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Decision-Making In The Implementation Of Risk Management In A Logistics Forwarding Company: A Case Study Of PT NLO

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ABSTRACT
This study employs a qualitative case study approach on PT NLO, a logistics forwarding company whose revenue and net asset value exceed the criteria of micro, small, and medium business entities (MSMEs). PT NLO previously experienced a detrimental export activity. The research aims to provide comprehensive recommendations to PT NLO's Management for the implementation of risk management in accordance with ISO 31000:2018. Data sources were obtained through observation, document analysis, and interviews with six informants. The analytical techniques applied include qualitative descriptive analysis, quantitative analysis, and thematic analysis. Recommendations were formulated using the Decision-Making Concept (Adair, 2019). The reasons risk management has not yet been implemented include human resource constraints, a focus on profit generation, and minimal regulatory enforcement. Based on an assessment of the external environment, all PESTEL components were identified to have the potential to reduce profit and net income. Internal environmental dynamics, derived from the Financial Ratio analysis for the period 2020–2024, indicate that financial performance has tended to remain stagnant. In terms of risk management understanding, key risks for PT NLO were identified for risk assessment according to the activity cycle. Operational, compliance, and financial risks were found to significantly affect business continuity. Management acknowledges the importance of risk management and has approved the establishment of a Task Force. With the establishment of a Risk Management Task Force, PT NLO is expected to be better prepared to address challenges from both external and internal environments and to conduct the risk management process in a structured manner.

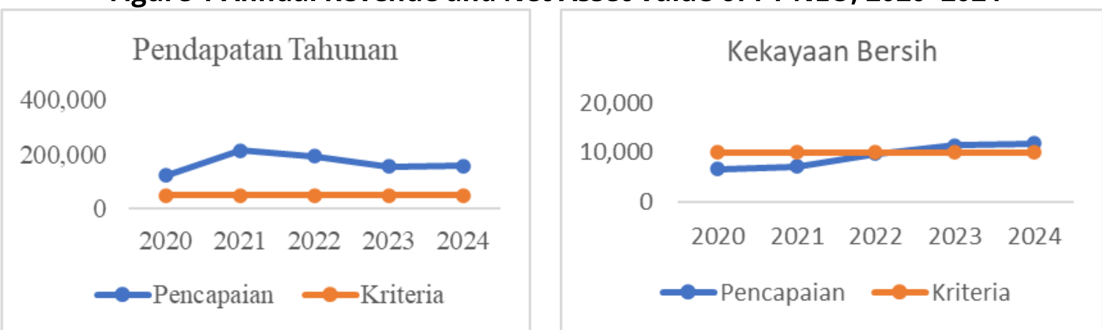
INTRODUCTION

Logistics companies operate within a high-risk business environment, particularly in relation to operational, sales, and financial activities. According to Fuchs and Wohinz (2009), logistics risk refers to unexpected and undesirable events arising from inaccuracies in material availability—whether in timing, quality, location, or cost—which may occur due to physical or digital disruptions affecting material flows or related information. Such risks can be anticipated through risk management. Risk management is a process carried out by the board of directors, management, and other personnel, applied in strategy formulation and across the organization, designed to identify potential events that may affect the entity, manage risks within the accepted risk tolerance level, and provide reasonable assurance regarding the achievement of organizational objectives (Everson et al., 2017).

Risk management has become an essential component of decision-making in modern organizations, employing systematic approaches such as risk identification, analysis, evaluation, and treatment, supported by advanced techniques including risk assessment, risk registers, and mitigation planning to proactively address uncertainty (Gutierrez, 2023). Regulatory frameworks and industry standards, such as COSO ERM and ISO 31000, offer guidelines and best practices for effective risk management (Gutierrez, 2023). These frameworks serve as references for numerous sectors, including logistics companies. Jarocka and Wang (2018) define logistics services as encompassing transportation, delivery administration, warehousing, and other supporting services that facilitate the flow of goods or persons, information, and finance within the supply chain.

PT NLO, as a logistics enterprise, does not yet have a risk management function or dedicated team. Based on the Company's Financial Statements for the past five years, 2020–2024, its net asset value and revenue have exceeded the criteria for Micro, Small, and Medium Enterprises (MSMEs) as stipulated in Law No. 20 of 2008 on Micro, Small, and Medium Enterprises. According to the highest MSME classification, Medium Enterprises, Article 6 paragraph (3) specifies net asset values between IDR 500 million and IDR 10 billion, and annual revenue between IDR 2.5 billion and IDR 50 billion. As illustrated in Figure 1.1 below, PT NLO's annual revenue and net asset value exceed MSME thresholds. This indicates that PT NLO should adopt risk management practices, as its financial scale surpasses the MSME category, necessitating more sophisticated governance and risk anticipation mechanisms.

Figure 1 Annual Revenue and Net Asset Value of PT NLO, 2020–2024



This research constitutes a case study on the absence of risk management implementation at PT NLO. The research questions aim to identify the reasons behind the non-implementation of risk management, to examine external and internal environmental dynamics that reinforce the importance of risk management in logistics enterprises, and to conduct a risk assessment of PT NLO. Subsequently, PT NLO's Management will be requested to provide responses to the recommendations proposed.

Research Gap

Two international studies on SMEs in Türkiye and Spain demonstrate a strong linkage between risk management and the logistics sector. Foli et al. (2022) evaluated 137 SMEs in Türkiye and discovered that external factors such as demand, safety regulations, cyber risks, and relative performance influence Supply Chain Risk Management (SCRM), which remains highly relevant for logistics firms. Calzadilla et al. (2022) examined how Spanish SMEs manage internationalization risks to enhance performance, noting that the internationalization process depends on logistics companies in export–import activities.

Several prior studies in Indonesia focus on proposed risk management implementation, such as a reassessment of operational risk management at PT TMAP (Prabadaru & Rahardian, 2024), an evaluation of risk management related to IPO readiness at PT XYZ (Radityo, 2024), and the identification and mitigation of risks using the ISO 31000:2018 framework in a third-party government unit (Simarmata & Prasetya, 2025). These studies similarly conclude that risk management has not been implemented in the respective research objects, thereby necessitating risk assessments and corresponding recommendations.

This study follows a similar direction but employs a different object of analysis, namely a logistics forwarding company. To date, no research has been identified that specifically proposes the implementation of risk management within a logistics forwarding entity. To formulate applicable recommendations, an analytical and decision-making framework is required. Adair's (2019) Decision-Making Concept is deemed suitable, as it provides comprehensive procedural guidance.

LITERATURE REVIEW

Several foundational reasons explaining the absence of risk management implementation within organizations can be aligned with findings by Belal and Cooper (2011), who investigated the absence of several elements in CSR reporting in Bangladesh. Their study utilized three out of twenty CSR disclosure categories—poverty alleviation, equal opportunity, and child labour. The reasons for such disclosure gaps were identified as lack of resources, the profit imperative, lack of legal requirements, lack of knowledge/awareness, poor performance and the fear of bad publicity. This becomes a conceptual reference for the Absence of Implementation, serving as a basis to understand PT NLO's context.

Upon identifying the underlying reasons for the non-implementation of risk management, this study proceeds with the proposed Decision-Making process for PT NLO. According to Adair (2019), decision-making concerns determining actions to be taken, involving selection from several alternatives. The Classical Five-Step model consists of define the objective, collect relevant information, generate feasible options, make the decision, and implement and evaluation. At the stage of gathering relevant information, this study continues by analysing external and internal environmental dynamics and the risk management process.

External environmental dynamics are analysed using PESTEL. PESTEL is a conceptual framework comprising six dimensions: Political, Economic, Socio-cultural, Technological, Environmental, and Legal. These elements represent macro-environmental factors that may influence an organization's external context (Thompson et al., 2022). Internal dynamics are assessed through financial ratio analysis, used to evaluate financial performance and capital strength, which are categorised into three primary groups: profitability ratios, liquidity ratios, and leverage ratios. Table 1 presents the ratios and their respective formulae. According to Yusuf and Surjaatmadja (2018), profitability is critical for sustaining long-term corporate survival, as it reflects future performance prospects (Daryanto, Maharani, & Wiradjaja, 2021). Liquidity ratio analysis assists in identifying a company's capacity to settle obligations punctually, an important consideration for lenders and creditors (Lalithchandra & Rajendhiran, 2021). Brei and

Gambacorta (2014) further note that leverage ratios serve as both complements and a "final safeguard" for risk-based capital requirements.

Table 1 Financial Ratios and Calculation Formulae

No	Rasio	Rumus
	Profitablity:	
1	Gross Profit Margin	Gross Profit / Revenue
2	Operating Profit Margin	Operating Income / Revenue
3	Net Profit Margin	Profits after Taxes / Revenue
4	Total ROA	(Profits after Taxes + Interest) / Total Assets
5	Net ROA	Profit after Taxes / Total Assets
6	ROE	Profit after Taxes / Total Equity
7	ROCE	Profit after Taxes / (Long term debt + Total Equity)
	Liquidity:	
1	Current Ratio	Current assets / Current liabilities
2	Working Capital	Current assets - Current liabilities
	Leverage:	
1	Total Debt to Assets Ratio	Total debt / total assets
2	Long Term Debt to Capital Ratio	Long term debt / (long term debt + total equity)
3	Debt to Equity Ratio	Total debt / total equity
4	Long Term Debt to Equity Ratio	Long term debt / total equity
5	Times Interest Earned Ratio	Operating income / interest expenses

Risk management is defined as a coordinated activity to direct and control an organization with regard to risk (Vorst, Priyarsono & Budiman, 2018). The standard stipulates that risk management comprises principles, a framework, and processes. Under the ISO 31000:2018 framework, five risk management process activities are outlined: communication and consultation, establishing the context, risk assessment, risk treatment, and monitoring and review, as illustrated in Figure 2. This study specifically focuses on the risk assessment stage, which consists of risk identification, risk analysis, and risk evaluation.

Figure 2 Risk Management Process According to ISO

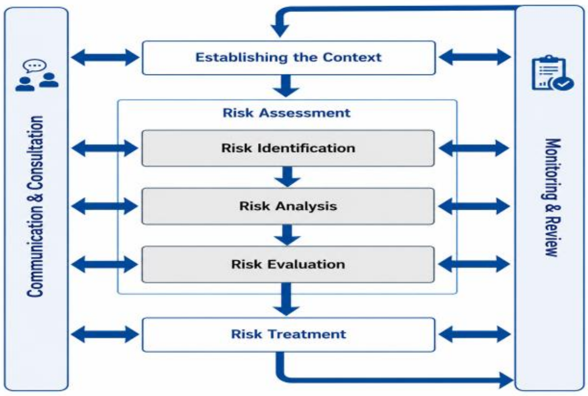
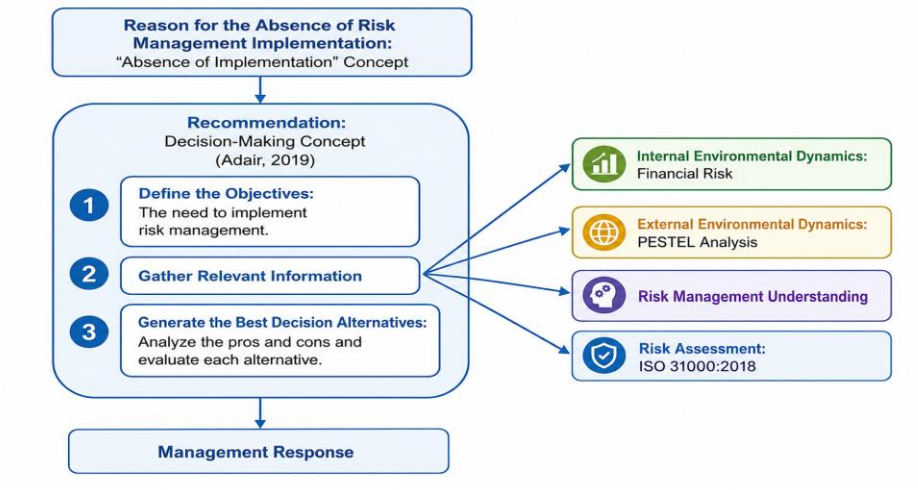


Figure 3 presents the conceptual framework, which serves as a theoretical foundation aligned with the research context. Through this framework, the study is expected to provide a systematic understanding of the company's current condition—where risk management has not yet been implemented—alongside the factors that reinforce the urgency of risk management, and realistic recommendation options aligned with international standards. Furthermore, this framework is intended to serve as a basis for the company in planning future implementation of risk management.

Figure 3 Conceptual Framework



METHODS

The study employs a qualitative case study method focusing on a single corporate entity. Primary data were collected through direct observation and semi-structured interviews. Interview data were obtained from six informants holding positions ranging from managerial to director level. Secondary data utilised in this research include the company's audited financial statements from 2020 to 2024, as well as additional documents deemed relevant to the study.

Data analysis was conducted using qualitative descriptive, quantitative descriptive, and thematic approaches. The qualitative descriptive analysis focused on addressing research questions pertaining to who, what, where, and how events or experiences occurred, which were subsequently examined in depth to identify emerging patterns (Kim, Sefcik & Bradway, 2016). This method was employed to answer questions regarding the reasons for the absence of risk management implementation, the analysis of external environmental dynamics based on the PESTEL framework, and management responses.Internal environmental dynamics were assessed through financial ratio calculations using a quantitative descriptive approach. Descriptive statistical analysis, according to Syahrum and Salim (2016), refers to statistics concerned with the collection, organization, presentation, and analysis of numerical data to provide an orderly, concise, and clear depiction of a phenomenon so that specific interpretations may be drawn.

Thematic analysis, one of the most widely applied qualitative data analysis techniques, provides a structured yet flexible approach for identifying, analysing, and reporting patterns or themes within a dataset (Clarke & Braun, 2006, in Ahmed et al., 2025). Clarke and Braun (2006) outline six phases of thematic analysis: data familiarization, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. This analysis was used to identify risks with significant influence on business continuity, as presented in the section on risk management comprehension.Risk assessment was carried out using the ISO 31000:2018 framework. However, specific criteria for likelihood levels and impact levels were adapted from the Ministry of Finance Regulation No. 577/KMK.01/2019 on Risk Management within the Ministry of Finance. This regulation is regarded as a best practice reference for risk management implementation.

RESULTS

The findings of this research are presented in five sections: reasons for the absence of risk management implementation, external environmental dynamics, internal environmental dynamics, risk management understanding, and risk assessment.

Absence of Risk Management Implementation

Of the five reasons categorized within the Absence of Implementation Concept, only three are aligned with PT NLO's conditions: human resource constraints, a focus on profit generation, and minimal regulatory enforcement. The remaining two reasons—lack of knowledge/awareness and poor performance and the fear of bad publicity—were not evident at PT NLO. These reasons were derived from interview results with Informant X, serving as Director, and subsequently summarized into the consolidated format presented in Table 2 below.

Tabel 2 Summary of Absence of Implementation of Risk Management at PT NLO

No	Reasons for Absence of Implementation	PT NLO
1	Lack of resources	V
2	The profit imperative	V
3	Lack of legal requirements	V
4	Lack of knowledge/awareness	X
5	Poor performance and the fear of bad publicity	X

External Environmental Dynamics

Several interview questions related to the PESTEL framework were answered by the informant. Based on these responses, two categories were constructed: Revenue Decline and Cost Increase. The summary below outlines how each PESTEL component contributes to either a potential reduction in revenue or an increase in costs:

Political : revenue decline
Economic : cost increase
Socio-cultural : revenue decline
Technological : revenue decline
Environmental : revenue decline
Legal : cost increase

The Revenue Decline category reflects conditions in which external environmental factors may lead to the cancellation of sales, resulting in the loss of expected income and consequently reducing overall revenue during a given period. In contrast, the Cost Increase category captures situations in which rising costs are not necessarily accompanied by an increase in sales—for example, costs arising from regulatory requirements that impose additional administrative or operational expenses. Together, these revenue and cost components affect the overall decline in PT NLO's profit. Effective risk management is therefore expected to help anticipate profit reductions driven by external pressures.

Internal Environmental Dynamics

In this section, a quantitative analysis is conducted to calculate the financial ratios for the 2020–2024 period. Financial ratios are used to assess a company's performance. Table 3 presents the computed values for profitability, liquidity, and leverage ratios. The column highlighted in green indicates the year in which the ratio performance was the strongest.

Table 3 Calculation of Financial Ratios

No	Ratio	2020	2021	2022	2023	2024
	Profitability:					
1	Gross Profit Margin	12.20%	8.30%	11.30%	13.00%	13.20%
2	Operating Profit Margin	1.10%	1.10%	2.40%	2.10%	2.00%
3	Net Profit Margin	0.70%	0.80%	2.00%	1.80%	1.20%

4	Total ROA	0.60%	1.40%	4.60%	3.40%	0.80%
5	Net ROA	2.50%	4.30%	8.40%	7.00%	4.20%
6	ROE	13.50%	25.40%	38.90%	24.20%	15.70%
7	ROCE	8.00%	16.20%	27.70%	16.90%	10.60%
	Liquidity:					
1	Current Ratio	1.08	1.07	1.18	1.32	1.35
2	Working Capital	1,974	2,308	5,803	7,466	8,963
	Leverage:					
1	Total Debt to Assets Ratio	81%	83%	78%	71%	73%
2	Debt to Equity Ratio	4.39	4.89	3.64	2.47	2.68
3	Long Term Debt to Capital Ratio	0.4	0.36	0.29	0.3	0.32
4	Long Term Debt to Equity Ratio	0.68	0.57	0.4	0.43	0.48
5	Times Interest Earned Ratio	2.1	1.9	2.77	2.37	2.19

The year 2022 represents the highest achievement within the five-year period, reflecting a significant increase in business activity undertaken by PT NLO. Although performance declined from 2022 to 2023, the period from 2023 to 2024 indicates that the company's performance remained stable. Moving forward, the implementation of risk management is intended to help assess and maintain appropriate business strategies so that business risks can be properly identified and measured.

Understanding of Risk Management

This section employs thematic analysis. Interviews were conducted with five informants at the managerial level to assess their understanding of the risk management process as it relates to PT NLO's business and operational activities, particularly with respect to the first two activities: communication and consultation, as well as establishing the context. Table 4 below presents the identified themes, ranked from highest to lowest risk according to the interview findings.

Table 4 Risk Themes

No.	Themes	Risk Description
1.	Theme 1	Operational and Service Quality Risks: a) Predominantly identified by all informants b) Main sources: human error, vendor-related issues, documentation problems, and delays c) Impacts: service rejections, shipment delays, and additional costs
2.	Theme 2	Regulatory Compliance Risks: a) Primarily associated with Customs procedures, Standard Operating Procedures (SOPs), and document accuracy b) Impacts: penalties, shipment holds, and potential legal disputes
3.	Theme 3	Corporate Financial Risks: a) Non-payment, disrupted cash flow, and increasing operational costs b) Impacts: financial burdens and reduced profitability
4.	Theme 4	Technology and Information System Risks: a) System downtime, malware attacks, and server disruptions b) Major impact: complete operational stoppage
5.	Theme 5	Human Resource and Cross-Divisional Coordination Risks: a) Insufficient skill levels, weak communication, and workload pressures b) Impacts: recurring errors, poor coordination, and unmet performance targets

Risk Assessment

To support the research conducted at the risk assessment stage, the required data were derived from both primary and secondary sources, including observations, interview results from five managerial-level informants, the Activity Cycle documentation, and the Claim Analysis Report. PT NLO's normal business cycle consists of 12 sequential activities, namely:

1. Approval of Customer Onboarding
2. Quotation of Prices to Customers
3. Receipt of Work Requests from Customers
4. Preparation of Documents such as Bill of Lading, Packing List, and Shipping Instruction
5. Selection of an appropriate mode of transportation based on customer preference and/or recommendations
6. Pick-up of goods from the Customer's warehouse to the Port or vice versa
7. Customs Processing for export-import and domestic shipments
8. Monitoring the shipment status and reporting to the Customer periodically
9. For export shipments, confirming with Customs and ensuring goods are received by the Customer in the destination country
10. For import shipments, completing Customs procedures and subsequently delivering goods to the Customer's warehouse
11. Issuing invoices to Customers along with supporting documents
12. Conducting payment collection from Customers

From these 12 activities, risk identification, analysis, and evaluation were carried out. Figure 4 below presents the risk analysis matrix based on levels of likelihood and impact. The distribution of Risk Magnitudes shows that most activities fall within the green zone (low level), covering 7 activities. The second largest category is the yellow zone (medium level), with 4 activities. The remaining 1 activity falls into the red zone, indicating a very high level of risk.

Figure 4 Risk Analysis Matrix

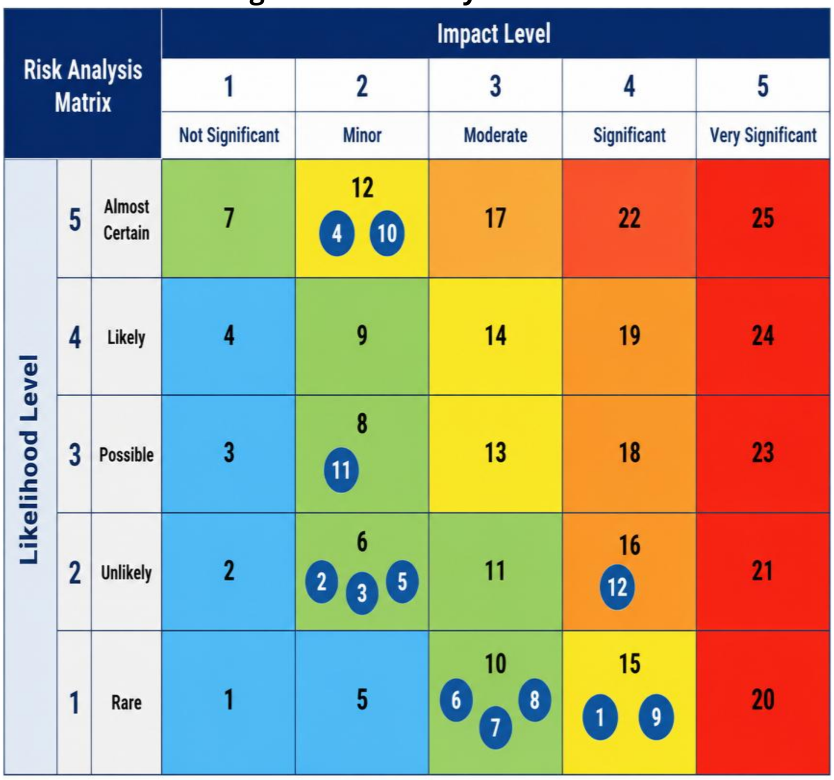


Table 5 provides information on the risk levels and the prioritization of risks. The highest-priority risk corresponds to Activity No. 12, “Conducting payment collection from customers.” The underlying cause of this risk is “Customers failing to pay, paying late, or being difficult to contact,” while the impact is described as “Delayed incoming payments or the absence of incoming funds to the company’s account, resulting in limited cash availability.”

The classification of this issue as a high-level risk indicates that it occurs frequently and has a significant effect. This problem is closely related to the company’s Know Your Customer (KYC) process, which directly influences the company’s cash flow. Therefore, it must be treated as a priority and mitigated more effectively.

Table 5 Risk Prioritization

No.	Description of Risk Event	Risk Level	Risk Prioritization
1	Approval of Customer Onboarding	Moderate (3)	2
2	Quotation of Prices to Customers	Low (2)	10
3	Receipt of Work Requests from Customers	Low (2)	11
4	Preparation of Documents such as Bill of Lading, Packing List, and Shipping Instruction	Moderate (3)	4
5	Selection of an appropriate mode of transportation based on customer preference and/or recommendations	Low (2)	12
6	Pick-up of goods from the Customer’s warehouse to the Port or vice versa	Low (2)	6
7	Customs Processing for export-import and domestic shipments	Low (2)	7
8	Monitoring the shipment status and reporting to the Customer periodically	Low (2)	8
9	For export shipments, confirming with Customs and ensuring goods are received by the Customer in the destination country	Moderate (3)	3
10	For import shipments, completing Customs procedures and subsequently delivering goods to the Customer’s warehouse	Moderate (3)	5
11	Issuing invoices to Customers along with supporting documents	Low (2)	9
12	Conducting payment collection from Customers	High (4)	1

DISCUSSION

This section presents a discussion of the recommendations proposed using a decision-making framework, along with the responses provided by the management of PT NLO.

Recommended Implementation of Risk Management

The recommendations are developed using the decision-making concept from the Five Steps of Decision Making (Adair, 2019). The framework consists of five stages required to reach a decision. However, given that this study focuses on proposing recommendations to management, only three of the five stages are applied:

1. Define the Objective: the necessity of implementing risk management within PT NLO.
2. Collect Relevant Information: drawing on the findings of this research, including external and internal environmental dynamics, understanding of risk management, and the results of the risk assessment.
3. Generate Feasible Options: (a) establishing a dedicated risk management division, or (b) conducting risk management documentation within each division through the formation of a Task Force.

Response from PT NLO Management

The management's response to the proposed implementation of risk management, represented by Director X, indicates approval of Option 2, namely "conducting risk management documentation in each division through a Task Force." From the perspective of Director X, risk management is highly important; however, considering several practical factors, the establishment of a dedicated division is deemed unnecessary at this stage. The management aims to implement risk management within the next six months to enhance the company's adaptability and overall performance.

CONCLUSION

Based on the analysis of several aspects of the research object—including the reasons for the absence of a formal risk management implementation, the assessment of external and internal environmental dynamics, the level of understanding of risk management that may influence managerial decisions regarding its adoption, as well as the conduct of risk assessment in accordance with ISO 31000:2018—the management of PT NLO selected the option of establishing a Risk Management Task Force. This option is considered an urgent and necessary measure to ensure that business activities become more systematically measurable while incurring lower costs compared to the establishment of a dedicated risk management division.

SUGGESTION

This study focuses on a single research object and is limited to a logistics forwarding company. The specificity of the industry may lead to differences in the interpretation of internal and external factors, which are likely to vary across companies. Future research may incorporate multiple companies as comparative objects to further explore the reasons behind the absence of risk management implementation, particularly among forwarding companies. Additionally, future studies may employ alternative risk management frameworks, such as COSO.

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