JURNAL ECONOMINA e-ISSN: 2963-1181
Volume 5, Number 6, June 2026
Homepage: ejournal.45mataram.ac.id/index.php/economina

Measuring Risk Maturity Levels as a Tool for Evaluating the Effectiveness of Risk Management at PT Jasa Kepelabuhanan Petikemas Surabaya

Cahya Ardie Firmansyah[1], Driana Leniwati[2], Nazaruddin Malik[3*]
[1,2,3] University of Muhammadiyah Malang, Malang, Indonesia

**Corresponding Author: nazaruddin@umm.ac.id*

Article History

Received: 16-06-2026
Revised: 20-06-2026
Published: 30-06-2026

Keywords: Risk Maturity Level, Risk Management, Qualitative Case Study, Risk Management Effectiveness, Organizational Performance

ABSTRACT

The level of risk maturity and to provide actionable recommendations that are aligned with the company's efforts to develop and improve its risk management strategy and implementation. The research adopts a qualitative approach using a case study strategy. Data were collected through interviews with representatives responsible for risk management implementation, governance, and compliance functions as key risk owners within the organization. The findings indicate that the company's risk maturity level is positioned at the good practice phase, with a score of 2.95. This result suggests that risk management has been implemented satisfactorily, while performance achievement is categorized as good. The study highlights that risk management has contributed positively to organizational performance, although further improvements remain necessary to enhance overall effectiveness. Future research is recommended to adopt quantitative or mixed-method approaches to examine the relationship between risk management maturity levels and both financial and non-financial performance indicators

INTRODUCTION

Risk management is now needed by organizations in various industries because of its role in shaping and maintaining company value. Nationally, the National Medium-Term Development Plan 2020-2024 has established risk management as the main pillar in managing the performance of government agencies, thus further emphasizing the urgency of its implementation not only in the public sector but also in the private sector in Indonesia. Therefore, continuous evaluation of the effectiveness of risk management implementation is crucial, and measurement of risk maturity levels offers a systematic mechanism for assessing such achievements. (Alijoyo & Munawar, 2021).

A good risk management approach is essential in helping organizations achieve their goals and objectives effectively and efficiently, not only as a means of preventing losses but also as a driver of improving the quality of strategic decision-making. (Yanuar and Chaerul D. Djakman, 2025) is essential to identify the capacity and capabilities of organizations in managing risk, as well as provide the basis for the development of more adaptive and value-added risk management strategies. This study introduces risk maturity measurement as an

objective diagnostic tool to assess the effectiveness of overall risk management, detect areas that need improvement, and formulate strategic directions for the future. (Marliyah et al., 2023)

ISO 31000:2018 provides a comprehensive framework that companies can adopt as a guideline in integrating risk management into all operational and strategic functions. However, the effectiveness of such frameworks is highly dependent on the level of maturity of implementation within the organization, which can be evaluated through various risk maturity measurement models. Previous research, such as a case study at PT Pelabuhan Indonesia, shows that risk maturity assessments can provide strategic recommendations for the development of risk management in state-owned companies, and even indicate the achievement of the good practice phase with a significant score (Alijoyo, 2021) (Source: Djunita Mother's Market , 2024).

The Company uses the PRIMA application to conduct integrated risk identification, analysis, treatment, and monitoring through the PRIMA application, which is designed to optimize risk management processes to improve operational efficiency and strategic decision-making effectiveness in port companies. However, the implementation of a system such as PRIMA does not necessarily guarantee excellent risk management maturity, so self-assessment through the measurement of risk maturity is still very much needed to prove its effectiveness and detect improvement gaps that go unnoticed. In addition, the company has implemented regulations stipulated in the Government through regulation number PER-02/MBU/03/2023 which requires the implementation of integrated (São Paulo, São Paulo et al., 2023) *Enterprise Risk Management* in all State-Owned Enterprises.

The results of previous research revealed that the level of risk management maturity in some companies is still inadequate to mitigate agency conflicts and meet the fundamental aspects of ISO 31000. This shows that a more adaptive and integrated framework is needed to ensure that the implementation of risk management is in line with international standards while addressing industry-specific challenges. This study adopts (Baskoro & Djakman, 2024) (Suparto & Lukmandono, 2022) *the Enterprise Risk Management* (ERM) maturity model ISO31000 RM3 to assess the effectiveness of risk management in PT Jasa Kepelabuhanan Petikemas Surabaya, which has been proven to produce a roadmap for precision improvement in SOE toll road operators with a score of 3.62 at *the Defined level* (Alijoyo & Forest, 2022).

Thus, this study aims to comprehensively evaluate the level of risk maturity at PT Jasa Kepelabuhanan Petikemas Surabaya using the *Risk Management Maturity Assessment model* based on government regulation Number PER-02/MBU/03/2023, as well as provide strategic recommendations for sustainable improvement through evaluation of the implementation of risk management practices that have been carried out in the company.

METHODOLOGY

This research applies a qualitative approach as it allows an in-depth exploration of the complex phenomenon of risk management, with a focus on contextual understanding and interpretation of non-numerical data. This approach was chosen to holistically analyze how risk management is implemented and evaluated in the specific context of PT Jasa Kepelabuhanan Petikemas Surabaya, as well as to identify the qualitative factors that affect the level of Risk maturity. The research design uses intrinsic single case studies to intensively delve into the organization, identify the uniqueness of its risk management practices without

manipulation, and focus on internal dynamics. (Alfiana et al., 2023)

The data used in this study consisted of primary data and secondary data. Primary data is obtained through interviews with related individuals or work units. Interviews were conducted with representatives from the Risk *Management, Governance, and Compliance* Group who act as risk managers at the corporate level. Meanwhile, secondary data is obtained through literature studies sourced from books, scientific journals, theses, articles, internal company documents, and information sources from the internet. The data analysis technique in this study uses the Miles and Huberman model as data reduction through categorization of interview transcripts and documents based on qualitative parameters, presentation in an evaluation matrix, and interactive conclusion drawing by triangulation, where the results are mapped to an ERM structure ISO31000 RM3 consisting of 6 attributes, 22 indicators, 52 parameters, and 168 factors to produce a measurable maturity assessment

Data collection was carried out through interview methods and documentation studies. Data reduction includes the process of sorting and simplifying information relevant to the focus of the research. Data presentation is carried out in the form of narrative text, graphs, or diagrams to facilitate the understanding and interpretation of data. The last stage is drawing conclusions, which is the process of giving meaning to the data that has been presented, which may require further interpretation if the conclusions produced are still temporary. Figure 1. Show the flow of Risk Maturity Assessment activities.

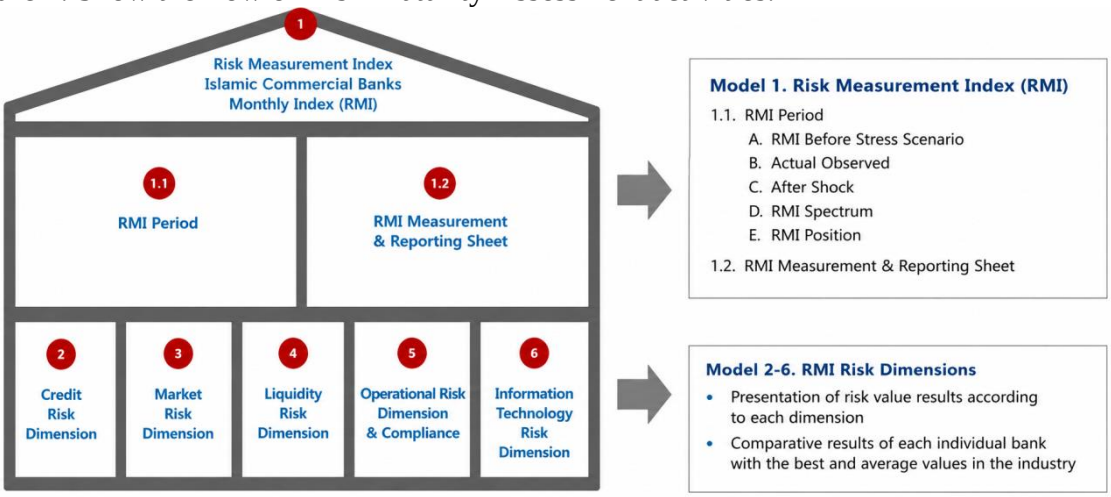

Image 1. Risk Maturity Assessment (*Risk Maturity Index*)

Source : Decree of the Deputy for Finance and Risk Management of the Ministry of SOEs Number SK-8/DKU. MBU/12/2023

Figure 1. explains that the Risk *Maturity Index* (RMI) is a structured framework used to measure the extent to which the implementation of risk management in an organization has been carried out effectively and integrated. In the visualization in the form of a building, the roof shows the main objective, namely the RMI assessment, which is supported by two main components underneath, namely the RMI assessment process and the RMI assessment and reporting sheet. This component reflects that the measurement of risk maturity is not only concept-based, but also carried out through a clear methodology, covering dimensional aspects, performance aspects, assessment scales, and systematic process flows. In addition, the existence of assessment and reporting sheets shows the importance of documentation in producing objective and measurable evaluations.

Furthermore, the foundation of the framework consists of several key dimensions, namely risk culture and capabilities, risk organization and governance, risk processes and controls, risk and compliance frameworks, and risk models, data, and technologies. These dimensions are key indicators in assessing the level of organizational maturity as a whole, because they include human aspects, processes, and technological support. On the other hand, the division of modules (Module 1 to Module 6) shows that the RMI assessment is carried out in stages and in detail, starting from the methodological setting to the specific parameters of each dimension. Thus, this RMI framework serves as a comprehensive and standardized evaluation tool to identify the risk maturity position of the organization as well as the basis for formulating a continuous improvement strategy.

Meanwhile, in the implementation of the risk composite rating assessment, it can be conveyed in Figure 2. The Performance Aspect in the RMI Assessment focuses on the relationship between the level of maturity of risk management and the effectiveness of the implementation of business functions, risk control, and the achievement of the company's performance targets.

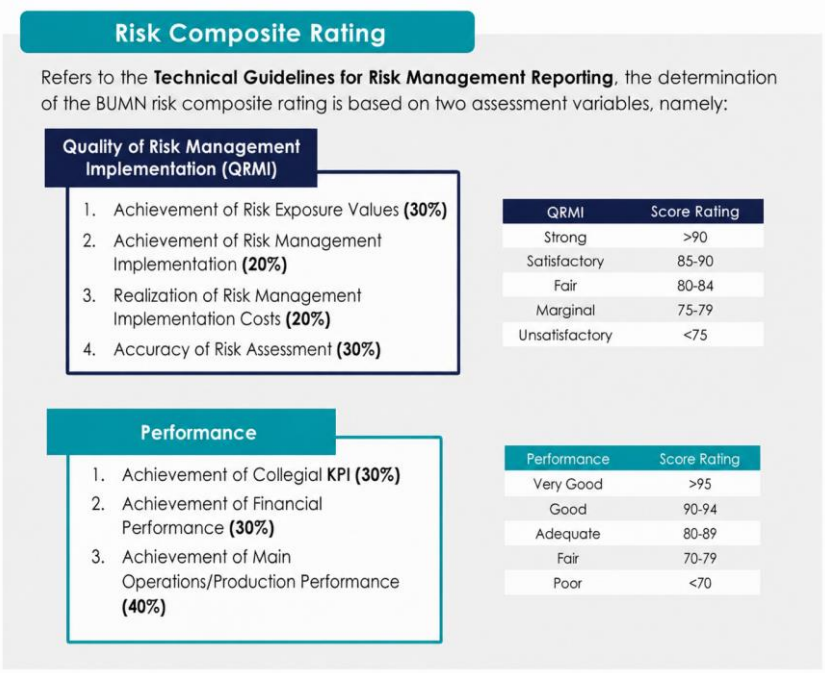

Image 2. Performance Aspects in RMI Assessment
Source : Decree of the Deputy for Finance and Risk Management of the Ministry of SOEs Number SK-8/DKU. MBU/12/2023

Figure 2 describes the performance aspects in RMI used to determine the composite risk ranking of SOEs based on two main variables, namely the Quality of Risk Management Implementation (KPMR) and organizational performance. In the KPMR section, the assessment is focused on the extent to which risk management is effectively implemented in the company's activities. The indicators used include four main components, namely the achievement of risk exposure values (30%), the implementation of risk treatment (20%), the realization of risk implementation costs (20%), and the accuracy of risk assessment (30%). Each of these components has a certain weight that reflects the importance of a balance between being able to identify risks, follow up and manage costs efficiently. The results of the

assessment are then classified into score categories such as *Strong* (>90), *Satisfactory* (85–90), and *Unsatisfactory* (<75), which indicates the level of quality of risk management implementation in the organization.

On the other hand, the performance aspect assesses the real results (*outcomes)* of the application of risk management to the achievement of organizational goals. These performance indicators consist of the achievement of collegial KPIs (30%), financial performance (30%), and key operations or production performance (40%). This weighted composition shows that the success of risk management is measured not only by compliance with processes, but also by its contribution to overall business performance. The results of the performance appraisal are categorized from Very Good (>95) to Poor (<70), which reflects the level of success of the organization in achieving its strategic targets. Thus, this figure confirms that in RMI, risk maturity evaluation is carried out comprehensively by combining aspects of the KPMR process and performance results, thus providing a comprehensive picture of the effectiveness of risk management in supporting value creation and organizational sustainability.

RESULTS AND DISCUSSION

General Description of Research Object

This research was conducted on a container port service company in Surabaya, which is a company engaged in providing container loading and unloading services at the port. In carrying out its operational activities, the company has implemented risk management in a structured manner through RMI measurement which is used as a tool to assess the level of maturity of the implementation of risk management in the Pelindo environment. The implementation of RMI aims to ensure that risk management has been integrated into business processes, decision-making, and supports the achievement of the company's strategic goals in a sustainable manner.

RMI Assessment for the Fiscal Year 2024 Period

This study emphasizes the findings from the review and verification of the evaluation of the risk maturity index at PT Terminal Petikemas Surabaya for the 2024 financial year, by prioritizing the implementation of the ISO 31000 standard as a basic guide for integrated and comprehensive risk management. The methodology of this study includes the collection of primary data through interviews and observations, as well as secondary data from literature studies and relevant documents, to gain a comprehensive understanding of the implementation of risk management The results of the assessment show that container port service companies in Surabaya have implemented risk management in accordance with the ISO 31000:2018 framework, although they are still faced with a number of obstacles in the implementation process. Table (Masita, 2022). 1. Explain the recapitulation of the results of the Assessment *Risk Maturity Index* for 5 dimensional aspects as many as 42 parameters.

Table 2. Results of Risk Maturity Index Assessment for 5 Dimension Aspects

No.	Sub-Dimension Dimension		Parameter	Year 2024 (SPI)
1.	**Risk Management Quality**			
	a. Risk Policy	1	Implementation of risk management in accordance with strategy	4
	b. Risk Management	2	Implementation of risk management in accordance with the risk management policy	4
		3	Risk management assessment and reporting	4
	Maximum Risk Management Quality Index			**12/12**
2.	**Board Quality and Integrity**			
	a. Organizational Structure	4	Effectiveness of the board of directors	4
		5	Adequacy of the risk management unit and function	3
		6	Decision-making authority and implementation of risk management within the organization	4
	b. Process of the Board of Directors in Managing Risk	7	Implementation of escalation procedures and risk management/discussion	4
		8	Implementation of policies and procedures related to risk management	4
		9	Completeness and adequacy of the board of directors in managing risk	3
		10	Implementation of the board of directors in managing risk	3
		11	Board of directors' oversight of risk management implementation	3
		12	Board of directors' oversight of internal control implementation	3
		13	Board of directors' oversight of internal audit function	3
		14	Board of directors' oversight of information system implementation	3
		15	Board of directors' oversight of business continuity plan (BCP) implementation	3
	c. Conflict of Interest and Fraud Management	16	Availability of policies and procedures as well as system implementation that are sufficiently adequate to prevent conflict of interest and fraud, including the implementation of a whistleblowing system for reporting violations (whistleblowing system) and the handling of violations	N/A
		17	Handling of conflict of interest and fraud violations cases	N/A
	Maximum Board Quality and Integrity Index			**30/36**
3.	**Risk Management Effectiveness**			
	a. Credit Risk	18	Identification and measurement of credit risk	3
		19	Monitoring and control of credit risk	3
		20	Management information system for credit risk	3
	b. Market Risk	21	Identification and measurement of market risk	3
		22	Monitoring and control of market risk	4
		23	Management information system for market risk	3
	c. Liquidity Risk	24	Identification and measurement of liquidity risk	4
		25	Monitoring and control of liquidity risk	4
		26	Management information system for liquidity risk	4
	d. Operational Risk	27	Identification and measurement of operational risk	3
		28	Monitoring and control of operational risk	3
		29	Management information system for operational risk (including legal risk)	3
	e. Compliance Risk	30	Identification of compliance risk	3
		31	Monitoring and control of compliance risk	3
		32	Management information system for compliance risk	3
	Maximum Risk Management Effectiveness Index			**45/54**
4.	**Earning Capacity**			
	a. Earning Adequacy	33	Profitability adequacy	4
		34	Profitability sustainability	3
	b. Capital Adequacy	35	Capital adequacy	3
		36	Capital adequacy sustainability	3
	c. Capital Management	37	Capital management for business growth	3
		38	Capital management for risk absorption	3
	d. Profitability Management	39	Management of return on assets and return on equity	3
	Maximum Earning Capacity Index			**30/36**
5.	**Liquidity Level**			
	a. Liquidity Adequacy	40	Liquidity adequacy	2
	b. Funding Adequacy	41	Funding adequacy	2
	Maximum Liquidity Level Index			**4/8**

Source : Author (2026)

Based on Table 2. displayed, the table of RMI Assessment results refers to the guidelines of the Ministry of SOEs Number SK-8/DKU. MBU/12/2023 which assesses risk maturity based on five main dimensions. Therefore, the description of the assessment results can be explained as follows. In the dimension of Risk Culture and Capabilities, the results of the RMI assessment reflect the extent to which risk *awareness* has been embedded in the organization as well as the competence of human resources in managing risk. The high level of maturity in this dimension is demonstrated by an equitable understanding of risks across all organizational lines, top management support, and the implementation of ongoing risk training and socialization. On the other hand, if the level of maturity is still at a medium or

low level, this indicates that the risk culture has not been fully internalized and still needs to be strengthened in terms of communication and human resource capacity building.
In the dimensions of Organisation and Risk Governance, the results of RMI illustrate the effectiveness of organisational structures, roles, and responsibilities in risk management. A good level of maturity is characterized by the existence of a special risk management unit, clarity of supervisory functions, and active involvement of the board of directors and commissioners in the risk management process. Furthermore, in the Process and Risk Control dimensions, the assessment shows the extent to which the organization has well-documented procedures in place in identifying, analyzing, evaluating, and controlling risks. The high level of maturity in this aspect is reflected in the existence of consistent operational standards and the implementation of effective controls in operational activities.

In the Risk and Compliance Framework dimension, the results of RMI's assessment show the suitability of the implementation of risk management with applicable regulations, internal policies, and international standards. The optimal level of maturity is characterized by the integration between the risk management framework and the company's compliance and governance systems. Meanwhile, the last dimension, namely Risk Model, Data, and Technology, describes the extent to which organizations utilize information systems, databases, and analytics technology to support risk management. The high level of maturity on this dimension indicates that organizations have effectively used technology to improve the accuracy of risk assessments and accelerate the decision-making process. Overall, these five dimensions provide a comprehensive overview of the organization's risk maturity position and are the basis for formulating a sustainable improvement strategy.

Table 3. Assessment Recaps

Parameter	Dimensions	Description	Dimension Score
1 to 3	1	Risk Culture and Capabilities	2,67
4 to 19	2	Organization and Risk Governance	3,07
20 to 33	3	Risk and Compliance Framework	2,86
34 to 39	4	Process and Risk Control	3,14
40 to 42	5	Risk Models, Data and Technologies	3,00
1 to 42	Dimensional Aspect Score		**2,95**

Source : Author (2026)

Based on Table 3. The recapitulation of the assessment is displayed, it can be seen that the results of the RMI evaluation are compiled in a table that includes parameters, dimensions, descriptions and dimensional scores. At the end of the recapitulation, a Dimension Aspect Score value of 2.95 is shown, which represents the level of risk maturity of the organization in aggregate based on all dimensions assessed. This score reflects the results of the measurement of the implementation of risk management in accordance with the guidelines of the Ministry of SOEs Number SK-8/DKU. MBU/12/2023, which uses a dimension-based approach to assess the quality of risk implementation across the board.

A score of 2.95 can be interpreted to be in the category of medium to defined *managed,* which indicates that the organization has a clear risk management framework and processes and has begun to be implemented consistently. However, there is still room for improvement, especially in the aspects of interdimensional integration, strengthening risk culture, and optimizing the use of data and technology in risk management. Thus, the results of this

recapitulation not only provide an overview of the current risk maturity position, but also become the basis for formulating a continuous *improvement strategy* so that the organization can achieve a more optimal level of maturity and be adaptive to the dynamics of the risks faced.

Implications of Risk Maturity Measurement Results on Risk Management Effectiveness

This analysis examines *the areas of improvement* that are the main improvement priorities, along with proposed strategic steps to improve risk management through integrated policy development, continuous training, implementation of risk information systems, and the cultivation of a stronger risk awareness culture at all levels of the organization based on table 4.

Table 4. Area of improvement impelementasi RMI

No	Dimensions	Parameter	Recommendations
1	Risk Culture and Capability	1	Adding the task / job description of the development of the Risk culture in the position of the Director of Risk Management and Structural in the Risk Management function
		2	The implementation of RMI assessment by external sources is part of the future learning process in accordance with SK-8/DKUU guidelines. MBU/12/2023
		3	Fulfillment of the qualifications of the management organ Risk adjusts to the level of expertise/position
2	Organization and Risk Governance	4	Added a second-line compliance function in the risk management function
		10	Propose changes to the STO by ensuring that the Risk management function has operated independently (currently line 2 of the risk management function functions as well as line I)
		11	Addition of responsibilities related to Risk management responsibilities to all structural
		12	a. Appointing a risk ambassador in the organization b. Conduct regular risk management monitoring with risk owners
		15	a. Formal and periodic Risk Management Reporting to the BoD and BoC b. Carry out 2-way communication/coordination of line 2 and line 3 in the process of compiling the Risk composite rating (PKR) and Risk profile as a consideration for the preparation of the RMCO
		16	Line 3 SPI creates a risk-based Annual Supervisory Work Program (PKPT)
3	Risk and compliance framework	21	a. Preparation of the 2025-2029 ERM roadmap in line with the parent company b. Review fungsi & tupoksi *Environmental, Social, Governance* (ESG)

		29	Prepare *contingency plan documents* considering the Company's parent directives and policies
		30	Carry out *internal control testing* on the Company's significant risk profile and *stress testing* periodically

Source : Author (2026)

Based on table 4. *The area of improvement* of RMI implementation, it is seen that the organization has identified a number of strategic recommendations to improve the level of risk management maturity on various key dimensions. In the Risk Culture and Capability dimension, the focus of improvement is directed at strengthening roles and responsibilities in the development of risk culture, including adding tasks in the organizational structure and improving human resource competencies. In addition, the implementation of RMI assessments by external parties is an important part of providing an objective perspective and encouraging the continuous learning process in accordance with the guidelines of the Ministry of SOEs. The fulfillment of the qualifications of risk management organs is also a major concern, so that risk management can be carried out by personnel who have the appropriate abilities and expertise.

In the dimension of Organization and Risk Governance, the recommendations emphasize the importance of strengthening the independence of the risk management function as well as the clarity of the division of roles between defense lines (*three lines model).* This is reflected in the proposal to adjust the organizational structure, add compliance functions, and improve coordination between line 1, line 2, and line 3. In addition, strengthening communication and risk reporting to the Board of Directors and Board of Commissioners on a regular basis is an important step to increase accountability and transparency. The appointment of risk ambassadors and the implementation of periodic risk monitoring also show efforts to internalize risk management practices across all work units.

Meanwhile, in the Risk and Compliance Framework dimension, the improvement area is focused on the preparation and improvement of the ERM framework that is in line with the company's strategy, including integration with *Environmental, Social, and Governance* (ESG) principles. The preparation of a medium-term ERM roadmap, contingency plan documents, and the implementation of periodic internal control testing and stress testing are concrete steps to increase organizational readiness to face strategic and operational risks. Overall, this table shows that organizations have a clear development direction to improve risk maturity, with an approach that includes cultural, governance, and integrated and sustainable aspects of the framework.

Calculation of Risk Composite Rating (PKR)

The results of the assessment of the calculation of the Quality Variable of Risk Management Implementation are described in Table 5.

Table 5. Calculation of Quality Variables for Risk Management Implementation

Yes	Description of Quality of Risk Management Implementation	Results	Weight	Scale	Value of Results	Score
1	Achievement of Risk exposure value compared to target Residual risk	- Risk Exposure Target in TW4 is Rp. 15,552,257,852, - Meanwhile, the Realization of Risk Exposure amounted to Rp. 12,433,876,594,- - Better achievement (polarity minimize). - Risk Exposure Value lower than the Residual Risk target **(Scale 3, Value 90)**	30%	3	90	27
2	Achievement of the output of the implementation of the Risk treatment compared to the total target of the risk treatment	- The output achievement of the implementation of TW 4 Risk treatment is 90 – 100 % - Realized 90-100% **(scale 5, Value 100)**	20%	5	100	20
3	Realization of the cost of implementing the Risk treatment compared to the budget	- Total Risk treatment plan of Rp. 107,045,853,400,- - Realization of the Risk treatment plan in TW 4 amounted to Rp. 104,803,853,400,- - Realization of the cost of treatment Risk equal to or lower than the budget **(scale 2,**	20%	2	80	16

		Value 80)				
4	Accuracy of Risk assessment which includes Risk identification, Risk treatment plan and Risk priorities	-	30	-	-	27
4a	Accuracy of risk identification	- There are no new risks that affect the occurrence of decline in financial or non-financial performance/corporate production of organizational consolidation to TW 4 **(scale 2, Value 90)**	25%	2	90	23
4b	Accuracy of Quantification Risk	- The realization of the calculation of the impact value and probability value has a negative deviation of no more than 5% with the impact value and probability value targeted in the current quarter **(scale 2, value 90)**	25%	2	90	23
4c	Accuracy of risk treatment plan	- Risk treatment plan can reduce the value of residual risk exposure in accordance with the residual risk target in the current quarter inline with corporate achievements **(Scale 2, Value 90)**	25%	2	90	23
4d	Accuracy of risk prioritization	- All Risks of the corporate structure	25%	2	90	23

		there are no new risks that affect the occurrence of declining corporate performance of organizational consolidation **(scale 2, Value 90)**				
					Total	**90**

Source : Author (2026)

Furthermore, measurements were carried out on the results of the calculation of the Performance Achievement Variables as part of the overall performance evaluation process. This measurement aims to assess the success rate of achieving the targets that have been set based on relevant performance indicators. The results of these measurements are presented in detail in Table 6, which contains the assessment of the calculation of performance achievement variables. The method and basis of assessment used in this process refer to the guidelines that have been set by the Ministry of SOEs as stated in Decree Number SK-8/DKU. MBU/12/2023, so that the assessment results can be accounted for, consistent, and in line with applicable regulations.

Table 6. assessment of the calculation of Performance Achievement Variables

No	Performance Description	Results	Weight	Scale	Value of Results	Shoes
1	Collegial KPI Achievement	The TW 4 Collegial KPI data is 102.91% which means that it has been achieved > 100% **(scale 4, Value 100)**	30%	4	100	30
2	Financial performance achievements	-	30%	-	-	28
2a	Revenue	- Realization up to TW 4 is Rp. 3,171,700,000,- - The target of RKAP up to TW 4 is Rp.2,826,200,000,- - Achieved 112.2% or more than the 100% target **(scale 4, Value of 100**	25%	3	90	23
2b	Total costs (direct and indirect or HPP and business costs)	- Realization up to TW 4 is Rp. 2,225,200,000,- - The target RKAP up to TW 4 is Rp. 1,997,400,000,- - There was an increase in realization of 113% **(scale**	25%	3	90	23

		3, Value of 90)				
2c	Net profit	- Realization up to TW 4 is Rp.725,000,000,- - The target of RKAP up to TW 4 is Rp. 641,800,000,- - Achieved 113% or more than the 100% target **(scale 3, Grade 90)**	25%	3	90	23
2d	Debt to EBITDA	- Realization up to TW 4 is 59.31% - The target of RKAP up to TW 4 is 29.09% - Better than target **(scale 3, Score 100)**	25%	3	100	25
3	Key operation/production performance achievements	- Realization (international and domestic) up to TW 4 is 1,577,856 TEUs - The target of RKAP up to TW 4 is 1,625,490 TEUs - Achieved 97.1% **(scale 3, Score 80)**	40%	3	80	32
					Total	**90**

Source : Author (2026)

The conversion of the calculation results of the two variables is then carried out to obtain a standardized final value that can be objectively compared. The conversion process is presented in detail in Table 7, which contains the results of processing and value adjustment based on applicable regulations.

Table 7. Conversion of 2-variable calculation results

Yes	Composite risk	Conversion
1	Quality of Risk Management Implementation	Satisfactory
2	Performance	Good

Source : Author (2026)

The Risk Composite Rating Matrix (PKR) achieved is the final result of the assessment process on the level of maturity and effectiveness of the risk management implemented. The results of the assessment are presented comprehensively in Table 8, which describes the position of the risk rating based on the parameters that have been set. The preparation of this matrix refers to the application *of the Risk Maturity Index* (RMI), which is used as a framework to measure the level of maturity of risk management in an organization. With this approach, the assessment reflects not only the level of risk faced, but also the organization's ability to identify, manage, and mitigate risks in a systematic and ongoing manner.

Table 8. Risk Composite Rating Matrix (PKR)

Yes	Assessment Variables	Total Score	Score Conversion
1	Quality of Risk Management Implementation	90	Satisfactory
2	Performance Achievements	90	Good

Source : Author (2026)

CONCLUSION AND RECOMMENDATIONS

This study can be concluded that PT Jasa Kepelabuhanan Petikemas Surabaya has implemented risk management in a structured manner by referring to the ISO 31000:2018 framework. The implementation is supported by the use of the Risk Maturity Index (RMI) as an evaluation tool to assess the maturity level of risk management implementation in the organization, with a maturity value of 2.95. These results indicate that the company has an adequate foundation in risk management. However, the study also identified a number of crucial areas that still need improvement, particularly those related to strengthening risk management frameworks and compliance aspects.

The results of the *Risk Maturity Index* (RMI) measurement for the financial year 2024 period show that the level of risk management maturity is at a level that reflects risk management practices that have been defined and consistently applied in most business processes. This indicates that the company has adequate policies, processes, and risk governance structures in place to support the effectiveness of risk management and the achievement of the company's strategic objectives.

However, the results of the evaluation also show that there are still several *areas of improvement*, especially in strengthening the integration of risk management with performance measurement systems, improving the quality of implementation at the operational level, and strengthening the risk-aware culture at all levels of the organization. Therefore, the measurement of the level of risk maturity through RMI not only serves as a regulatory compliance tool, but also serves as a strong foothold for organizations in strengthening integrated, adaptive, and value-added risk governance, so as to be able to support the achievement of the company's strategic objectives in a sustainable manner.

For further research, it is recommended to develop a quantitative approach or *mixed methods* to test the relationship between the level of maturity of risk management and the financial and non-financial performance of the company. In addition, comparative studies between business units or between port service companies can also be carried out to obtain an overview of best *practices* in the implementation of risk management in the port sector.

REFERENCES

Alfiana, Lubis, R. F., Suharyadi, M. R., Utami, E. Y., & Sipayung, B. (2023). Risk Management in Global Uncertainty: Strategies and Best Practices. *Western Science Journal of Business and Management*, *2*(03), 260–271. https://doi.org/10.58812/jbmws.v2i03.576

Alijoyo, A., & Vorst, C. R. (2022). Measuring And Improving The Effectiveness Of ISO 31000 Based Erm In State-Controlled PSO - A Case Study Of Toll Road Operators In

Indonesia. *International* Journal *of Environmental, Sustainability, and Social Science*, *3*(1), 65–71. https://doi.org/10.38142/ijesss.v3i1.159

Alijoyo, F. A. (2021, February 26). Risk Management Maturity Assessment based on ISO 31000 – A pathway toward the Organization's Resilience and Sustainability Post COVID-19: The Case Study of SOE Company in Indonesia. *Proceedings of The 3rd International Conference on Management, Economics and Finance*. https://doi.org/10.33422/3rd.icmef.2021.02.134

Alijoyo, F. A., & Munawar, Y. (2021). Factors Affecting the Maturity of Organizational Risk Management in Indonesia. *Economic Development*, *23*(1), 67–79. https://doi.org/10.26593/be.v23i1.4366.67-79

Baskoro, P., & Djakman, C. D. (2024). Analysis of Risk Management Maturity Level in Indonesian Investment Management Companies. *Manado Accounting Journal (JAIM)*, 24–43. https://doi.org/10.53682/jaim.vi.7988

Budiraharjo, R., Sarno, R., Wijaya, D. R., Prasetyo, H. N., & Waspada, I. (2023). IMARA: A New Approach to Multi-Attribute Risk Assessment Based on Event Data Weighting (Case Study in a Container Terminal). *IEEE Access*, *11*, 62292–62306. https://doi.org/10.1109/ACCESS.2023.3287781

Marliyah, M., Dharma, B., & Syarbaini, A. (2023). The Maturity Of Risk Management In Indonesian Islamic Universities. *Journal of Business and Management Research*, *16*(2), 117–125. https://doi.org/10.23969/jrbm.v16i2.7296

Masita, I. (2022). Analysis of Risk Management Implementation In The Internal Audit Unit (SPI) Politeknik Pelayaran Surabaya Using ISO 31000. *Robust: Research of Business and Economics Studies*, *2*(2), 113. https://doi.org/10.31332/robust.v2i2.3691

Mazaya, D. A., Sugihartanto, M. F., & Taufik, T. A. (2023). Application of the Risk Maturity Model (RMM) in Measuring Risk Management Maturity Levels: A Case Study of a Shipping Company. *International Journal of Business and Management Technology in Society*, *1*(1), 60–70. https://doi.org/10.12962/j30254256.v1i1.801

Ricardianto, P., Lembang, A. T., Tatiana, Y., Ruminda, M., Kholdun, A. I., Kusuma, I. G. N. A. G. E. T., Sembiring, H. F. A., Sudewo, G. C., Suryani, D., & Endri, E. (2023). Enterprise risk management and business strategy on firm performance: The role of mediating competitive advantage. *Uncertain Supply Chain Management*, *11*(1), 249–260. https://doi.org/10.5267/j.uscm.2022.10.002

Suparto, E. R. A., & Lukmandono, L. (2022). ERM (Enterprise Risk Management) Maturity Level Assessment Based on ISO 31000: 2018. *SENIATI Proceedings*, *6*(3), 478–482. https://doi.org/10.36040/seniati.v6i3.5079

Utami, L., & Djunita Pasaribu, R. (2024). Effectiveness of Risk Management through Risk Maturity Measurement: A Study at PT Pelabuhan Indonesia. *International Journal of Science, Technology & Management*, *5*(4), 970–984. https://doi.org/10.46729/ijstm.v5i4.1158

Yanuar, Y. R., & Chaerul D. Djakman. (2025). Evaluation of Risk Management Implementation in Import Duty Tariff Determination Based on Ministerial Regulation. *E-Jurnal Akuntansi*, *35*(7). https://doi.org/10.24843/EJA.2025.v35.i07.p04

Zefanya, E. A., Lokita, I., Kristamuljana, S., Marsetio, N. C., & Adelina, Y. E. (2024). The Effect of Risk Management Quality on the Financial Performance of Commercial Banks. *Indonesian Accounting and Finance Studies*, *6*(2), 200. https://doi.org/10.21632/saki.6.2.200-221