



i-RIC 2024

INTERNATIONAL RESEARCH & INNOVATION CONFERENCE

PROCEEDING

“HARMONY IN DIVERSITY: FOSTERING UNITY
SUSTAINABLE RESEARCH AND INNOVATION SOCIETY”

24 & 25 JULY

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PREFACE

It is a great privilege for us to present the proceedings of the International Research and Innovation Conference (i-RIC 2024) to the authors and delegates. We hope that you will find it useful, exciting, and inspiring. The International Research and Innovation Conference (i-RIC 2024) was held online from 24 to 25 July 2024, organized by Politeknik Nilai in collaboration with Universitas Logistik dan Bisnis Internasional (ULBI) with the theme, “Harmony in Diversity: Fostering Unity Sustainable Research and Innovation Society.”

i-RIC 2024 aims to gather more researchers, students, government agencies, and private sectors in an event with a larger international impact. The organization of this program also serves as a platform for sharing research findings, ideas, and knowledge among members of polytechnics, community colleges, higher education institutions, public universities, as well as government and private agencies involved. Researchers, academics, and experts from various sectors will have a global stage at i-RIC 2024 to discuss the latest findings and research that support sustainable development goals. The conference aims to generate knowledge to make our world greener and better for us and our future generations.

There were 4 keynote speeches covering different areas of the conference. The first day started with Associate Professor Dr. Ir. Agus Purnomo (ULBI Indonesia) talk on "How to Boost Green Supply Chain Resilience?" and Professor Dr. Mohamed Kchaou (University of Bisha, Saudi Arabia; University of Sfax, Tunisia) on "Latex Based Membrane for Oily Wastewater Treatment Technology Process and Perspectives". The second day featured Professor Dr. Recai Kus (Selcuk University, Turkey) on "Load Optimization of AISI 1040 and AISI 5140 Joint" and Dr. Umawathy a/p Technamurthy (Universiti Kebangsaan Malaysia) with her talk on "Harnessing the Potential of Maker Education in Enhancing Student Learning Outcomes".

A total of 124 presenters participated in the parallel presentation sessions, which ran smoothly over the two-day event supported by 109 i-RIC 2024 organizing committees. This included 16 online presentation moderators, 42 reviewers, 19 judges, and all participants who took the time to attend the online sessions. A total of 124 research papers and 56 innovations were presented in this program across 7 fields, namely:

- A. Engineering and Technology
- B. Business Management
- C. Education, Teaching, and Learning
- D. Health and Life Sciences
- E. Social Sciences
- F. Information Communication Technology
- G. Logistics and Supply Chain

Information regarding i-RIC 2024 can be accessed through the Program Book at <https://heyzine.com/flip-book/521619ef82.html> and overall results can be found at <http://iric.polinilai.edu.my/.../confe.../results-innovation>.

We would like to express our heartfelt thanks and sincere appreciation to all the authors for their contributions to this publication. We also express our gratitude and appreciation to all of the reviewers for their constructive feedback on the papers. Warmest thanks to the members of the organizing committee for their hard work and dedication in ensuring the success of the event.

Congratulations to everyone involved in making this conference a success.

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LOGISTICS AND SUPPLY CHAIN MANAGEMENT

**"HARMONY IN DIVERSITY: FOSTERING UNITY
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Risk Management Design in Optimizing Employee Performance with The Approach of Enterprise Risk Management (ERM)

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Abstract

In running a company will definitely face risks. Risks that arise come from the external environment and the internal environment of the company that makes the company suffer losses. The research method used is a descriptive qualitative research method with journal literature study data collection techniques. This study uses the Enterprise Risk Management (ERM) method. In applying this method, it starts by identifying risks, conducting performance assessments and controlling risks. With the application of the Enterprise Risk Management (ERM) method, the company can find the risks that occur in the company based on the categories of low, medium, or high. The purpose of this study is to identify the risks that may occur in the company and then, create a risk matrix to determine the risk constraints that occur based on the lowest to heaviest order for control prioritisation. The results show that the dominant risks that occurred in the company were delayed delivery of nuggets, stale nuggets when the freezer died, work accidents occurred during work, and damage to vehicles transporting nuggets.

Keywords: Risk Management, Enterprise Risk Management

1. Introduction

Companies that exist today have supply chains both as suppliers, and as customers that operate within the scope of the Indonesian region and the global scope. The company is currently facing the development of a fairly developed and increasingly complex supply chain that is certain. Every company must be aware of changes in operating the supply chain in order to adjust to the company's demand. Risk control design is part of the company's strategic plan in achieving its goals. If risk control is not well organised, this can lead to weak risk management (Safitri & Rufaedah, 2020). Another thing that companies must also know are the factors that affect the smooth running of the supply chain and all the obstacles that can occur as well as risk management strategies that can be applied to anticipate the risks that occur. In terms of implementing risk management, it can make a better influence on the company. Risk management is a set of policies, procedures that an organisation has to manage, monitor, and control the organisation against risk (Pagestuti, 2019) in (Lubis & Imsar, 2022).

The risks that occur within the company have their own challenges. This challenge makes the company must be able to minimise existing risks. A good company is a company that is able to manage risks, so that risks can be minimised or eliminated (Mellisa & Andono, 2013). shipping optimisation in fulfilling this inventory must be designed risk management so that all conditions that occur can be minimised especially in the company, this inventory is vital, which must be coordinated to fulfil its needs at all times. According to Ahmad, Tuli and Mahmud (2022), inventory is a number of finished goods, raw materials, and process in goods that the company owns with the aim of reselling or further processing.

Inventory is also part of the company's assets which are generally quite high material in value and prone to theft or misuse. Every company implements in minimising the risks that occur.

In minimising these risks, the company does not only carry out risk management, but the company conducts research within the company in finding solutions, namely by using the Enterprise Risk Management (ERM) method. This method is very helpful for company leaders in estimating, managing risks that occur or before they occur in the company. The right way to manage the risks that occur in the company is by implementing Enterprise Risk Management (ERM). With the application in controlling Enterprise Risk Management (ERM), the company is helped in understanding how to handle and control risks in order to minimise the impact of risks that occur, so that the company's goals are achieved in handling the risks that occur.

Implementation of Enterprise Risk Management (ERM) can be done by identifying events that occur within the company, assessing and responding to risks. The company can assess management performance to avoid risks that can affect employee performance in the company. In implementing Enterprise Risk Management (ERM), the possibility of companies finding risks that have occurred or that have not been identified which are divided into low (Low), medium (Medium), High (High) groups (Nugroho, 2013) in (Hasan et al., 2021).

PT XYZ company is engaged in frozen food retail which has been established from 2015. The products produced by this company are nuggets and have distributed to large and small retail stores. Retail stores that have subscribed to this company are around 180 stores spread from crowded areas to remote areas. Travel time in the distribution of nugget products is divided into several working areas including 60 retail stores with a travel time of 2-4 hours, 60 retail stores with a travel time of 3-6 hours, 60 retail stores with a travel time of 1-2 hours. The number of requests from customers indicate that the company must make an appropriate and fast production system in order to meet customer demand in fulfilling customer satisfaction. The system is made to achieve the company's goals to become a trusted and responsible company. PT XYZ company is engaged in frozen food retail which has been established since 2015. In carrying out business activities, PT XYZ faces several operational risk constraints.

The risks are human resource risk, technological process risk, and environmental risk. For human resources risk, there is an ineffective employee development strategy and frequent work accidents. The technology risk experienced by this company is in the form of a virus disruption in the company's computer system which causes the company's data to be lost. As for the process risks that occur in this company are in the form of damage to transportation and distributors are late in delivering goods and environmental risks in the form of stale nuggets and freezers that died due to power outages.

The problems that occur in the company are part of an indication of poor internal control. Based on the results of the literature study of this problem, it occurs because the company has not identified and analysed certain things that often occur from the internal and external environment. Seeing from these problems PT XYZ needs to identify and analyse the risks that may occur from the company to minimise losses that may occur with the Enterprise Risk Management (ERM) approach. From the identification and analysis of risks being studied, the company focuses on the company's operational field. In identifying and analysing risks with the Enterprise Risk Management (ERM) approach, the company only focuses on the problem identification stage to the risk treatment stage.

This research does not continue to the monitoring and review stage and the documentation stage of the risk management system. This is because it takes a long time to supervise the implementation. This research is closely related to operational management. It is known that

operational management is a form of comprehensive and optimal management based on work problems, goods, machinery, equipment, raw materials that can be used as a service product for sale. In the implementation of the company's production operational activities, it is necessary to have a manager that can make decisions in efforts to regulate and coordinate the use of production activity resources known as operational management (Wijaya et al., 2020).

Rohimmah et al (2022) states that from the results of data processing, the priority risk plan is obtained, namely the mismatch between the production plan and the implementation of production with the strategy of optimising machinery and equipment, source risk. Mirzania (2021) states that examining the application of Enterprise Risk Management (ERM) is to minimise credit risk, interest rate risk, and liquidity risk in banking companies. The implementation of Enterprise Risk Management (ERM) also affects the value of a company. The effect of the value of Enterprise Risk Management (ERM) on a company has an impact on the efficiency of the company.

Previous research became the author's reference in conducting research. Besides that, the author also took a literature study in fulfilling the research data in this journal. From the references that the authors take can enrich the theory used in this study. From previous research, the author found similarities in the theoretical aspects of research studies but with different aspects of objects, time and place. This research was conducted by the author at PT XYZ in 2024. The similarities between the current research and previous research lie in the aspect of theoretical studies related to company risk and the Enterprise Risk Management (ERM) approach method.

The purpose of this research is to identify the risks that occur in the operations of PT XYZ Company by assessing the risks. This risk research analysis is based on the severity or impact of the risk and the level of likelihood of risk occurrence and identification of risk handling that occurs and provides recommendations for improvement suggestions made by the company to deal with risks. Based on the background, the author identifies the problems like the percentage of the risk occurrence rate and the level of probability of occurrence by identifying risk handling and providing input for recommendations for improvements that can be made by the company to deal with.

2. Theoretical Review

Definition of Risk

The definition of risk is a possibility that occurs or an event that can harm the company's business, the event cannot be predicted (Latifiana, D. ,2017). The possibility of causing risks that occur to the business is fundamental to identifying and measuring the level of concern. According to SNI ISO 31000 in (Wiryoono & Suharto, 2018), risk is an uncertainty that causes the company to have an impact on conditions that are negative or positive. This impact needs to be followed up because it will be an obstacle to achieving a goal or goal in the company in the short and long term. From the above definition, it can be concluded that risk is an event or event that has a dangerous impact on an organisation or company that causes future losses.

Operational Risk

According to Bambang Rianto Rustam (2017) in Trianto et al. (2021), operational risk is the malfunction of an internal process, human error, system failure and external events that affect company operations. This operational risk can occur at two levels, namely technical and organisational. In the implementation category, operational risk can occur when information systems, errors in recording, inadequate information and inaccurate risk measurement. In the organizational category, operational risk can arise because the monitoring system, reporting

system, procedure system and a policy are not running properly. Operational risk arises from losses or failures in internal processes, people, systems and external events. In general, operational risk is related to a number of problems that stem from a failure of a procedure or process. From this incident, the risk is not something new and cannot be faced. All companies will definitely experience the name of failure and must have the potential and process in anticipating the problem.

Enterprise Risk Management (ERM)

According to COSO (The Committee of Sponsoring Organizations of the Treadway Commission) in (Legawa, 2021) the definition of ERM (Enterprise Risk Management) is a process that is influenced by the intensity of the board of directors, management and other personal. In implementing the strategy, the entire company is designed to identify potential events that affect the entity in managing risks to stay on risk appetite in providing full confidence in the achievement of the entity's goals. The definition of Enterprise Risk Management (ERM) according to COSO in Makikui et al., (2017) is a series of processes that affect the entire entity, the board of directors, management and other forces whose implementation is through the determination of the company's strategy, which is made to identify potential events and can affect the entity in managing acceptable risks and providing security guarantees in achieving company goals.

Enterprise Risk Management (ERM) has an important role in describing the approach and identification, analysis, response and monitoring of risks and opportunities in the internal and external environment faced by the company. According to Darmawi (2016), Enterprise Risk Management (ERM) is an organisational management that requires efficient and effective administrative systems and procedures in its implementation. For example, a risk related to legal issues faced by the company has an impact on the company's reputation. This impact will affect the increase in the company's share price on the stock exchange (Soetedjo & Sugianto, 2018).

3. Research Method

In this study, the object of research is PT XYZ. It is a company that produces nuggets whose production market covers large and remote areas. The scope of this research is a variable related to operational risk. The research method used is qualitative research based on literature studies in data collection such as journal studies and publications that are in accordance with the topic under study. The data collection technique in this research is a literature study of several journal sources as data references. The following is the flow of research in the research article as follows:

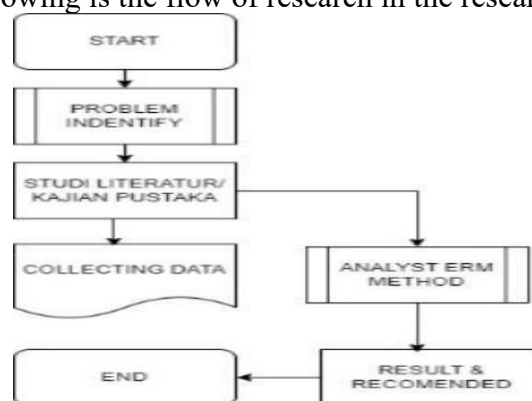


Figure 1: Author's Analysis (2024)

This research uses the Enterprise Risk Management (ERM) method approach. The application of the ERM method is carried out from identifying events that arise in business activities, assessing and managing risks. By applying Enterprise Risk Management (ERM), the company can find existing and unidentified risks and can classify risks based on groups, from low, medium, and high.

4. Results and Discussion

Risk Identification

The identification of risks that occur at PT XYZ is based on business processes that do not run according to the desired company targets. This research is focused on operational risks that occur. There are several problems that occur from the company's operations. This risk consists of human resource risk, productivity risk, and process risk.

Table 1: Risk Identification

Risk Type	Code	Risk	Cause/ Source of Risk
Human Capital Risks	A1	Ineffective employee skill development strategy	Lack of skill training for self- development of company employees
	A2	Occupational accidents occur during work	Lack of insight into work safety. As well as not complying with work safety provisions
Technology Risks	B1	A virus interfered with the computer, causing data loss.	Lack of database to data storage, resulting in data loss or viruses.
Process Risk	C1	Damage to vehicle transporting nuggets	Lack of vehicle maintenance and often late monthly late services
	C2	Delay in nugget delivery	Unscheduled deliveries resulting in a build- up of goods
Environmental Risks	D1	Stale nuggets when the freezer goes out of power	Frequent blackouts in the neighbourhood
	D2	Freezer defrosting due to blackout	Frequent blackouts in the neighbourhood

Source: Author's Process (2024) Risk Assessment

Company management can be measured and can be assessed from the size or scale of the risks faced. The company can also know the impact of the risk on the company's operations. According to Arta et al., (2021), by measuring this risk scale, the company can prioritise the most relevant risks that occur. In risk assessment, the author uses a frequency taken from numbers 1-5 which can be seen as follows:

Table 2. Frequency of Occurrence Scale

Level	Event
1	Never
2	Rarely
3	Quite often
4	Frequently
5	Very Often

Source: Author's Process (2024)

Table 3. Impact Level

Level	Event
1	Very Small
2	Small
3	Medium
4	Large
5	Very Large

Source: Author's Process (2024)

Based on the frequency table and impact table made by the author, the following is the identification of risks based on the frequency and impact caused below:

Table 4. Risk Assessment

Type Risk	Code	Risk	Frequency	Impat	Cause/ Source of Risk
Human Capital Risks	A1	Ineffe ctive employee skill developme nt strategy	1	2	Low
	A2	Occu patio nal accidents occur during work	2	3	Medium
Technology Risk	B1	Avirus interf ered with the computer, causi ng data loss.	3	2	Low
Process Risk	C1	Damage to vehicle transporting nuggets	2	4	Medium
	C2	Delaying nugget delivery	4	4	High
Environment Risk	D1	Freezer defrosting due to balck out	2	2	Low

Based on the results of risk identification from frequency and impact, the author determines the severity of low, medium, and high by using a likelihood impact matrix by dividing the frequency and impact into x and y axes.

5			D1		
4				C2	
3		B1			
2	D2		A2	C1	
1		A1			
Frequency	1	2	3	4	5

Impact descriptions:

1. Green boxes have little risk (Low Risk)
2. Yellow boxes have a medium level of risk.
3. Red box has high risk

Based on the risk map above, the risk grouping based on severity can be seen as follows:

1. Low risk
Risks included in the low-risk group are freezer melting due to a power outage (D2), ineffective employee skill development strategy (A1), and virus interference on the computer causing data loss (B1).
2. Medium Risk
Risks included in the medium risk category are work accidents occur at work (A2) and vehicle damage transporting nuggets (C1).
3. High risk
4. Risks that occur in the high-risk category are stale nuggets when the freezer dies (D1) and delayed delivery of nuggets (C2).

Risk Control

Based on the risk assessment, the company's management can determine whether the risk is acceptable (acceptable risk) or not (unacceptable risk). If the risk is unacceptable, the company must determine how to handle the risk, so that the risk can decrease. If the risk is acceptable or tolerated, the company needs to monitor the risk. (Ahmad, 2020).

Table 5. Risk Control

Level	Kod	Resiko	Pengendalian
High	C2	Delay in nugget delivery	Organised the nugget departure schedule to avoid delays.
	D1	Stale nuggets when the freezer is off	Provide UPS or Genset to minimize when there is a blackout.
Medium	A2	Occupational accidents occur during work	Conduct OSH socialisation to all employees of the Company so that they can be careful at work.
	C1	Damage to vehicle transporting nuggets	Carry out periodic vehicle maintenance by Conditioning vehicle eligibility

The results of the risk management analysis using the Enterprise Risk Management (ERM) method that has been carried out in the production area of PT XYZ show that there are 7 risks that occur. These risks include (1) human resource risk, (2) technology risk, (3) process risk and (4) environmental risk. Each process can be categorised into 3 levels, namely, low, medium and high. In the process of data processing based on analysis, it was agreed to carry out risk control only at the medium and high-risk levels. From the discussion during the dissemination, it has been discussed that the low level can be accepted by PT XYZ. Risk control is expected to prevent and minimise the risks that may occur during the production process, so that productivity can be effective and efficient.

5. Conclusions

From the results of research at PT XYZ Company, there are several conclusions that can be drawn, namely in risk analysis with Enterprise Risk Management (ERM) focusing on company operations and it is known that there are 7 risks that may occur within the company. Operational risks include human resources, process risk, technology risk, environmental risk. Risk assessment is carried out based on the severity of the impact which can be divided into several levels of probability and class. Risk scoring is obtained by multiplying the likelihood (occurrence) and impact (severity). From the risk scoring calculation, the highest risk is risk D1, which is stale nuggets when the freezer dies.

In the risk matrix, each risk is divided into 5 levels, namely very high, high, medium, low, very low levels. In responding to risks that occur, there are several ways to avoid risk, reduce risk and accept risk. At high and medium levels, risks are focused on avoiding and reducing. At the low level, the risk is focused on being reduced if possible. While the very low level of risk response is to accept risk by means of routine monitoring. From the results of research and risk analysis conducted by the author at the company, it is highly recommended that PT XYZ implements Enterprise Risk Management (ERM) because ERM risk analysis can help the company in assessing and managing risks that occur both large and small risks properly so that it can help the company in achieving company goals and can increase the company's profitability and not harm the company. The application of ERM can assist the company in identifying problems that occur both internally and externally, especially the company's operational risks. For further research, it is hoped that it will be able to examine other aspects of risk such as financial risk, strategic risk and others.

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