

## MEASURING AND IMPROVING THE EFFECTIVENESS OF ISO 31000 BASED ERM IN STATE-CONTROLLED PSO - A CASE STUDY OF TOLL ROAD OPERATORS IN INDONESIA

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### Abstract:

Toll road operators need to implement effective risk management. This study focuses on how a State-Owned Enterprise (SOE) toll road operator assesses the maturity of their ISO 31000-based risk management practices by using an ISO 31000-based risk management maturity model, ERMA ISO31000 RM3. The study is predominantly based on a qualitative approach through document reviews, questionnaires, and interviews. The assessment result shows that the company's risk management maturity score reaches 3.62 (a scale of 0.00 - 5.00) or at the DEFINED level of the risk management maturity. The study also shows that the company's risk management process gets the highest score, 4.45, while the lowest score, 3.22, is for the company's performance management. By using the maturity assessment result, the company's management can develop a risk management improvement road map to assist their efforts in increasing the effectiveness of their existing risk management practices. Referring to the assessment result, the management can prioritize the improvement on low-score maturity attributes, such as their performance management, risk culture, resilience and sustainability, risk management framework, and management process, while maintaining their current practices of the risk management process, which has already reached a considerably high maturity level.

**Keywords:** maturity assessment, risk management, ISO31000, SOE, toll road operator

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## INTRODUCTION

As part of public infrastructure, land, sea, and air transportation infrastructures play a very important role in the economic system. By providing mobilization access for people, products, and services required by the economic development, and triggering economic growth of the surrounding areas, the condition of the transportation infrastructures significantly contributes to the gross domestic product (GDP) and many other economic indicators of a nation. Kawulur et al. even stated that the role of transportation in economic development is generally even bigger than just the value contributed by the transportation sector into the GDP (Kawulur, 2020). The total length of toll roads lately has become one popular indicator for assessing a country's economic development regarding the land transportation infrastructure. According to Noor et al., toll road development will affect the regional and economic development of two areas that are connected by the toll road (Noor, 2017). In Indonesia, trans-area road and toll road developments become part of strategic priority projects of the Medium-term National Development Plan 2020-2024 released through Presidential Decree No. 18/2020. Indonesia Toll Road Regulatory Agency stated that there would be additional 410 kilometers of 17 new toll road sections in 2021 to achieve the total annual target of 2.756 kilometers (Bisnis.com, 2021). According to the Ministry of Public Works and Housing spokesperson, a total of 2.391 kilometers of toll roads are operated per April 2021, consisting of 62 sections all over Indonesia (Liputan6.com, 2021).



**Figure 1. The vision of the Ministry of Public Works and Housing 2020-2024 & 2030**

(Source: adapted from Strategic Plan of the Ministry of Public Works and Housing Year 2020-2024, released by Ministry of Public Works and Housing, 2020)

As important as its contributions to the economy, operating toll roads also gives many benefits to society, such as shorter routes and time in traveling, good quality and car-friendly road surfaces which reduce potential damages to the car, saving money from lower petrol consumption on shorter time and congestion-free journey, safer rest area to pull over in an emergency compare to alternative back-roads, more reliable factor in travel planning and budgeting (Emovis-tag.co.uk, 2020). These benefits reflect the effectiveness of the toll road operator in fulfilling its public service obligation, which is maintaining the toll road to keep well-functioning for public use. However, many risks may hinder the toll road operator from achieving targeted toll road performance. For instance, a roadblock or traffic congestion can occur anytime from an accident, natural causes like landslide or flood, road damage, political rally, toll gate malfunction, maintenance or repairment project, or simply because overload traffic during public holidays (Satriaputri, 2015). These risks are only some examples of the risk universe of the toll road operation that bring the necessity for a toll road operator to have sound risk management in place. By practicing effective risk controls and treatments, the toll road operator increases their readiness to anticipate the risks that may impair the toll road performance and respond quickly to the occurring risks.

According to ISO 31000:2018, an organization should continually improve the suitability, adequacy, and effectiveness of the risk management framework and the way the risk management process is integrated, where these improvements should contribute to the enhancement of risk management being practiced throughout the organization. One particular state-owned enterprise (SOE) in Indonesia, i.e., XYZ, would like to understand better whether its risk management practices have met best practice criteria and identify opportunities for improvements to make necessary enhancement of its risk management in a well-planned manner. To effectively meet this objective, the company applied a risk maturity assessment model which aligns with the adopted best practice reference, the ISO 31000. Such model is well fitted by ERMA ISO 31000 RM3 that has been designed and built upon the ISO 31000 standard covering the risk management principles, framework, and process. The assessment model suggests five levels of maturity: initial, repeatable, defined, managed, and optimizing, and consists of 6 assessment attributes which are cascaded down into detailed indicators, parameters, and testing factors (ERM Academy, 2021).

This research focuses on how XYZ uses the ERMA ISO 31000 RM3 model to assess its risk management maturity. The results of this study help the management of the XYZ in understanding their risk management maturity level and identifying the necessary improvement that needs to be done to maintain and increase internal capacity in fulfilling their public service

obligation as toll road operators. Furthermore, this study may also benefit from the management of an SOE or any other companies and organizations in identifying the effectiveness of their risk management practices and other researchers in their quest of conducting related research in the future.

## **METHODS**

The object is one of the largest Indonesian SOEs which serves public interests in the transportation sector. Becoming a public listed company in 2007, the company today is an operating holding company of 21 subsidiaries and 10 joint venture companies. It manages more than its 104 thousand billion Rupiah assets through three business lines, toll road operators, toll road maintenance, and other related business. At the end of 2020, the company has operated more than 51% of all toll road sections throughout Indonesia, consisting of more than 1.100 kilometers. However, the company's name could not be disclosed due to confidentiality.

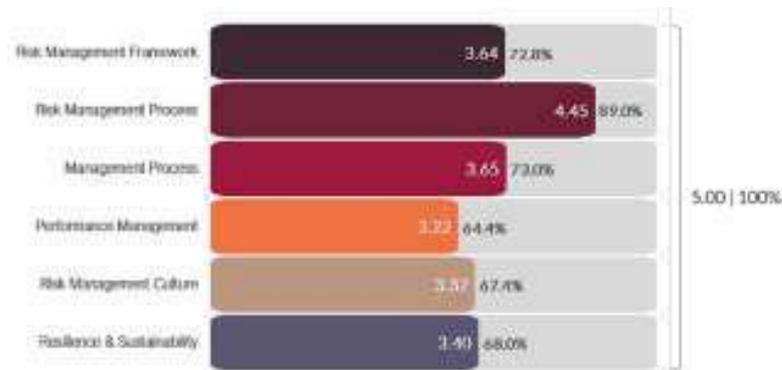
This study uses a combination of two data collection techniques, document reviews and supported by interviews with members of the board of directors and division heads to support and validate the information gathered from the document review process. All information is then compiled and mapped into more than a hundred testing factors of the ERM ISO 31000 RM3 model to calculate the aggregate scores of 6 assessment attributes and determine a single maturity score as the final assessment result. The ERM ISO 31000 RM3 algorithm also includes defining indicators of the assessment attributes, which group the testing factors into fifty-plus parameters. By using the ERM ISO 31000 RM3 model, the XYZ can identify the score of its risk management maturity and the score of each assessment attribute and identify which indicators of the assessment attributes the company gets a considerably low score. Based on the result, the study further develops a road map for XYZ to obtain a higher maturity to the level as targeted by the top management.

## **RESULT AND DISCUSSION**

There are two combined methods of data gathering used in the field research. First is document review covering annual report 2018 and 2019, interim financial report Jan - Jun 2020, risk management report 2018, 2019, and 2020, incident/loss event database, sustainability report 2018 and 2019, board manual, and committees' charters. The second method is one to one interview with members of the board of directors and all division heads.

Based on document review and interview results, the ERMA ISO 31000 RM3 algorithm shows a scoring result of 3.62. This result suggests that the overall company's risk management maturity is at the DEFINED level, which reflects the structured and systematic risk management the company has in place. The result is also reflected in the risk management practices that are becoming more integrated with the company's governance practices, and supported by broader and stronger risk competency, leadership, and commitment.

The following are the detailed result of each assessment attribute and its respective scoring value that forms the final scoring value at 3.62 by using the arithmetic mean.



**Figure 3. Result of Risk Management Maturity Assessment of XYZ**

1. Risk Management Framework at a scoring value of 3.64

The field research finds several evidence-based contributing factors to this attribute; for example, the organization executives have discharged their accountability to integrate the risk management into the business processes while the board of commissioners has actively overseen the integrations, where the integrated risk management practices are conducted consistently. Moreover, there is some other evidence showing that the boards' commitment to integrating risk management is clearly articulated, supported by a formal set of roles, main duties, functions, authorities, and accountabilities for every internal stakeholder who is being involved in risk management. In addition, required resources for risk management have also been allocated considerably.

Despite those contributing factors above, some other evidence shows that the risk leadership of the top management is still not consistently visible to all lower management levels, the integration of risk management still has not fully satisfied the needs of the organization based on its internal and external context, and risk communication and consultation within the company has not fully supported with required data analytic function while the company is still improving data validity in presenting them real-time on the company dashboard.

2. Risk Management Process at a scoring value of 4.45

Many parameters of this attribute have been satisfactorily fulfilled, making this attribute the highest score among other attributes. Based on the evidence, many risk management practices have been integrated into the business process, consistently conducted in full cycle, and supported with appropriate IT/IS tools. In addition, every unit/function throughout the organization has already had a practical plan or design on how to integrate risk management into its business processes, while from these integrating plans, a company's grandmaster plan for risk management integration has been formalized.

However, the integration processes of risk management are still in progress, and there is also evidence that shows that the effectiveness of the integration has not been measured or evaluated properly both on core and supporting business processes, thus it is not consistently included in the risk communication and consultation of the company.

3. Management Process at a scoring value of 3.65

The evidence from the field research shows there are contributing factors to the attribute's score; for example, appropriate risk assessment and treatment planning processes have been embedded with the company's strategic planning, and there is an adequate set of KPIs have been set to measure the effectiveness of the strategic plan execution, including the effectiveness of respective risk treatments where the interconnections with the effectiveness measurements of the operational risk management at the business process or activity levels can be traced down.

On the other hand, the result of the field research also shows that during the strategic planning, there is some internal and external context of the company which is not thoroughly considered in the risk assessment process, not to mention that the company has not evaluated the adequacy of the strategic planning itself in a regular manner where the company more depends on its compliance with the regulatory requirements on formulating a strategic plan.

4. Performance Management at a scoring value of 3.22

The field research results show that every objective has been defined with SMART criteria, KPIs have been set by carefully putting the identified risks and respective existing risk controls and treatments into consideration, and risk monitoring and evaluation has been embedded with the performance monitoring and evaluation mechanism.

Although there are many contributing factors are found, the result of the field research also shows that to a certain extent, the improvement of the company's performance can still sometimes be quite challenging due to a dynamic changing situation where the contribution from the existing risk management practices is still considerably limited.

5. Risk Management Culture at a scoring value of 3.37

The contributing factors to this attribute's score are that risk philosophy has been adopted into the written organization culture, accountabilities in risk management have been clearly defined and discharged in a disciplined manner, and promoted with a suitable remuneration scheme. Also, the tone from the top has been implemented at every level of the organization and is supported with sufficient risk awareness at every corner of the organization and a positive attitude towards risk with risk competency shown at every level of the organization.

However, the field research also finds that the company's risk appetite framework has not yet been formalized, the risk governance structure still needs enhancement due to the increasing business complexity of the company, while the integration of risk management into personnel allocation and promotion mechanism is still under development.

6. Resilience and Sustainability at a scoring value of 3.40

Relates to this attribute, the company has adequately performed the environmental risk assessment and treatment and the risk assessment and treatment on the company's people, supply chain, information system, infrastructure, and financial resilience in anticipating the possible disruptions.

The evidence that is less contributing to the attribute's score is that the assessment methods on the company's economic, environmental, and social sustainability are still under development where the company is still seeking the most practicable approach and methodology, especially in conducting the process in a fully quantitative manner.

## CONCLUSION

The study shows that by using the ERMA ISO 31000 RM3, the SOE under this study can measure the maturity of their risk management, which is at the stage of DEFINED with a maturity score of 3.62. Based on this result, the company's management can develop a road map that assists them in increasing the maturity level of their existing risk management to a desirable level. In this regard, the management can prioritize their improvement first on the low score attributes, the performance management, risk culture, resilience and sustainability, risk management framework, and the management process, while maintaining their current practices of the risk management process, which has already reached a considerably high maturity level. In addition, the management also needs to define quick wins to increase the maturity score of each attribute and prioritize them in the short and short-to-medium term plan of the road map, while planning further required improvements in the medium-to-long and long-term part of the roadmap. It confirms that not only the SOE can use the risk management maturity assessment model to define

the baseline of its current risk management practices and then support the SOE increasing the effectiveness of its risk management, but it also confirms that ERMA ISO31000 RM3 is applicable and suitable maturity assessment model for ISO 31000 adopters for assessing their risk management maturity level. Despite the results provided, this study has limitations in terms of comparability with other SOEs and non-SOE toll road operators using the ISO 31000 as the main reference in their risk management practices. Thus, further research with a similar case study approach in other SOEs and other types of organizations is strongly recommended.

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