

Research Article


Supply Chain Risk Mitigation Using the House of Risk Approach: Evidence in an Indonesian Catering Company

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Sekolah Tinggi Ekonomi dan Bisnis Islam (STEBI) Lampung, Indonesia**ORCID**Resista Vikaliana: <https://orcid.org/0000-0002-9462-4943>**Abstract.**

A company that operates in the culinary business certainly requires a supply chain function for raw materials. However, supply chain activities may involve risks that can hamper the business. This research aimed to identify risks that might occur in the supply chain at PT AU, carry out a risk assessment, and recommend mitigation actions. In this research, the researcher have used the initial method, namely SCOR, to map existing activities, then identify risk events and their severity values, identify the causes of risks and their occurrence values, calculate the ARP value with the help of Microsoft Excel, and see the highest ranking. Next, HOR phase 2 is to provide recommendations for mitigation actions that are suitable for implementation by the company, which will then be calculated to determine the priority ranking for implementing the mitigation actions that have been given.

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Knowledge E

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Selection and Peer-review under the responsibility of the ICIEBDS Conference Committee.

1. Introduction

At this time, the food and beverage business has become an industry that will never die because as we all know, food and drink are basic needs for humans. As time goes by, busyness makes people prefer to order food rather than cook it themselves, which has caused many innovations in the food and beverage industry to emerge.

This can be seen from the contribution to the national GDP of the food and beverage sub-sector which reached 34.44% in 2022, where the food sub-sector has the largest contribution to the contribution to economic growth by sector with a value of 17.84% [1].

For example, innovations that are starting to develop in the food industry include restaurants and catering. The use of restaurants and catering can be seen differently according to needs. Where catering is a business that serves requests for food orders in certain quantities for various purposes, such as formal and informal events. For example,

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weddings, birthdays, family gatherings. But not only that, catering is also widely used, especially in industrial or office areas, this can be proven by the percentage of food supply businesses according to location and type. Catering businesses according to location in industrial and office areas amounted to 10.88% [1].

In running a catering business, it is necessary to have a business function, where this business function plays a role in organizing a series of jobs to control every job and part of the food industry. For example, the supply chain section in a catering business needs to have a business function that controls the supply of raw materials, up to the delivery of products later. Where in this supply chain process many risks can occur which can not only harm workers but can also harm the catering business itself and its customers.

PT. AU is a company engaged in the catering business, in carrying out its business PT. AU entered into a contract with PT. Vale Indonesia, Tbk in food catering for day shift employees and for employees who do overtime or overtime. Apart from that, PT. AU also supplies food for employees who are shutting down. During the contract process, PT. AU is required to provide catering that meets PT standards. Vale Indonesia is 4 healthy 5 perfect food. The need for chicken and fish is the greatest of all other needs because on average the orders received are for menus that use chicken or fish.

Companies must start to be alert and change the way they manage and operate their supply chains so that they can contribute to the company's needs. Apart from that, catering entrepreneurs also need to know what main factors can influence the smooth running of the supply chain and the risks that will occur [2]. The importance of risk management in the supply chain is to minimize losses that could later impact the catering business. Work accidents that occur are generally caused by two main reasons, namely, actions taken that are not per work procedures and unsafe body conditions when working. Usually, risk is more related to losses from events that usually occur within a certain time. Risks cannot be avoided but can be minimized or eliminated according to appropriate handling [3]. Previous research explains how the increase in work accidents in the catering industry sector causes losses in the form of reduced competitiveness and effectiveness of catering companies [4]. Therefore, to help the process of minimizing risks in the catering business, the author uses the HOR method.

In this research, the initial method used was the SCOR (Supply Chain Operation Reference) approach to calculate performance in the supply chain. There are 5 processes in this approach which contain parts, namely plan, source, make, deliver, and return. Then, a stage was carried out which aimed to analyze risk events and risk agents by distributing questionnaires to respondents, namely the person in charge of PT operations. Next, calculations and assessments of the risks and causes of these

risks are carried out using the HOR method, and finally, recommendations for control or mitigation to minimize risks [5].

In this research, the SCOR method was used to map existing activities at the company. PT. AU in carrying out analysis and recommendations for controlling risks, the HOR method was used. The HOR method only assigns a probability to the risk agent and the severity of the risk event. Because one risk agent can cause more than one risk event, it is necessary to quantify the aggregate risk potential of the risk agent. This method is a method that is generally used, especially in analyzing and measuring the risks that exist in a company.

2. Literature Review

2.1. Catering Business and Risk Management

The catering business is the most famous in the catering sector, every occasion, moment, and event you will often find a variety of food and drinks served attractively by catering entrepreneurs. Catering is also a ready-made food service that can be delivered directly to the place where an event is ordered. Usually, the purpose of ordering catering depends on the event, such as religious events, weddings, seminars, birthdays, and so on [6].

Every activity in life allows for many risks. Moreover, in every activity or activity at a company, many risks can cause losses to the company, workers, and other organizations or companies, as well as individuals who collaborate with the company itself. Risk is an uncertainty that can be measured and can be estimated when the level of probability of the risk is known [7].

Management is a theory or practice that discusses the flow of using HR/human resources and other resources effectively and efficiently. There are several management functions discovered by G.R Terry in his book Principles of Management [8], namely:

Planning is a selection of facts and is a combination of facts and the use of assumptions by describing the activities that must be carried out to achieve the expected goals in the future.

Organizing is the process of selecting, grouping, and arranging all activities to achieve the expected results, assigning employees to each activity or division, providing good physical factors to meet work needs, and showing authority relationships, which are usually assigned to each person according to their duties in each activity or activities.

Implementation of actuating is the process of generating and encouraging each person or team to want and be willing to work together diligently so that they can get the results they want to achieve under the planning and organization that has been carried out.

Supervision or Controlling is part of determining the minimum limit to be achieved, starting from implementation, assessing how it is implemented, and if necessary, improvements will be made, so that the plans that have been set can run in harmony with standards.

Risk management is an activity carried out to help identify, analyze, and carry out improvements or control risks that may occur in an activity or activity to obtain higher efficiency and effectiveness [9]. Risk management is also an assessment of the project which includes two influences, the first is the influence on engineering and the influence on non-techniques. Where the influence on technique is the project assessment related to work items, while the non-technical influence is the assessment related to the project and the environment, superiors and subordinates, and so on [10]. Risk management is a systematic process in implementing policies, procedures, and practices related to risk consultation and communication activities in the process of identifying, analyzing, and evaluating risks (ISO: 31000, 2018).

2.2. Supply Chain Management

Supply Chain is a system in an organization or business that functions to distribute goods and services to consumers or customers who are interconnected in carrying out the procurement and distribution of goods [11].

One of the rare ways to measure supply chain performance is to use the SCOR (Supply Chain Operation Reference) model. This model was introduced by the Supply Chain Council (SCC) as a model for measuring supply chain performance across industries. The SCOR model is a process reference model for supply chain operations developed by SCC, Pittsburgh, PA [12]. According to Pujawan (2010), SCOR divides supply chain processes into five processes, including Plan (planning process), Source (procurement process), Make (production process), Deliver (delivery process), and Return (return process) [13].

In defining the SCOR model there are 5 key processes, namely (MGT Logistik, 2020):

Plan - A process to generalize customer demand and supply (supply and demand) to improve the company's strategy for each part of the supply chain that runs according to current business rules.

Source - The process of collecting data and procuring raw materials, goods, or services to meet pre-calculated or planned needs.

Make - The process that changes goods to the completion stage by processing, producing, and packaging to meet planned customer needs.

Deliver - The process of distributing finished goods and services to meet customer demand. Here, starting from order management, warehouse management such as product packaging according to company procedures. Transportation management such as making deliveries with the right transportation and scheduling the delivery of ordered goods or products according to the specified time / on time.

Return is the process of managing the return of goods that have been received by consumers. At the supplier stage, product returns usually occur if the raw materials do not match the company's request and provide transportation for sending replacement raw materials. Making claims for raw materials that do not match demand to suppliers at the manufacturing stage. Management of claims for inappropriate finished goods at the distributor stage. And even making claims for damaged final products at the retail stage.

2.3. House Risk

The House of Risk (HOR) method is a model for calculating the risk of events in the supply chain which is usually used as a framework [13]. HOR is a model that combines two risk calculation models, namely FMEA and HOQ, by determining priorities for the causes of occurrence [13]. There are 2 HOR models, HOR Model 1 is used to determine the level of priority for the causes of risk, while HOR Model 2 is useful as a priority determinant of control strategies that are considered to be able to prevent or eliminate risks. The two stages in the HOR method are as follows:

1. HOR Phase 1 - Used to identify risk events and risk agents that have the potential to arise so that the output from phase 1 will be in the form of grouping risk agents into priority risk agents according to the Aggregate Risk Potential (ARP) value. The stages of HOR Phase 1 are as follows:

1. Mapping of Supply Chain Activities at PT. AU
2. Identify risk events (Ei)
3. Fill in a questionnaire that answers the level of severity (Si).
4. Identify the risk-causing agent (Aj).
5. Measuring the occurrence value of risk agents.

TABLE 1: AS/NZS 4360 Standard Severity Scale.

Rank	Subjective Severity	Estimate of	Description	Description Of Loss
1	No Impact		Not Significant	0
2	Little Impact		Singe Small Impact	<5 Million
3	Medium Impact		Causing Short-term Difficulties	5-10 Million
4	Big Impact		Causing Long-term Difficulties	10-50 Million
5	The Impact is Huge		Directly Affects the highest level	>50 Million

TABLE 2: AS/NZS 4360 Standard Occurrence Scale.

Rank	Subjective Estimation of Events	Description	Event Description
1	Very Impossible	Very Rare Event	Happens Once a Year
2	Impossible	The is Evidence of Indirect Events (Rare)	Happens 2-3 Times a Year
3	Currently	There is Direct Evidence of the Event (Sometimes)	Happens 3-4 Times a Year
4	Possible	There is Strong Direct Evidence of the Event (Often)	Happens 4-5 Times a Year
5	Very Likely	Frequently Recurring Events (Very Often)	Occurs >5 Times a Year

6. Measuring the correlation value between risk events and risk agents, with correlation values consisting of 0,1,3,9.

7. Ranking the results of ARP.

2. HOR Phase 2

Intended for designing mitigation strategies to handle priority category risk agents. The output from HOR Phase 1 will be used as input for HOR Phase 2. The stages in HOR Phase 2 are as follows:

1. Rank the ARP values from highest to lowest using Pareto analysis.
2. Identify relevant mitigation actions (PAk) against the risk agents that occur.
3. Correlation between risk agent (Aj) and relevant mitigation actions (PAk) using conditions 0, 1, 3, and 9.

4. Calculate the total effectiveness value of each PAk obtained.

$$TE_k = \sum ARP_j E_{jk}$$

5. Take measurements of the difficulty level (Dk).

6. Calculate the Effectiveness to Difficulty Ratio (ETDk).

$$ETD_k = TE_k / D_k$$

Perform ETD ranking.

3. Methods

Risk measurement in this study used the SCOR approach. Then, proceed with the 2 stages of the HOR method, namely HOR phase 1 and HOR phase 2. The flow of the research carried out can be seen in Figure 1 below:

The beginning of this research begins with a literature study where the researcher collects all information and reading that is related to the research topic. Literature studies are usually used to support or support researchers in conducting research. Literature usually comes from journals, books, the internet, and research that has been conducted previously.

Field studies aim to study initial conditions in general as a form of introduction to assist in obtaining and collecting information regarding the research topic to be carried out. Field studies were carried out by observation and interviews with PT. AU is the object of research.

At this stage, problem formulation is carried out to explore or search for the problem which is the core of this research. Where this stage usually aims to identify the scope of the problem to be researched. So, the research will focus on problems related to supply chain risk management in catering at PT. AU.

Furthermore, after identifying the risks, validation is carried out with the company to confirm the validity of the risk analysis that has been obtained in literature studies and field studies.

3.1. Data Collection and Data Processing

At this stage, activity mapping is carried out using SCOR. Where SCOR is a model that describes parts of the supply chain. Mapping or description is carried out to provide measurements and observations of the supply chain process as a whole to identify and calculate the weakest link and then provide recommendations for improvement [14].

The data sources used in this research are secondary data and primary data. Where primary data was obtained from the field, then secondary data was obtained from interviews, observations, and questionnaires given to PT. AU son. The respondents for the questionnaire for data collection are as follows:

1. Operational Responsibility.

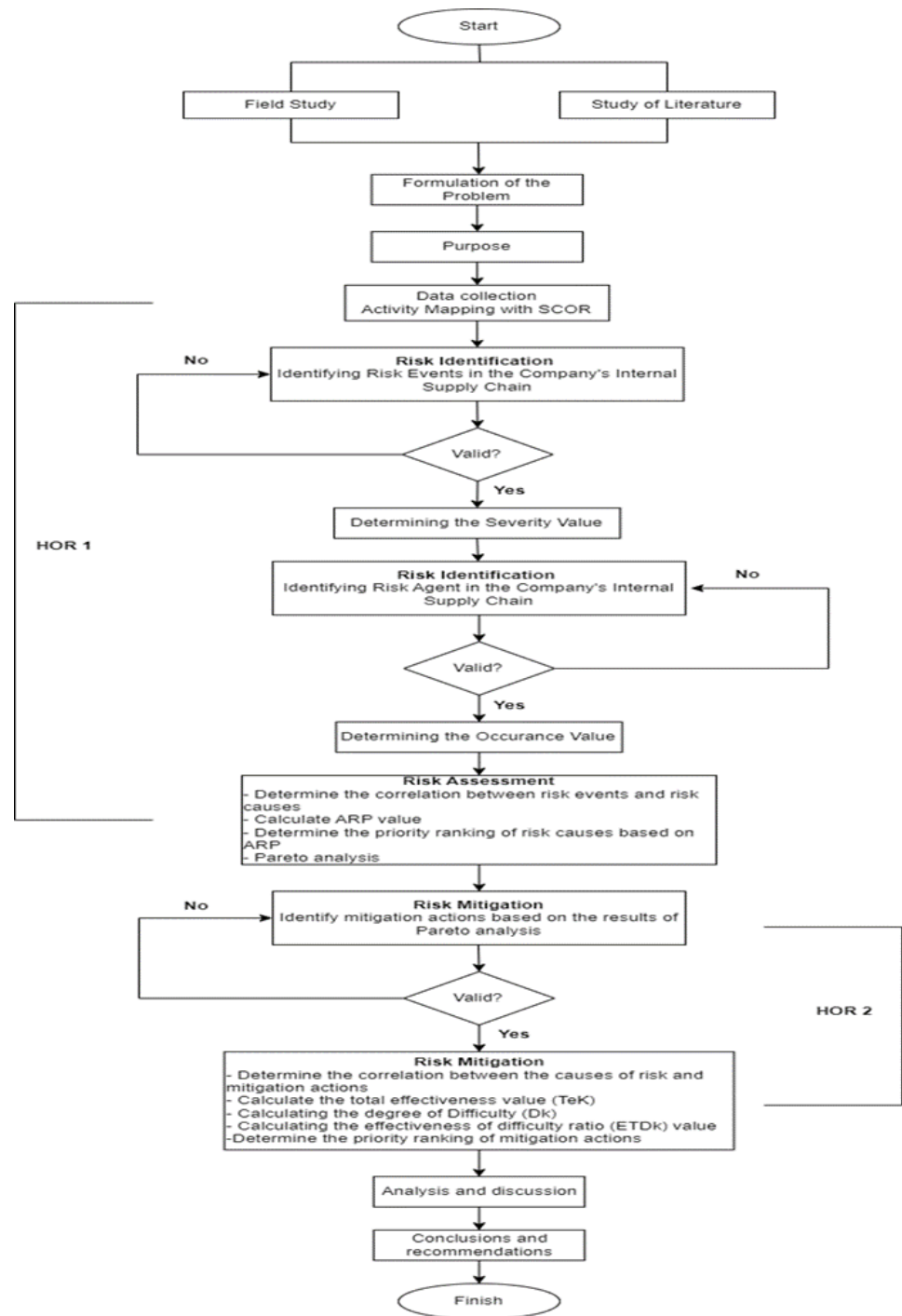


Figure 1: Flow Diagram.

2. Warehouse Staff
3. Procurement Department Staff
4. Production Department Staff
5. Packaging Department Staff
6. Delivery Department Staff.

3.2. Analysis and Discussion

At this stage, an analysis of the results that have been carried out is carried out in the form of identifying what risks may occur, the results of risk calculations, and what control actions or recommendations are good or suitable to be implemented to minimize supply chain risk events at PT. AU.

4. Results and Discussion

After completing the calculation using the HOR method, at least 5 top rankings will be obtained which will then be given recommendations for priority mitigation actions that are expected to reduce the risk.

4.1. PA1 Mitigation Action

PA1 Mitigation Action is a mitigation recommendation with a rating of 4. This mitigation action is expected to help reduce or minimize risks that could occur in:

A17: Increased customer demand

A25: Error in providing data on raw material availability in the warehouse

A18: Customer order input error

A27: Delay in scheduling order delivery time

The mitigation action provided is to develop a system either computer input based or online-based.

Business development in the catering sector that provides product sales services in the form of food and beverages can also utilize information technology to be competitive and more advanced. Conventional catering businesses which usually only target or market products sold around the business location, in areas with limited scope, traditional services, collecting traditional quantities of goods, with service via telephone will be difficult to develop. Therefore, there is a need for innovation by using or developing technology so that the catering business can progress [15].

With the development of the system at PT. AU can be very helpful if there is an increase in customers which usually occurs during holidays or when there is a shutdown when there are lots of orders coming in. Customers don't need to call the company again, but instead the customer fills in an order form which later when the order has been received, will be confirmed again by the company to customers. This can also

help PT. AU to minimize errors in inputting customer orders and errors in scheduling delivery of customer orders which will result in delivery delays.

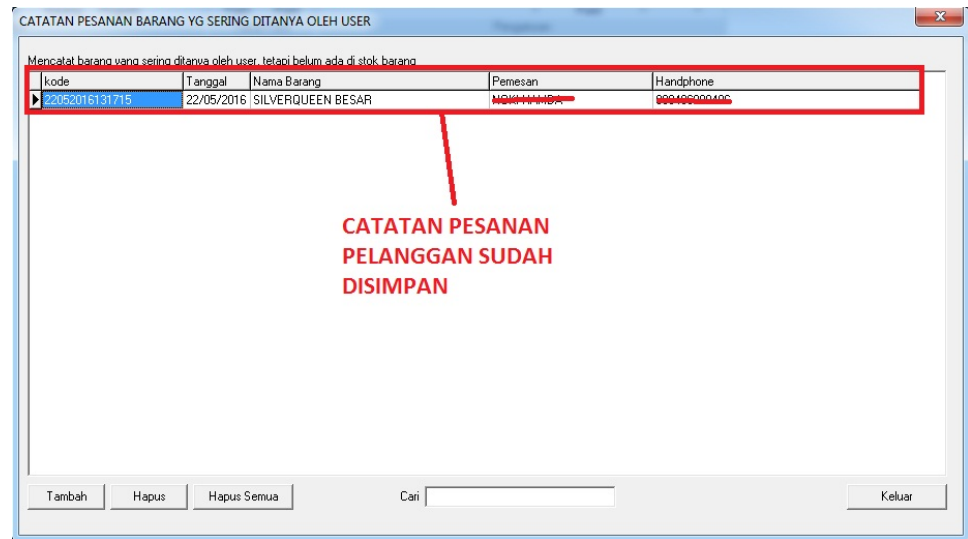


Figure 2:

(a) Examples of recommendations for the development of a booking system by customers

Not only that, this development system can also be very helpful in calculating the availability of raw materials in storage warehouses so that it can minimize errors in providing data on the availability and needs of raw materials.

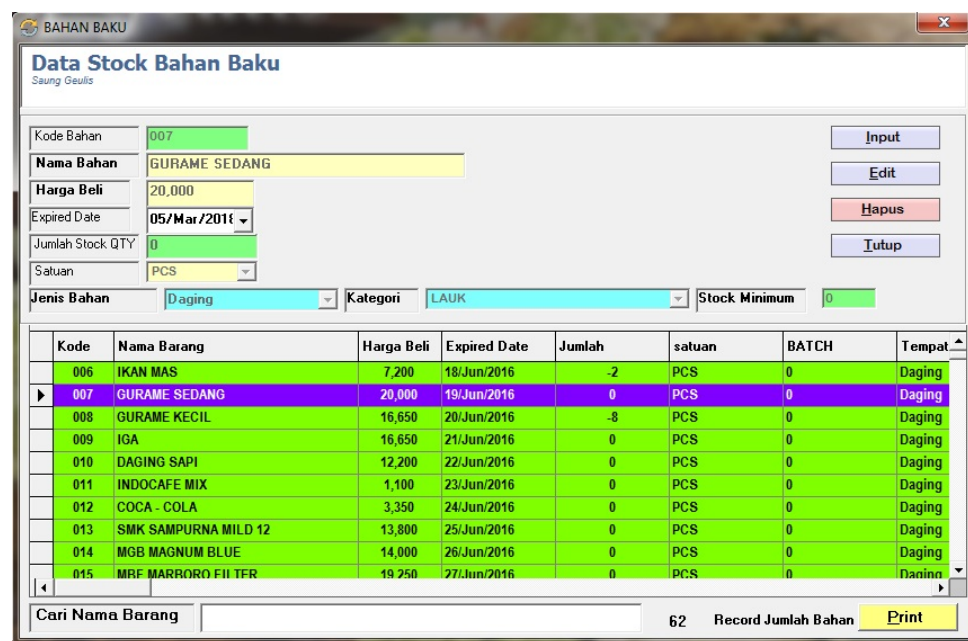


Figure 3:

(b) Examples of Recommendations for the Development of Raw Material Data Implication Systems

The recommendations for control or mitigation actions given in PA1 have a value of 4 or the level of difficulty in implementing them is not easy and is not difficult to carry out or is moderate. The mitigation action provided is to help PT. AU makes it easier for customers to place orders, apart from assisting in compiling data on raw material availability, and inputting customer orders.

4.2. PA2 Mitigation Action

PA1 Mitigation Action is a mitigation recommendation with a rating of 9. This mitigation action is expected to help reduce or minimize risks that can occur in:

A11: Employee productivity decreases (sickness, fatigue, lack of focus)

A22: Orders were not completed on time.

The mitigation action provided is to carry out work monitoring and evaluation.

Supervision is a process to “guarantee” the goals of a company or organization can be achieved. Where, supervision is closely related to how activities or activities can run well according to what is planned and expected [16]. Meanwhile, evaluation plays a key role in employee development and the key to developing employee productivity [17].

The importance of monitoring employee performance is to avoid customer service that will have a major impact on the company. The first step in supervision is planning, setting goals such as standards or targets for an activity. Implementing work supervision can help a company assess whether organization, planning, and direction have been carried out effectively [18]. This is in line with research conducted by Isgar Muhammad Ricky Tumoka in 2018 regarding the increase in work discipline of Sorong City civil servants or civil servants due to supervision of the performance of their employees [19].

The purpose of evaluating employee or employee performance is to assess guaranteed achievement in the form of company goals or targets. Employee evaluation results are useful for increasing satisfaction with employee work results which will indirectly impact customer satisfaction [18].

The recommendations for control or mitigation actions given in PA2 have a value of 3 or in their implementation, the recommendations for mitigation actions are easy to carry out. The mitigation action provided is to help PT. AU in increasing employee performance productivity and increasing customer satisfaction.

4.3. PA3 Mitigation Action

PA3 Mitigation Action is a mitigation recommendation with a rating of 5. This mitigation action is expected to help reduce or minimize risks that can occur in:

A11: Employee productivity decreases (sickness, fatigue, lack of focus)

The mitigation action provided is to provide rewards, punishments, and motivation to move forward to employees.

Human resource management is a very important factor in a company. Therefore, human resources must always be improved to produce effectiveness and efficiency in a company [20]. One way that can be done to improve human resources in a company is to provide motivation, reward, and punishment.

By giving rewards, the company can provide rewards in the form of additional salary or bonuses which are additional rewards outside of the salary given by the company, awards or certificates for the best / most skilled workers within a certain period, promotions, or promotions.

Giving punishment can be in the form of a verbal warning or direct reprimand, written warning in the form of a warning letter depending on how big the error was made by the employee, salary cuts, or termination of employment.

Providing motivation, in the form of incentive motivation, usually employees who are intensively motivated will be easily motivated if something they do gets a large bonus or reward. Attitude motivation is a form of motivation that arises from oneself. Fear motivation is a form of motivation that an employee has that arises because of fear of punishment.

Based on the results of research conducted by Selly Suci Marta Sari and friends, it is stated that motivation, reward, and punishment have a very significant and positive effect on employee performance, with motivation, reward, and punishment it will help employees improve their performance [20].

The recommendations for control or mitigation actions given in PA3 have a value of 3 or the level of difficulty in implementing them is easy to carry out. The mitigation actions provided are to increase employee productivity and performance while working, to minimize errors that can be detrimental to the company.

4.4. PA4 Mitigation Action

PA1 Mitigation Action is a mitigation recommendation with a rating of 7. This mitigation action is expected to help reduce or minimize risks that can occur in:

A2: Increase in raw material prices

The mitigation action provided is to create a new menu.

Business actors today are often confused by the increase in raw material prices, which makes food business actors, especially catering, have to look for ways to ensure that their customers' demands are still met [21].

The strategy that can be implemented by the company is to create a new menu. When creating a new menu, it will divide customer orders so that they are not focused on the menu so that it can provide profits to the company [22].

The recommendations for control or mitigation actions given in PA4 have a value of 3 or the level of difficulty in implementing them is easy to carry out. The mitigation action provided is to help companies deal with the problem of rising raw material prices so that customer demand can be met and the company continues to make a profit.

4.5. PA5 Mitigation Action

PA5 Mitigation Action is a mitigation recommendation with a rating of 6. This mitigation action is expected to help reduce or minimize risks that can occur in:

A2: Increase in raw material prices

A28: Holidays/employee overtime

The mitigation action provided is combining raw materials.

Rising raw material prices often become a problem for businesses operating in the culinary sector, such as the catering business. An increase in the price of certain raw materials can further reduce the profits generated by the company. The increase in the price of chicken raw materials from November 2022 - May 2023 can be seen in Table 2 [23].

TABLE 3: National Breed Chicken Meat Average Data.

No	Month	Average National Breed Chicken Meat (IDR)
1	Nov-22	34.260,56
2	Dec-22	35.909,56
3	Jan-23	37.660,08
4	Feb-23	34.185,88
5	Mar-23	34.554,62
6	Apr-23	35.943,34
7	May-23	38.599,13

Often food companies that want to make a profit that is at least the same as the profit they made before the price of raw materials increased also immediately increase the price of the products they sell. However, this usually happens suddenly, causing customers to be shocked and choose to look for alternatives or other companies. Instead of increasing prices, the alternative that companies can do is combine raw materials, by combining raw materials that have experienced price increases by reducing the quantity or reducing the size of the raw materials and adding other raw materials that have cheaper prices [24].

The recommendations for control or mitigation actions given in PA5 have a value of 3 or the level of difficulty in implementing them is easy to carry out. The mitigation actions provided are to maintain customer satisfaction and continue to meet customer needs.

4.6. Mitigation Actions PA6

PA6 Mitigation Action is a mitigation recommendation with a rating 1. This mitigation action is expected to help reduce or minimize risks that can occur in:

- A5: Urgent order
- A17: Increased customer demand
- A28: Holidays/employee overtime

The mitigation action provided is to carry out good customer demand forecasting calculations.

By forecasting demand, the company can make appropriate plans to face the challenges of customer demand in the future so that the company can quickly take appropriate steps and actions to overcome customer demand. The method for forecasting demand is divided into two, namely short-term forecasting which is usually done to prepare sales policies to increase sales and to carry out appropriate planning so that inventory can match customer demand. The second is the long-term forecasting method which is generally carried out in capital or asset planning [25].

PA6 has a score of 4 or a moderate level of difficulty in application. The mitigation actions provided are to help companies overcome increased customer demand so that the company can meet customer demand.

4.7. PA7 Mitigation Action

PA7 Mitigation Action is a mitigation recommendation with a rating of 2. This mitigation action is expected to help reduce or minimize risks that can occur in:

- A5: Urgent order
- A17: Increased customer demand
- A28: Holidays/employee overtime

The mitigation action provided is determining the quantity of inventory or safety stock.

The benefit of safety stock is that it can determine the right inventory so that it can increase company income and minimize the occurrence of running out of inventory or stock outs. Apart from that, it can provide higher flexibility to the company so that it can help the company to handle sudden orders and increase customer demand [26].

PA7 is almost the same as PA6 because it is both related to increased customer demand and sudden demand, PA7 has a value of 4 or a moderate level of difficulty in implementation. The mitigation action provided is determining safety stock to help the company deal with increasing customer demand so that the company can meet customer demand and minimize the occurrence of stock outs or running out of inventory which can reduce the profits that the company can obtain.

4.8. PA8 Mitigation Action

PA8 Mitigation Action is a mitigation recommendation with a rating of 10. This mitigation action is expected to help reduce or minimize risks that can occur in:

- A11: Employee productivity decreases (sickness, fatigue, lack of focus)
- A9: Delay in payment of customer orders
- A30: Not carrying out regular vehicle inspections and repairs.

The mitigation action provided is updating the SOP.

Employee performance can usually be influenced by several factors, including Standard Operating Procedures (SOP). Standard Operating Procedures are guidelines that are usually used to ensure that an activity or operational activity in a company or organization can run well (Sailendra, 2015).

The implementation of SOP can be said to be good if it can show consistent results regarding performance, balanced arrangements, and service. Without standard standards, a company's operations will be out of control. Implementing good SOPs will

have an impact on good performance because the entire series of activities carried out by employees run properly [27].

The recommendations for control or mitigation actions given in PA8 have a value of 3 or the level of difficulty in implementing them is easy to carry out. The mitigation actions provided are expected to improve the quality, productivity, and performance of employees, apart from that it is hoped that they can become a foundation for employees in their work.

4.9. PA9 Mitigation Actions

PA1 Mitigation Action is a mitigation recommendation with a rating of 14. This mitigation action is expected to help reduce or minimize risks that can occur in:

A16: Power goes out

The mitigation action provided is the purchase of a generator.

Because there are frequent 'power outages in the Soroako area, East Luwu. So the mitigation action recommendations given to PT. AU is purchasing a power generator or generator set (Genset) so that it can prevent production delays and a decrease in the quality of raw materials because the required temperature is not sufficient.



JADWAL PEMELIHARAAN JARINGAN DISTRIBUSI PLN Unit Layanan Pelanggan Malili

No	Tanggal & Waktu	Penyulang/Keypoint	Pekerjaan	Lokasi
1	17 Juni 2023 08.00 – 16.00 WITA*	PMT OUT_WAWONDULA	PENYAMBUNGAN SKTM PT.VALE INDONESIA	Seluruh Kecamatan Towuti

*Waktu padam dapat berubah diluar jadwal apabila terkendala kondisi di lapangan.

Himbauan Keselamatan Ketenagalistrikan (K2)

- Jangan mendirikan bangunan, tiang antenna, atau apabila baliho dekat dengan jaringan listrik (jarak aman 3m dari jaringan listrik)
- Jangan bermain layang-layang di bawah/dekat jaringan listrik
- Jangan melakukan penebangan pohon atau lainnya yang berdekatan dengan jaringan tanpa koordinasi dengan petugas PLN

Info lebih lanjut :



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Figure 4:

(c) Power Outage Notification

The recommendations for control or mitigation actions given in PA9 have a value of 4 or the level of difficulty is medium. The mitigation action provided is to avoid delays in order production and a decrease in the quality of raw materials.

4.10. PA10 Mitigation Action

PA1 Mitigation Action is a mitigation recommendation with a rating of 11. Where this mitigation action is expected to help reduce or minimize risks that can occur in:

A9: Delay in payment of customer orders

The mitigation action provided is the creation of down payment regulations for customer orders before the order is processed.

In this mitigation action, mitigation recommendations are provided in the form of creating regulations for paying down payments for customer orders before the order is processed and regulations for paying off orders according to the agreed deadline or before the order is distributed. Said one PT employee. PT. AU who works in the admin section often experiences delays and backlogs in payments for customer orders.

Therefore, the recommendations for control or mitigation actions given in PA10 have a value of 3 and the level of difficulty in implementing them is easy to carry out. The mitigation actions provided are expected to minimize delays in payment of customer orders which will have an impact on the company.

4.11. PA11 Mitigation Action

PA1 Mitigation Action is a mitigation recommendation with a rating of 12. This mitigation action is expected to help reduce or minimize risks that can occur in:

A30: Not carrying out regular vehicle inspections and repairs.

The mitigation action provided is to carry out routine checks and repairs on vehicles.

The vehicles or fleets used by a company are the wheels that make a company's economy run. Damage to a vehicle can hamper the operation of a company. Maintaining company vehicles can provide benefits to the company in the form of running company operations well [28].

The recommendations for control or mitigation actions given in PA11 have a value of 3 or the level of difficulty in implementing them is easy to carry out. Mitigation actions are provided so that the distribution of customer orders can run smoothly and well.

4.12. PA12 Mitigation Action

PA12 Mitigation Action is a mitigation recommendation with a rating of 3. This mitigation action is expected to help reduce or minimize risks that can occur in:

A25: Error in providing data on raw material availability in the warehouse

A18: Customer order input error

A22: Orders were not completed on time

A27: Delay in scheduling delivery time for customer orders.

The mitigation action provided is to improve communication and coordination between workers.

Several ways can be done to improve communication and coordination between workers, such as holding regular meetings by carrying out activities in the form of evaluations and joint sports which can be done regularly. Apart from that, it creates clear worker roles so that workers can carry out their duties effectively so that workers can focus on doing their work, and coordinate well with other workers [29].

The recommendations for control or mitigation actions given in PA12 have a value of 3 or the level of difficulty in implementing them is easy to carry out. The mitigation actions provided are improving communication and coordination between workers so that they can reduce errors in providing raw material availability data, errors in confirming customer orders, and helping to coordinate the scheduling of delivery of customer orders.

4.13. PA13 Mitigation Action

PA1 Mitigation Action is a mitigation recommendation with a rating of 8. This mitigation action is expected to help reduce or minimize risks that can occur in:

A17: Increased customer demand

A28: Holidays/employee overtime.

The mitigation action provided is to improve communication and coordination with suppliers.

Suppliers or what are often called suppliers are actors who play a role in supplying the company's needs. Having good communication and coordination with suppliers will have a good impact on the company [30].

The recommendations for control or mitigation actions given in PA13 have a value of 3 or the level of difficulty in implementing them is easy to carry out. The mitigation action provided is to improve relations between companies and suppliers.

4.14. PA14 Mitigation Action

PA14 Mitigation Action is a mitigation recommendation with a rating of 5. This mitigation action is expected to help reduce or minimize risks that can occur in:

A11: Employee productivity decreases (sickness, fatigue, lack of focus).

The mitigation action provided is to carry out regular health checks or medical check-ups for workers.

Conduct regular medical check-ups for workers so that the company benefits from a healthy workforce, physically and mentally. By carrying out MCU regularly you can support company and workforce productivity. The benefits that can be felt by the company can be in the form of improving the company's image, being able to retain the best worker talent, and reducing worker absenteeism due to illness or injury [31].

PA14 has a score of 3 or a level of difficulty that is easy to implement. The mitigation action provided is to carry out health checks or medical check-ups to increase worker productivity.

4.15. Managerial Implications

After completing the entire series of calculations using the House of Risk method, according to the results, a ranking or priority has been obtained for the implementation of mitigation actions that can be implemented by PT. AU. The first or highest priority ranking is that the company must carry out good raw material forecasting calculations. Next, the second-ranking is that the company must determine safety stock in case there is an increase in customer orders or sudden customer orders. Third, there must be improved communication and coordination between workers. Fourth, the company must carry out system development (computer-based/online). In this fifth rank, 2 mitigation actions have the same final value, the mitigation action that is recommended is providing rewards, punishments, and motivation to progress to employees, then the action with the same priority ranking is carrying out regular health checks (medical check-ups) for all employees.

The Sixth is combining raw materials. Seventh is creating a new menu. The Eighth is to improve communication and coordination with suppliers. Next is the ninth rank,

namely the need for work supervision and evaluation. Then the tenth is updating the SOP. The eleventh is to create down payment regulations for customer orders before the order is processed. The twelfth ranking is the need for regular or periodic checks on distribution vehicles. Then the priority ranking for carrying out the final mitigation action is purchasing a power generator (genset).

Ranking the priorities for implementing mitigation actions, it can help companies minimize the occurrence of risk events that will be detrimental to the company, where in this research the company referred to is a company operating in the catering food business, namely PT. AU

5. Conclusion

Based on the results of data processing and after analyzing the results obtained, it can be concluded:

After identifying risks using the SCOR method according to activity mapping in the plan, source, make, deliver, and return sections. So there are 48 risk events and 30 risk causes. Then, after calculating the ARP value using Microsoft Excel, we obtained a priority ranking for the causes of risk, namely A5 (sudden orders), A11 (decreased worker productivity), A17 (increased customer demand), A2 (increased raw material prices), A25 (errors in providing raw material availability data), A28 (Holidays, employee overtime, company shutdown), A9 (delay in payment of customer orders), A16 (power outages), A16 (customer order input errors), A27 (delay in scheduling delivery of customer orders), A30 (not carrying out regular vehicle inspections and repairs), A1 (late arrival of raw materials), A22 (orders cannot be completed on time).

Recommended control or mitigation actions recommended for PT. AU, according to the calculations that have been carried out, the priority ranking for irrigation actions is PA6 (carrying out calculations for forecasting customer demand well), the second is PA7 (determining the quantity of inventory just in case/Safety stock), PA12 (improving communication and coordination between workers), PA1 (developing computer-based and online systems), PA3 (providing rewards, punishment, and motivation to progress to workers) PA14 (carrying out regular medical check-ups for workers), PA5 (combining raw materials), PA4 (creating new menus), PA13 (improving communication and coordination with suppliers), PA2 (carrying out monitoring and evaluation), PA8 (updating SOPs), PA9 (purchasing generators), PA10 (making regulations for payment of customer orders before orders are processed), PA11 (carry out routine checks and repairs on distribution vehicles).

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