risks including digital risks has heightened, and it is expected to continue to do so in the future. It is important to note that effective risk management would help to mitigate or tackle any difficulty that may arise from this. Schools have many projects to carry out. Each project possesses potential risks in which if not managed accordingly, people who are involved in the projects will face difficulty in managing the issue, things will be handled inefficiently and achieving projects objectives will be hindered. This paper aims to study the implementation of Integrated Enterprise Risk Management (IERM) in government schools in Brunei Darussalam. The research process will touch on how schools in Brunei manage risks; whether they use integrated risk management (ISO31000 and ISO27000) in identifying and mitigating risks in their organizations and educational projects. The tool used to gather information is through interviewing individuals who have experience in managing risks at their respective schools. The interview of teachers in school has shown that teachers are aware about risk management as they always face risks. However, the risk management methods that being practice is initiative of teachers themselves. There are no proper guidelines provided by MOE. It is recommended that MOE start looking the integrated enterprise risk management standard (ISO31000 and ISO27000) as it helps to improve the performance of the schools. Additionally, MOE need to plan proper strategy when implementing IERM that are acceptable and applicable by all schools since different schools have different culture and demographic.

Keywords: Integrated Enterprise Risk Management, Business Model Canvas, Ministry of Education, schools, Digitalization.

I. INTRODUCTION

Every organization will face certain types of risk. If risks are not being taken care of, it can distort the progress of the particular organization and eventually it may lead to the demise of the organization. The best way to avoid this is to have a proper approach of risk management that can tackle internal (risks within the organization which are predictable and thus, can be mitigated or managed. For example: Human or Technical error) and external risks (risks which are unpredictable and caused by nature and beyond human control such as natural disaster and COVID-19; as well as IR4.0 technologies. Having these will give continuous benefit to an organization in the long term as risks have been identified and necessary mitigation actions plan will be taken to tackle them. As actions have been planned, the organization would have the overall picture of the risks and start to map out strategies and policies in ensuring the organization's success, which include protecting the organization.

II. PROBLEM STATEMENT

In today's world, there is a rapid development of digital revolution and it has impact on majority of industries including education. This development is expected to continue in the future. Hence, schools would need to adapt and be aware of the current situation as new risks keep on rising and it might affect the schools directly or indirectly. Currently, schools are utilizing the usage of computers and laptops for work and it is important for the user to safeguard the information. Risk management is truly crucial especially in various aspects of contemporary life especially in term of finance, health, ventures in business, management for projects

The concept of risk in the education sector is often overlooked and neglected [3]. Therefore, in tackling this issue, this paper will discuss the current risk management practice by schools in Brunei and as well as to propose mitigation and safeguard controls improvements by using the business model canvas (BMC) framework. This business model helps to identify what are their key assets which contribute towards the organization's success, hence the formulation of effective implementation of integrated risk management.

III. METHODOLOGY

This paper will use literature review to determine whether schools in both Brunei and other countries are practicing Enterprise risk management. This is done by looking at the usage, implementation and utilization of integrated risk management of ISO31000 and ISO27000. Additionally, a qualitative research which is based on interviews has also being conducted with 3 teachers from 3 selected secondary schools to discuss in depth about their risk management approach that they have been using.

IV. LITERATURE REVIEW

A. IERM in schools

Enterprise Risk Management is defined as "process of identifying and addressing methodically the potential events that represent risks to the achievement of strategic objectives, or to opportunities to gain competitive advantage" [8]. Integrated Enterprise Risk management is defined as the ability of an organisation in doing good decision-making and making good strategies [14]. Another approach that is also being used in the organisation is the ISO31000. This is a standard whereby it provides guidelines, principles, framework and process for risk management for any organizational regardless the type and size of the organizations. Whereby ISO 27000 series is specific standard made for information technology [15]. The benefits of this ISO 27000 series lies in how it offers the security to protect data from being stolen and may be used illegally in which this can create threats. Moreover, this ISO is not limited to only certain areas such as in terms of finance, banking and others but also in education too. Misconceptions about the implementation of ISO limited to only in economy, had led to the contribution of misinterpret of the ISO 27000. As education also used data systems and software's in which it should be protected against possible threats.

With the combination of these approaches, it can help the organisations to be more efficient and organised in terms of their preparations and future for the betterment. Moreover, it can help to secure their data from being breach since the use of technologies is no foreign in many organisations regardless it is in finance, business and even in the education sectors.

Enterprise risk management usually being implemented in big organizations such as in oil and gas industry, telecommunications and many more. However, the enterprise risk management is not limited to big organizations where it can be applied in education too. In Education sector, risks can come in many forms and if these risks are not being identify and mitigate, it may disrupt the development impede the progress and success of organizations to meet and achieve their business goals and objective. In Thailand, risk that exists in education sector is considered huge obstacle in achieving the goal and objective of educational organization in all levels. Therefore, Thailand Ministry of education highlighted the importance of risk management and remind to public and private schools to be aware about risk that may occur during school's operation as well as in the future [1].

Furthermore, it was also found out that implementing integrated Enterprise Risk Management in government schools seen as less important. Usually, risk management seen only related to safety procedure implemented in organizations such as Oil and Gas Company. It's so often that Enterprise Risk Management is being misinterpreted by school staffs as a risk assessment that is only associated with Health Safety Environment style approach which it is deemed as unsuitable to be implemented in schools' projects [6].

Currently, many schools have introduced educational projects for the betterment of the schools and students. Most of the staffs who are involved in these projects, however, have limited experiences in identifying and mitigating risks mainly because it is not necessary for them to acquire about risk management for school. This is due to the nature of teachers as well as their main role is to deliver knowledge to their students.

To ensure the performances of schools are better in the future, lots of projects have been introduced. However, despite the increasing number of people involved in these projects, those who are in charge of managing those projects still lack of experience in managing risk. As a result, the projects may have difficulty in achieving their objectives and it is less efficient since a lot of risks are not being detected [3]. In every school, there must be some type of risks existed and the top-level management needs to act about the risks. Unfortunately, the interpretation of risk management in every school is different and furthermore, there is no clear indication on the use of ISO31000 and/or ISO27000 to manage risk when implementing their educational projects.

Taking Thailand as an example, the Ministry of Education did stipulate the specific way to manage risk under the act of the Law of Bureaucratic Management of the Section 20 of the Education Act 2003 [2]. Based on this act, it stated that every school needs to follow the guidelines of the risk management so that every educational project will run smoothly and the potential risks can be identified and mitigated accordingly. This will make it easier for the Ministry of Education to monitor the progress of risk management system in schools. Since the system is standardized and basically all school need to adhere to it. Even though there is no ISO31000 being mentioned, still the process of risk management is identical to ISO31000. Similar to United Kingdom, in order to implement an effective risk management, the head master can refer to the school financial regulations (section 11) and follow the steps that have been given [9]. In addition, Australia also prepare guidelines of risk management for schools to implement so that objectives of the school can be achieved.

In San Francisco, community -based organizations provide support such as tutoring, mentoring, childcare etc. to all schools. Since the number of organizations reach to hundreds, there is no denial that risks exist and it may disturb the program set by the community -based organization and schools. In order to ensure that the problem is tackled, the Enterprise Risk Management ISO31000 is implemented by San Francisco Unified School District (SFUSD) [6]. Some of the action plans by SFUSD are schools districts have to create key risk indicators, performance measurement and determine the expected result on how to identify and mitigate risk at the same time identify who is responsible for the outcome. Additionally, schools and CBOs are encouraged to apply risk management to any type of projects, opportunities and issue that may arise.

B. Brunei MOE Strategic Plan 2018-2022

Based on Brunei Ministry of Education (MOE) Strategic Plan 2018-2022, it aims to nurture educated, highly skilled and accomplished students when they graduate from schools. In order to achieve this, MOE of Brunei outlines its Strategic Objective that consisted of transforming its human resources towards performance driven culture, equal and equitable access to quality education and lastly enhance shared accountability with stakeholders in the development of teaching and learning. This strategic objective will help to guide MOE for the next five years and at the same time consistently assessing strategies that being implemented [5]. This is to ensure that problem arises can be identified and solved thus making the Strategic objectives stay relevant and in line with Ministry of Education aims. Under “Brunei Vision 2035” specifically on the education strategy. There are no specific projects that have been mentioned by MOE. However, MOE aspire to implement info-communication technology (ICT) in school curriculum and using cost-effective methods to educate people by using technology [12]. Furthermore, since Covid19 pandemic hit Brunei, schools in for few months online learning has been utilized but students and teachers preferred study face to face since studying online also have its problems such as no wireless connection for students. Despite that, since MOE has decided to use ICT, it is important for MOE to adopt ISO27000 as in Vision 2035 it is clearly stated that Brunei Darussalam aims “develops into a nation which will be widely recognised for the accomplishment of its educated and highly skilled people measured by the highest international standards” [11]. Thus, implementing ISO27000 is a must to achieve the Vision 2035.

Despite proper planning have been made by Ministry of Education Brunei, there is no clear indication of the implementation of Enterprise risk management standard ISO31000. Not having a proper risk management may increase the likelihood of these projects to face complications as risks were not being identified and mitigated accordingly. Therefore, projects will not be managed efficiently and worse, could not meet the objectives set by the Ministry of Education Brunei.

In addition to the above, in this era of globalization, there is wide usage of Big Data. Ministry of Education Brunei is also not an exception. In the Strategic Planning 2018-2022, Big Data is one of the important elements to achieve the aims of MOE. The implementation of big data will give a new opportunity for MOE as they can use the information to make a better decision on every level of management and the information will be shared among the stakeholders. However, there is no clear indication from the MOE that ISO27000 is in place in order to manage risk since Big Data is related to information security management and if this not being look into seriously, it may create lot of problems such as loss of important students and schools details.

C. IR4.0 & Digital Era in the Education Sector

Moreover, the education sector also affected by the Fourth Industrial Revolution (IR 4.0). IR 4.0 is the advancement of technologies inherited from the Third Industrial Revolution. The new technological advancements are in the forms of artificial intelligence, robotics, the internet of things, and many more [16]. Thus, it had also influenced the education sector. The education sector is not foreign from the usage of the technologies and therefore can be vulnerable to threats similar situation with the other sectors.

The usage of technologies in the schools will also benefit the students as it the school settings is part of their exposure where they will learn to use technologies in which they will become less foreign especially when entering the higher education institutions and employment world. On the other hand, as they become users, they also will experience varieties of technologies in which they will also learned how important is the role of protecting their personal information. Moreover, the students is also the part of the future in which they can shape and change the future of schools and therefore, they should be given awareness on how the use of digital can become both merits and demerits [17].

E. Business Model Canvas

It is important for any type of organizations whether big or small to acknowledge or understand about their organizations key success factors – in terms of customer segments that they are serving; key value proposition benefits to each customer segments; key resources and activities; key partners; and revenue streams and cost structure. This can be done by using Business Model Canvas as one of the best tools that can be utilized. As BMC help organizations to visualize, design, and reinvent the organizations business model. BMC also help to detect the different mechanisms that organizations have. Additionally, its function not only limited to understand organization, but it also helps to identify and find a solution to mitigate any type of risks either current or future risks [18].

V. DISCUSSION AND ANALYSIS

The purpose of this paper is to analyse risk management in Government secondary schools in Brunei. There are two important findings that have been identified from this study. All of the interviewees are aware of risk management and the concept of risk management to Health, Safety, Security and Environment (HSSE).

Based on the interview, it is found out that education officers are actually aware about risk management as they need to identify future risks that may occur. Similar findings made by [7] where based on the result, it shows that the director and assistant director are also aware about risk management. However, there is a need for improvement in the implementation of risk management policy as it was not effective. Both educational officers are in consensus that risk management is necessary to be implemented in schools as it would help to ensure the objectives of Ministry of Education and schools are being met as what has been plan initially. Nevertheless, they also stated that they are not made aware of or familiar with integrated risk management (ISO31000 and ISO27000).

In Brunei, the main reason for this is first, risk management is not a concept that is widely implemented in an organization. Second, ISO is not commonly exposed to Government Institution and only small number of profit-making organizations are certified with ISOs. Hence, usually ISO31000 or ISO27000 are implemented in organization such as corporation and business companies. Third, Implementing ISO may require a large sum of budget to be allocated thus as non-profit organization or institution, the budget could be used for other school development projects. Fourth, being certified with ISO means the organization/institution would need to maintain their certification for certain number of years and annual audit from external auditors will be carried out. Internal, an audit will also be carried out by selected ISO Internal Auditor to conduct the audit. This would take a lot of effort, time and commitment by the whole organization / institutions.

The education officers also view risk management as more related to health, safety, security and environment. Each school has its own HSSE team and they will work together with Ministry of Education to identify and mitigate risk. For instance, committee with roles and responsibilities are setup in each school. They will be monitored by external stakeholders, e.g. MOE officials, Fire service department, Health officials etc. to ensure that specific instructions are followed according to guidelines that have been provided by the officials. This is also in line with the Whole School Evaluation which is yearly reviewed. However, this thought may lead to a misconception of what a risk management as it covers a wide range of aspects not just HSSE.

In addition, since Ministry of Education Brunei utilizes the Big Data, a number of selected educational officers are required to fill in the student data into a system. It was found out that there are no clear guidelines set by Ministry of Brunei to ensure the safety and confidentiality of the students' information. The risk management is implemented when the teachers set their own rules/policies. For example, only authorized teachers can access to INEIS system (the system is from Ministry of Education where it contains all information about students). The authorized people are form teachers, senior masters/mistress, Principal and Deputy Principal of the school.

As for the exam section, only teachers in that section have access to key in the data of the students. They gave the teachers link to enter data. One of the interviewee highlighted that *"The hal ehwal pelajar department, all files which contain information about students are kept safe whether it is hardcopy or softcopy. Only few of us who know the file name and in which folder. Myself, I do all the work on my laptop to prevent unauthorized people gain access to the computer. Even the file or folders of students are in the desktop in hal ehwal pelajar room only.* The risk management strategies in schools are usually the initiative of teachers such as backup the data in pen drive or hard disk.

It should also be noted that there are risks that may become potential barriers to the achievement of "Nurture educated, highly skilled and accomplished students". To nurture educated, highly skilled and accomplished students – schools are required to have balanced teachers, balanced curriculum, good environment, and infrastructure that includes digital platform / ICT, commitment of parents and society [20] [21] [22] [23] [24]. Hence, one of the high risks is not having enough balanced teachers in school. To mitigate this risk, schools must ensure that teachers not only touch on the education aspect but also help the students in enhancing their soft skills, where this will help students to be more holistic. This can be done by encouraging students to participate in group projects and public speaking. The risk owners Principle, Deputy Principle, and teachers need to look at this issue. Additionally, to mitigate the risk of unbalanced curriculum, MOE needs to design balanced curriculum that focuses on physical, emotion, spiritual, and intellectual aspects of a balanced student. MOE (risk owners) can review the current syllabus and incorporate necessary skills such as using Microsoft word, Excel, and web designing [20] with the mitigation action plan. Physical health and well-being of both teachers and students should also be taken into consideration.

Another risk is not having a good environment and lack of infrastructure with digital platform /ICT. If schools do not have a good environment it will led to students not attending class and bad examination result. To overcome this, Principle and Teachers (Risk owners) need to ensure that students are having comfortable learning experiencing in schools. By having a good discipline policy and no toleration to negative behaviour [21]. As for lack of infrastructure with digital platform/ICT, will limit the development of student's skills in using technology which-is a critical tool to help students to be active in learning process [22].

Also, some students do not have access to technology because some of the parents could not afford to acquire laptops or computers. Thus, it can be solved by providing enough laptops/computers to each school, stable internet connection in schools by MOE(risk owners) and collaboration with IT companies as risk owner. Lastly, lack of commitment of parents and society can lead to students less interested in studying and not having good grades. If parent and society (risk owners) work together to support children education in their community, it will contribute to short and long term outcomes such as achieving higher grades, enjoying study in schools and stay longer in school [23]. Parent can accommodate their children education needs, interest, and support the children balanced growth.

VI. SUGGESTION AND RECOMMENDATION

Each year, new projects will be planned and implement in schools. Even though there are many projects, not all of them are successful. This is because there are risks which arise and hinder the development of the particular projects. The Administration department need to look at this matter and create strategies in order for the projects to run smoothly and be

successfully implemented. For school projects to be successful, it is recommended that teachers and officers from Ministry of Education to work together and identify the problems related to school projects that is not successfully executed or implemented. For instance, training on risk management such as designing risk register and risk matrix for schools.

Additionally, it is recommended that the schools use Business Model Canvas (BMC) - a visual chart consisted of nine blocks which are Key Partners, Key Activities, Key Resources, Value Proposition, Customer Relation, Channels, Customer Segment, Cost structure and Revenue Stream. The aim of BMC is to make the school understand and identify what type of risks that they are currently facing and at the same time potential risks in the future. This will help schools to develop a proper and effective integrated risk management strategies.

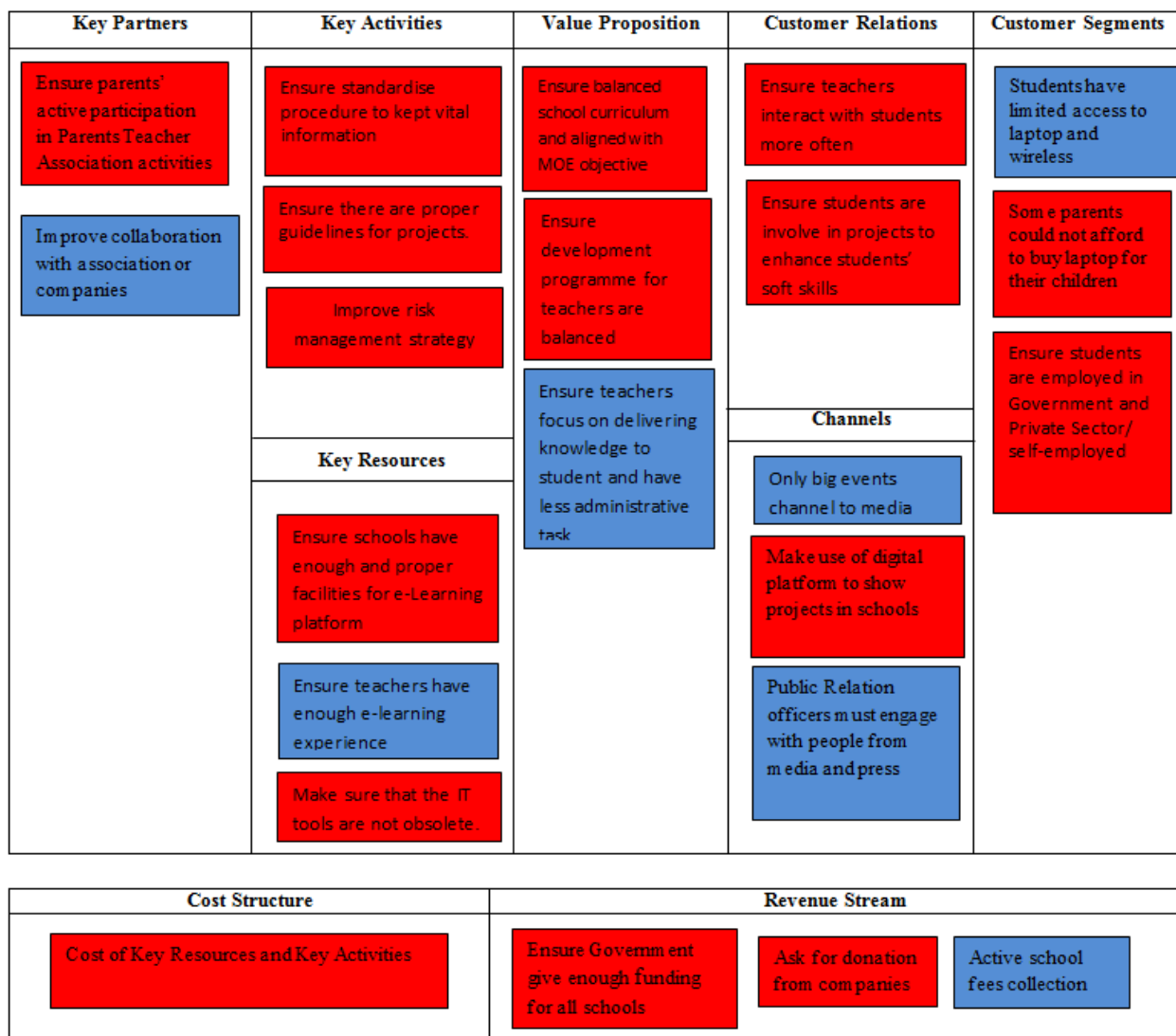


Figure 1: Sample of IERM using Business Model Canvas for Public Schools

Value Proposition (VP): VPs of MOE include nurturing balanced students/graduates, having balanced teachers, balanced curriculum, and good environment and infrastructure that includes digital platform / ICT. In achieving these agendas, Director of School Inspectorate department need to provide training to teachers. To enhance teacher's skill as education sectors will keep evolving with new technology, thus it is important teacher to be upskilling to keep up to date. Furthermore, they also need to consider creating task force that can-do administrative jobs. Furthermore, Head of Department of School Curriculum need to provide curriculum that meet the needs and standards of modern world.

Customer Segments (CS): Included under CS are students, parents, government agencies & employer. Director of Administration and Services and Assistant Director of Finance Division can collaborate with IT and telecommunication companies to give free laptops and affordable wireless service to those in needs. Also, work with other government agencies and private company to know about what the required skills is sets that they need for students get employed in the future.

Channels (CH): One of the ways to know the latest development of schools is utilising the usage of digital platform. By doing this, the masses know what are current projects that have been done by the schools. Also, Public Relations Officer need to engage with the press and media regarding schools' projects. Director of Administration and Services need to appoint Public Relations Officer that are qualified. Encourage the use of digital platform to show successful projects that have been done in schools.

Customers Relations (CR): The CR of MOE and schools is to ensure that students have active involvement in schools' projects so that their skill can be enhanced not only focusing solely on education. Furthermore, Director of Administration and Services need to stress out the important of teacher and student engagement so that students do not feel left out. At the same time, monitor the progress of schools' projects.

Revenue stream: As a government schools most of the budget comes from the government. Thus, it depends on MOE and Principle and Deputy Principle of each schools on how to use the budget that have been given. Also, schools can ask for donations from companies to provided essential equipment to schools. Schools also can make initiative such as having entrepreneurship day or projects to make extra income for schools or even ask for more grants from government.

Key Partners (KP): The key partners are MOE, associations, companies, and parents. The Head of Parent Teachers need to create programmes where parents can participate, so that they know the important of Parent Teacher Association. Parent also play an important role in their children education. MOE and schools collaborate with companies to provided with IT tools, chairs, table for students use in schools.

Key Activities (KA): The Key activities are to ensure schools follow the guidelines that has been provide by MOE, where its aim to ensure educational projects run smoothly the objective of nurture educated, highly skilled and accomplished students can be achieved. The role of Director of Administration and Services need to create a proper guideline for all school to follow. Thus, it will make it easier for them to monitor the progress.

Key Resources (KR): The KR of schools is to have enough IT facilities in schools for students use in schools. Also, make sure the IT equipment's is not obsolete and properly protected by firewall/ antivirus. Principle and Deputy Principle need to ensure that the IT equipment is in good condition, up to date and can be used. If there is any issues regarding the equipment's they can escalate to MOE so that further action can be taken.

Cost structure: The high cost that incurred are usually in terms of infrastructure and ICT equipment. It not only providing equipment and tools but also maintaining it. To mitigate this risk, MOE and School's Head of Finance Department need to find sponsorship from IT companies and negotiate the price when making purchases with a particular company.

VII. SUMMARY & CONCLUSIONS

In conclusion, the practice of risk management is vital to any type of organizations whether in government or non-government sector, profit or non-profit organization or institution. By having risk management, it will help the organization to identify their strengths, risks, opportunities and areas for improvement and then take necessary action about it. Furthermore, to make risk management effective, meetings and discussion need to be done regularly and periodically among the stakeholders. An effective risk management will help organization to manage existing risk, expect potential risk that may arise in the future and at the same time come up with mitigation plan and long term solutions. It can only be done if the people involved are willing to cooperate and contribute to build risk management strategy for the betterment of the organization. Hence, in the case of schools in Brunei, after conducting the interviews, it seems that government schools in Brunei did not practice integrated risk management as one of the methods to identify risks in schools. The interview of teachers in school has shown that teachers are aware about risk management as they always face risks. However, the risk management methods that being practice is initiative of teachers themselves. One of the key objectives of Brunei MOE is to nurture educated, highly skilled and accomplished students. Therefore, MOE/schools

require balanced teachers, balanced curriculum, good environment and infrastructure that includes digital platform / ICT, (d) commitment of parents and society. Since there are no proper guidelines provided by MOE. It is recommended that MOE start looking the integrated enterprise risk management standard (ISO31000 and ISO27000) as it helps to improve the performance of the schools. Additionally, MOE need to plan proper strategy when implementing IERM that are acceptable and applicable by all schools since different schools have different culture and demographic.

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