

## **Risk Plan Linen Rental Laundry with RFID Technology PT Think Clean Laundry**

**Theresia V Siagian<sup>1\*</sup>, Rhian Indradewa<sup>2</sup>, Sukmo Hadi Nugroho<sup>3</sup>,**

**Muhammad Dhafi Iskandar<sup>4</sup>**

Universitas Esa Unggul, Indonesia

Email: [tere\\_7749@student.esaunggul.ac.id](mailto:tere_7749@student.esaunggul.ac.id)<sup>1\*</sup>, [rhian.indradewa@esaunggul.ac.id](mailto:rhian.indradewa@esaunggul.ac.id)<sup>2</sup>,

[sukmo.hadi@esaunggul.ac.id](mailto:sukmo.hadi@esaunggul.ac.id)<sup>3</sup>, [muhammad.dhafi@esaunggul.ac.id](mailto:muhammad.dhafi@esaunggul.ac.id)<sup>4</sup>

\*Correspondence

### **ABSTRACT**

**Keywords:** Risk Plan;  
Risk Management; Risk  
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The Risk Plan Study for PT Think Clean Laundry aims to ensure the company's vision is executed as planned and minimizes potential risks. The plan includes short-, medium-, and long-term goals, objectives, and risk management principles based on ISO 31000:2018. The Risk Management Framework is explained through leadership, commitment, integration, design, implementation, evaluation, and continuous improvement. The risk management process includes risk identification, assessment, analysis, evaluation, handling, communication, consultation, monitoring, review, recording, and reporting. The main objective of this plan is to identify, evaluate, and manage risks that may arise in the company's operations, including business, financial, and quality risks. By implementing structured and comprehensive risk management, PT Think Clean Laundry is committed to improving operational effectiveness and efficiency and complying with applicable regulations.



## **Introduction**

The Risk Plan's objective is to determine whether the business's vision is operating following its design so that it can accomplish its objectives and function as smoothly as possible. For workers to work carefully and completely following the work instructions relevant to the Company, the Company encourages management to assist in minimising potential risks and to warn all employees of dangers inside the Company (Iskandriani et al., 2024; Singh & Hong, 2020). Risk management aims to minimise the probability and or consequences of unfavourable events and increase risk awareness in strategic and operational decision-making to achieve organisational goals (Astuti et al., 2024; Crovini et al., 2021). Definition of risk According to Haryana et al. (2021), a risk is a hazard, consequence, or consequence that can occur as a result of an ongoing process or future event (Chen et al., 2020; Tubis & Werbińska-Wojciechowska, 2021). Meanwhile, according to The Institute of Risk Management (IRM) and The Association of Insurance and Risk Managers (AIRMIC) (2023), risk is the opportunity for something to happen, having an impact on goals. According to Linnenluecke et al. (2012), risk is the threat that an adverse action or event will affect the organisation's ability to achieve goals and implement successful strategies.

Effective inventory management is key to operational success in the commercial laundry industry, especially linen rental. As a growing linen rental service provider, PT Think Clean Laundry faces various challenges in managing the large amount of linen that must be delivered, processed, and returned daily. One innovative solution to these issues is Radio Frequency Identification (RFID) technology (Putri et al., 2024; Settembre-Blundo et al., 2021). This technology enables more accurate and efficient tracking, reduces the risk of lost items, and minimises manual errors in the inventory recording process.

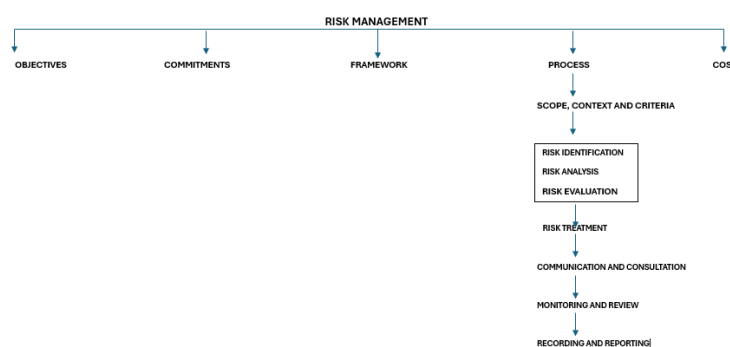
However, as with implementing any new technology, RFID also presents various risks that need to be anticipated. These risks can arise from various aspects, such as technical failures, data security, and operational issues related to implementing the new system. Therefore, a thorough risk plan is needed to ensure that RFID technology not only helps increase efficiency but also minimises potential losses that may occur.

This research aims to develop a risk plan for implementing RFID technology in PT Think Clean Laundry's linen rental business. Through risk identification, analysis, and mitigation, this research is expected to provide relevant recommendations for the company facing operational challenges related to this technology. Thus, PT Think Clean Laundry can utilise RFID technology optimally and sustainably and maintain service reliability to its customers.

With the increasing demand for fast, efficient, and accurate linen rental services, many companies in the laundry industry have started adopting new technologies to improve their operational systems. One is RFID, which offers smart asset and inventory management solutions, especially for companies that handle large volumes of goods, such as PT Think Clean Laundry. However, behind the benefits offered, this technology also requires an effective risk management strategy to mitigate potential problems in its implementation.

## Research Methods

The risk management process is an organised and systematic working method in dealing with risks, which includes identification, assessment, handling, communication and consultation, monitoring, and performance evaluation, as well as documentation and reporting. By following each step in this process, companies can manage risks earlier, effectively, and efficiently. PT Think Clean Laundry conducts risk identification, including risks arising from internal and external factors. Implementing the risk management process based on the company's scope is adjusted to the company's parts, whereas PT Think Clean Laundry follows ISO 31000.



**Figure 1. ISO 31000:2018 Risk Management Process**

## Results and Discussion

Implementing the risk management process based on the company's scope is adjusted to each part of the company, whereas for PT Think Clean Laundry, it is in accordance with ISO 31000.

### Risk Identification

Identifying, assessing, and handling risks are important steps in risk management. Therefore, PT Think Clean Laundry conducts identification, analysis, evaluation, and handling of risks that may occur (Awang et al., 2023).

**Table 1. Risk Identification PT Think Clean Laundry**

Code	Risk Context	Risk Events	Causes of Risk	Qualitative Impact
R1	Marketing/Sales	PT. Think Clean Laundry brand is not yet well-known	PT. Think Clean Laundry Newcomer brand	Maximum target not yet achieved
R2	Marketing/Sales	The emergence of new competitors	Competitors see an opportunity	There is price competition
R3	Operational/K3	Power outage	Disruption of electricity supply from PLN	Delays in the production process
R4	Operational/K3	Fire and Natural Disasters	Electrical short circuits, earthquakes, floods, tornadoes	Cessation of the production process
R5	Operational/Technician	Washing machine and water pump damage	Unstable electric current, Water pump overheats	Delays in the production process
R6	Operational/IT	RFID system error	The Internet network is unstable	Delays in the production process
R7	Operational/Human Resources/General Affairs	Pickup and delivery of linen not on time	Box vehicle broke down/accident on the way	Delivery did not match the promised time
R8	Operational/K3	Risk of exposure to/contamination from chemicals and B3 waste	When doing work not using PPE	The occurrence of skin disease will result in the production process being hampered.
R9	Human Resources	High employee turnover	Employees move to competitors	There is a re-recruitment process
R10	Finance	Target Payback Period Not Achieved	Laundry and linen rental	The target achievement has not been achieved

				service targets not achieved	
R11	Finance	Changes in regulations/rules, minimum wage increases and interest rate increases	in government regulations regarding UMR/UMP resulting in increased employee salary costs	Increased expenditure on employee salaries	

Source: 2024 Writing Team

The risk identification at PT Thinks Clean Laundry is divided into three major parts, namely:

1. Business risk
  - a. R1: Marketing/Sales
  - b. R2: Marketing/Sales
  - c. R3: Operational/K3
  - d. R4: Operational/K3
  - e. R5: Operational/technician
  - f. R6: Operational/IT
  - g. R9: Human Resources
2. Financial risk
  - a. R10: finance
  - b. R11: finance
3. Quality risk
  - a. R7: Operational/Technician
  - b. R8: Operational/K3

After knowing the impact of each risk, the next step is risk analysis. Risk analysis aims to understand the nature and characteristics of the risk, including the risk rating. During this process, the likelihood and impact of each risk are estimated to determine the risk priority/risk rating (Risk Priority Number).

**Table 2. Probability Risk**

Index	Probability	Probability	Percentage (%)	Description
1	Very Seldom	Rare	(0% < p ≤ 20%)	Possibility almost does not happen
2	Seldom	Unlikely	(20% < p ≤ 40%)	Possibility No happen in 3 year
3	Possible	Moderate	(40% < p ≤ 60%)	Possibility happen 1x in 3 year
4	Possibility big	Likely	(60% < p ≤ 80%)	Possibility happen 1x in 2 year
5	Almost Certain	Almost certain	(80% < p ≤ 100%)	Can happen every year/no unexpected

The probability (possibility) of risk is the magnitude of the chance of a risk occurring in the future (until the end of the year). The size of the change is expressed as a number between 1 and 5, where one is rarely happening, and five is almost certain to happen.

**Table 3. Risk Impact Criteria**

Index	Consequences (Impact)	Impact on Reputation (Qualitative)	Impact on Operational Continuity (Qualitative)	Impact on Organizational Strategic Goals (Qualitative)
1	Insignificant	No impact	There is no interference	Performance targets and goals achieved 100%
2	Minor	The impact is relatively small for	There is interference, but it has no impact in operation	Performance targets and goals achieved 91% - 99%
3	Moderate	Impact	There is a disruption that impacts operations	Performance targets and goals achieved 71% - 90%
4	Major	Impact	There is great impairment, loss of ability Operational	Performance targets and goals achieved 51% - 70%
5	Catastrophic	Big impact	Severe impairment, unable to Operational	Performance targets and goals $\leq 50\%$

Risk impact is a loss that is likely to occur if the risk occurs. Risk impact is measured by the impact tolerance table, which consists of quantitative and qualitative risk impacts expressed in descriptive assessments.

### Risk Analysis

After knowing the impact of each risk, the next step is risk analysis. Risk analysis aims to understand the nature and characteristics of the risk, including the risk rating. During this process, the likelihood and impact of each risk are estimated to determine the risk priority/risk rating (Risk Priority Number). The following are the results of the risk analysis that have been analysed.

**Table 4. Risk Analysis**

Code	Risk Context	Risk Events	Inherent		Risk Rating
			Probability	Impact	
R1	Marketing/Sales	PT. Think Clean Laundry brand is not yet well-known	3	5	15
R2	Marketing/Sales	The emergence of new competitors	2	4	8
R3	Operational/K3	Power outage	2	3	6
R4	Operational/K3	Fire and Natural Disasters	2	5	10
R5	Operational/Technician	Washing machine and water pump damage	2	5	10

R6	Operational/IT	RFID system error	2	3	6
R7	Operational/HRGA	Pickup and delivery of linen not on time	4	4	16
R8	Operational/K3	Risk of exposure to/contamination from chemicals and B3 waste	3	4	12
R9	Human Resources	High employee turnover	3	3	9
R10	Finance	Target Payback Period Not Achieved	3	4	12
R11	Finance	Changes in regulations/rules, minimum wage increases and interest rate increases	3	3	9

Extreme
High
Moderate
Low

### Risk Evaluation

After analysis and risk positioning, risk evaluation is done by creating an inherent risk map. The following is a map of inherent risk from PT Think Clean Laundry.

		DAMPAK					Keterangan:
		1 Insignificant	2 Minor	3 Moderate	4 Major	5 Chatastropic	
P R O B A B I L I T A S	5 Almost Certain	5	10	15	20	25	Extreme
	4 Likely	4	8	R10 12 R8	16 R7	20	High
	3 Moderate	3	6 R6	R11 9 R9	12	15 R1	Moderate
	2 Unlikely	2	4	6 R3	8 R2	R4 10 R5	Low
	1 Rare	1	2	3	4	5	

**Figure 2. Pre-Mitigation Risk Evaluation Matrix**

The risk position in the risk map is divided into four levels: Low, Moderate, High, and Extreme, which are indicated by red, orange, yellow, and green. The green area is where the risk response can be accepted (monitored and evaluated), while other colours besides green are unacceptable risks and must be addressed immediately. To facilitate the risk management strategy, the risk map is divided into four quadrants (quadrants 1-4), as shown in the pre-mitigation evaluation matrix above.

### Risk Treatment

After an evaluation, analysis, risk position, risk response, and risk treatment are carried out. (Nugroho et al., 2023). PT Think Clean Laundry's risk management is shown in the table below.

**Table 5. Risk Treatment**

No	Risk Event	Causes of Risk (Risk Agent)	Inherent			Risk Treatment	PIC	Residual		
			Probability	Impact	Risk Priority Number			Probability	Impact	Risk Priority Number
R1	<i>Brand</i> PT. Think Clean Laundry is not yet well known	PT. Think Clean Laundry <i>Brand</i> new arrivals	3	5	15	Carrying out promotional activities through the Marketing division, such as seminars, customer visits	Marketing/Sales Manager	2	4	8
R2	The emergence of new competitors	Competitors see an opportunity	2	4	8	Improving quality and providing quality assurance	Marketing/Sales Manager	2	2	4
R3	Power outage	Disruption of electricity supply from PLN	2	3	6	Preparing the generator engine	Operational Manager/K3	2	1	2
R4	Fire & Natural disasters	Short Circuit, Earthquakes, floods, tornadoes	2	5	10	Preparing APAR and K3 socialization	Operational Manager/K3	2	4	8
R5	Washing machine damage	Unstable electric current	2	5	10	Prepare the stabilizer and check the electricity regularly	Operational Manager/K3	2	3	6
R6	RFID System <i>error</i>	When doing work not using personal protective equipment	2	3	6	Provide backup equipment	Operational Manager/IT	1	2	2
R7	<i>Pickup And delivery</i> linen not on time	Box vehicle breaks down on the road	4	4	16	Perform regular maintenance frequently & prepare box vehicle backup	Operational Manager/K3	3	3	9
R8	Risk of exposure to chemicals & hazardous waste	When doing work not using personal protective equipment	3	4	12	Wearing wearpack and safety shoes and special chemical gloves	Operational Manager/K3	2	2	4
R9	<i>Turnover</i> high employee	Employees move to competitors	3	3	9	Increase <i>engagement</i> employee	Human Resources Manager	2	2	4
R10	Target Payback Period not achieved	laundry service and linen rental targets not achieved	3	4	12	Improve marketing strategies and manage funds efficiently	Marketing/Sales Manager	2	1	4
R11	Changes in regulations/rules, minimum wage increases and interest rate increases	changes in government regulations regarding UMR/UMP resulting in increased employee salary costs	3	3	9	Conduct regulatory reviews continuously and in stages to be able to meet applicable regulatory requirements.	Finance Manager	2	2	4

After carrying out risk handling, the risk will experience changes in the risk evaluation matrix map, which can be seen in the matrix map below:

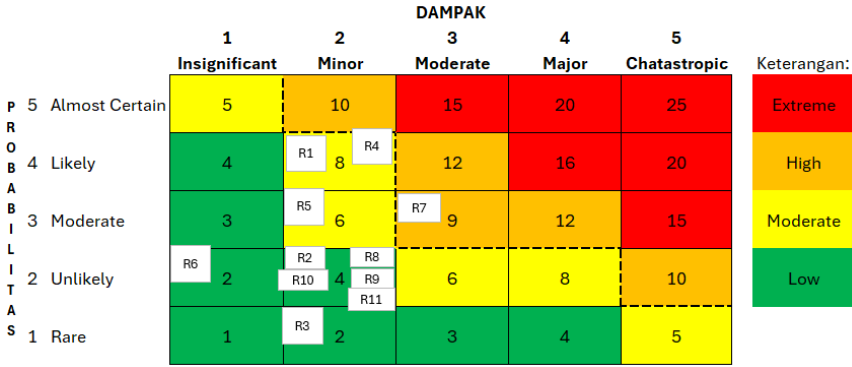


Figure 2. Risk Evaluation Matrix After Mitigation

Communication and Consultation

The communication and consultation stage is determined at the initial stage regarding the risk issue, the cause of the risk, the consequences of the risk, and what actions should be taken to handle the risk. Communication and consultation can be seen in the Risk Escalation table below.

Table 6. Risk Score Table

Risk Score	Escalation Level
1- 5	Employees in all divisions coordinated management.
6- 10	PIC all division
11- 19	All Team head office
20- 25	Owner of PT Think Clean Laundry

Monitoring and Review

The next stage is monitoring and review, which is carried out periodically on the risk handling that has been carried out. Each team must know their duties and responsibilities in monitoring and reviewing. The results of monitoring and review are then recorded or documented clearly and accurately. After being recorded, the monitoring and review results will be reported as input and evaluation of the risk management framework. (Limbong et al., 2019). Implementing communication and consultation, monitoring and evaluation, and effective recording and documentation can ensure the risk management process runs smoothly and adapts to changes.

Table 7. Risk Monitoring and Review

No	Activity
1	Management prepares template profile risk.
2	Each Department fills in the report profile risk every 3 months.
3	Profile risk in summary right by each-each Manager Then reported
4	The director and the manager monitor, review, and summarise the report profile risk.
5	Management (Director And Manager) reports the results of implementation mitigation and risk Treatment.



6 The annual report concluded that profile risk, management risk, and evaluation were done for repair.

Recording and Reporting

Recording and reporting is the final stage in risk management. At this stage, storage and reporting are carried out on possible risks. (Nugroho & Afifah, 2021). The team responsible for managing risk must analyse and understand the reports made because the analysis results will be submitted to management.

Table 8. Recording and Reporting

No	Time	Activity	PIC	Monitored By
1	Quarterly (3 Months)	Make report incident risk ( risk event ) Which happened during 3 months	All Employees	Operational Manager
2	Semester (6 Months)	Make a summary of risk events ( risk) that happened during 6 months	All Managers	Director
3	Annual	Make Report Risk Management	Operational Manager	Director

Conclusion

Risk management is essential in addressing external and internal factors within the PT Think Clean Laundry business planning project. By implementing effective risk management strategies, the project team can proactively anticipate and respond to changes in the external environment. This ensures the project's smooth progression and helps achieve the set objectives efficiently. Effective risk management thus becomes a cornerstone for the project’s success, enabling the team to navigate uncertainties and maintain project continuity.

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