

STRATEGY OF OPERATIONAL RISK MANAGEMENT AT PT XYZ

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ABSTRACT: In the context of an organisation/company or business, operational scope is very important, including all risks. PT XYZ continues to demonstrate performance metrics with a compliance rate of less than 100% in the conduct of its business and is considered a risk in the Company's operational framework. Therefore, the purpose of this research is to propose improvement or control solutions to reduce operational risk and recommend the risk management ISO 31000 version of treatment. In principle, 2 (two) calculation steps were performed in this study, namely before and after providing repair solutions. The methods used are Failure Modes and Effects Analysis (FMEA) and risk matrix, Pareto charts are used to rank risks from highest to lowest, and fishbone diagrams to analyze repair solutions. As a result, the total risk score becomes R8 = 2.40 to 1.60, followed by a decrease from R2 = 0.96 to 0.16, R1 = 0.36 to 0.24, R6 = 0.108 to 0.03, R7 = 0.108 to 0.03, R4 = 0.096 to 0.02, R3 = 0.06 to 0.02 and R5 = 0.036 to 0.02. From the categorization of the risk matrix there is then also a decrease in impact which originally had 5 (five) low risk categories to 6 (six) risks, then 1 (one) medium risk and the remaining 1 (one) extreme risk. In accordance with ISO 31000:2018 risk management recommendations that risk before control, namely accepting risk is applied to 5 (five) risks, risk mitigation is applied to 1 (one) risk, avoiding risk is applied to 2 (two) risks. Risk after control, namely accepting risk is applied to 6 (six) risks, risk mitigation is applied to 1 (one) risk and risk avoidance is applied to 1 (one) risk.

Keywords: operational risk, FMEA, risk matrix, pareto diagram, fishbone diagram.

1. Introduction

In the business world, you must face uncertainty. This element of uncertainty often results in a loss, this occurs due to a lack of information about what will happen. This is a universal trait, almost always present in all aspects of human life. As we all feel, in the last few years we have been hit by the Covid-19 pandemic where many companies have been affected. Losses from this element of uncertainty (risk) can manifest in various ways, both in terms of finance, law, technology, employment, policy, operational, political, social and so on. For this reason, in order to overcome all risks that may occur, a process called risk management is needed.

PT XYZ is a petrochemical company with a vision and mission: "to become a world-class petrochemical and energy company, to run an integrated petrochemical and energy commercial business based on principles of integrity". However, later in the operational process there were still risks that had quite an impact on the management of the business unit. Supposedly

with the mission of becoming a world-class company, it is appropriate that all existing risks can be eliminated by implementing the principle of continuous improvement. Based on the results of observations, the following data show that in the last 2 (two) years performance indicators with an achievement score of less than 100% are still found within the operational scope of PT XYZ.

Table 1 Performance Indicators Not Achieved in 2020-2021

No	Indicators	%
1	Audit Internal, External and ISO	96.69
2	Restorative Capex	99.30
3	CSR Program	37.60
4	Performance Management	89.20

Source: Data processing, 2022.

2. Methodology

Broadly speaking, the stages carried out are divided into two stages of the research flow,

namely the analysis stage with FMEA (Failure Mode and Effect Analysis) and Risk matrix mapping analysis, followed by corrective steps using Fishbone Diagram and Pareto Diagrams. In the analysis using FMEA, a value in the form of RPN (Risk Potential Number) will be obtained for each risk, then for Risk matrix analysis, the impact category for each risk will be obtained. For the improvement stage, namely using a Fishbone diagram, namely brainstorming about each risk. By doing brainstorming, various points of view regarding existing operational risks will be obtained, so as to get a solution to the problem. After the proposed control (solution/further action and monitoring) has been carried out, the researcher then performs calculations again to be able to analyze the results before and after control is carried out.

3. Results

From the observation results, it was found that Operational GM KPI (Key Performance Indicators) data for 2022 which had not been achieved were then identified as operational risks which were divided into several categories or sections according to the main performance indicators or sections in PT XYZ, as well as to facilitate handling and making risk register as in the following table.

Table 2 Performance Indicators That Have Not Been Achieved in 2022

No.	Key Performance Indicators	Section
1	Company Performance Achievement Results	Economy
2	Management of Production/Service Processes	Production
3	Business Development	Quality Management
4	Improvement in Employee Performance	Human Capital

Source: Data processing, 2022.

Furthermore, the risks can be identified from each existing section as shown in table 3. Then the risk weighting stage is the result of the weighting that was previously carried out by the company's management based on the grouping or main performance indicators in the company's operational department. The weighting results that have been set are as shown in table 4.

Table 3 Risk Identification in 2022

No.	Section	Risk No.	Risk Event
1	Production	R1	Internal and External ISO Audit targets were not achieved
2	Quality Management	R2	The Restorative Capex Expenditure Realization Percentage Target was not achieved
		R3	The construction of 9 units of Uninhabitable Houses & Healthy MCK hasn't been completed
		R4	Street lamp repairs from Pereng-Gate 5 have not been realized
		R5	BNSP-certified Middle K3 training has not yet been implemented
		R6	BNSP certified Welding & Scaffolding training has not yet been implemented
		R7	The development of village tourism potential has not yet been implemented
3	Human Capital	R8	Target supervisory process for the company is not achieved

Source: Data processing, 2022.

Table 4 Risk Weighting

Sect. No.	Section	Weighting (%)	Weighting Section
1	Economy	30	0,3
2	Production	40	0,4
3	Quality Management	22	0,22
4	Human Capital	8	0,08

Source: Data processing, 2022.

Furthermore, from the risk weighting in each of these sections, it can be cascaded again for each of the existing subsections, then from these subsections there are several more items. To make it clearer, the following is shown in table 5 below.

Table 5 Subsection Weighting Risk

Sect. No.	Item	(%)	Item	Value
2	Audit Internal, External and ISO	2	0,02	0,02
3	Restorative Capex	2	0,02	0,02
3	CSR Program	2	0,02	0,004
4	Accuracy of Performance Management	4	0,04	0,04

Source: Data processing, 2022.

3.1 Failure Mode and Effect Analysis

After knowing the weight value of each section, the next step is to calculate the total risk value with the equation: **NTR = RPN x NB**

Where: NTR = Total Risk Value,
RPN = Risk Potential Number,
NB = Weight Value.

The calculation is divided into two, namely the calculation before the control and after the control is carried out as presented in the following table.

A. Risk Before Control

Table 6 RPN Before Control

Risk No.	Occurrence	Severity	Detection	RPN
R1	2	3	3	18
R2	4	4	3	48
R3	1	3	5	15
R4	2	3	4	24
R5	1	3	3	9
R6	3	3	3	27
R7	3	3	3	27
R8	3	4	5	60

Source: Data processing, 2022.

B. Risk After Control

Table 7 RPN After Control

Risk No.	Occurrence	Severity	Detection	RPN
R1	1	3	4	12
R2	1	4	2	8
R3	1	2	3	6
R4	1	2	2	4
R5	1	2	2	4
R6	2	2	2	8
R7	2	2	2	8
R8	2	4	5	40

Source: Data processing, 2022.

Then for more details the comparison (Total Risk Value) before and after can be seen in table 8 below.

Table 8 Comparison of Total Risk Value before and After Control

No.	Risk No.	Before Control		
		RPN	Weighting	Total Risk Value
1	R1	18	0,02	0,36
2	R2	48	0,02	0,96
3	R3	15	0,004	0,06
4	R4	24	0,004	0,096
5	R5	9	0,004	0,036
6	R6	27	0,004	0,108
7	R7	27	0,004	0,108
8	R8	60	0,04	2,40

Continued Table 8

No.	Risk No.	After Control		
		RPN	Weighting	Total Risk Value
1	R1	12	0,02	0,24
2	R2	8	0,02	0,16
3	R3	6	0,004	0,02
4	R4	4	0,004	0,02
5	R5	4	0,004	0,02
6	R6	8	0,004	0,03
7	R7	8	0,004	0,03
8	R8	40	0,04	1,60

Source: Data processing, 2022.

From the results of the calculation of the NTR (Total Risk Value) above, it can be seen that there is a decrease after control is carried out by providing solutions, follow-up actions and monitoring.

3.2 Pareto Diagram

Furthermore, after obtaining the Total Risk Value, the next step is to enter the Pareto Diagram creation stage where a ranking order of the existing risks will be carried out. So that it is clear that there is a change from what was before the risk control was carried out and after the risk control was carried out.

A. Risk Before Control

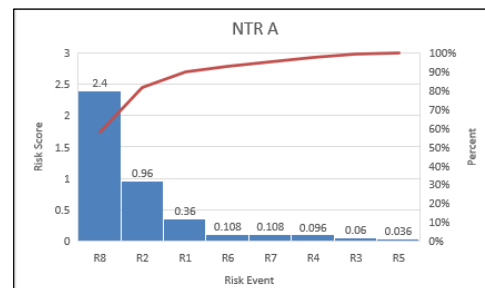


Figure 1 Pareto Chart Before Control (FMEA)
Source: Data processing, 2022.

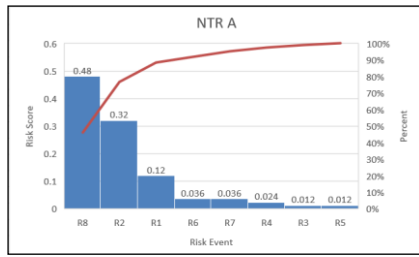


Figure 2 Pareto Chart Before Control (Risk Matrix)

Source: Data processing, 2022.

B. Risk After Control

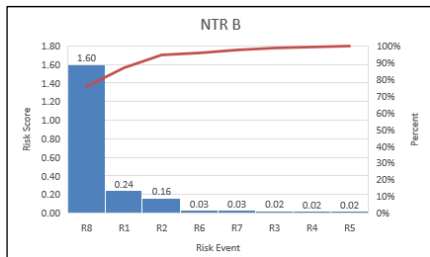


Figure 3 Pareto Chart After Control (FMEA)

Source: Data processing, 2022.

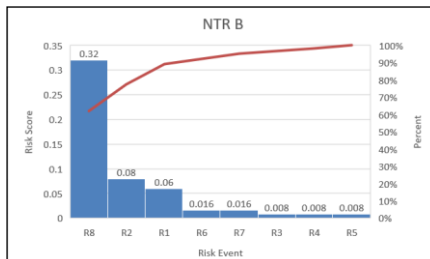


Figure 4 Pareto Chart After Control (Risk Matrix)

Source: Data processing, 2022.

So, from the above calculation, there has been a 51.36% (FMEA) and than 49,62% (Risk Matrix) decrease in overall risk in PT XYZ. To make it clearer, the following table 9 summarizes the percentage reduction in risk.

Table 9 Recapitulation of Risk Reduction Percentage (FMEA)

No.	Risk No.	NTR A	NTR B	Reduction Percentage
1	R1	0,36	0,24	66,67%
2	R2	0,96	0,16	16,67%
3	R3	0,06	0,02	33,33%
4	R4	0,096	0,02	20,83%
5	R5	0,036	0,02	55,56%
6	R6	0,108	0,03	27,78%
7	R7	0,108	0,03	27,78%
8	R8	2,4	1,6	66,67%
Total		4,128	2,120	51,36%

Source: Data processing, 2022.

Table 10 Recapitulation of Risk Reduction Percentage (Risk Matrix)

No.	Risk No.	NTR A	NTR B	Reduction Percentage
1	R1	0,12	0,06	50,00%
2	R2	0,32	0,08	25,00%
3	R3	0,012	0,008	66,67%
4	R4	0,024	0,008	33,33%
5	R5	0,012	0,008	66,67%
6	R6	0,036	0,016	44,44%
7	R7	0,036	0,016	44,44%
8	R8	0,48	0,32	66,67%
Total		1,040	0,516	49,62

Source: Data processing, 2022.

3.3 Fishbone Diagram

Fishbone diagram (Ishikawa Diagram) or also called Cause effects analysis can help to find the root of the problem and at the same time find a solution immediately. By doing brainstorming, various points of view regarding existing operational risks will be obtained, so as to get a solution to the problem. Improvement Solution is the result of mapping converted into Cause effects analysis/Fishbone Diagram. The following will be reviewed as shown in the figure and then tabulated as shown in Figure 3 below.

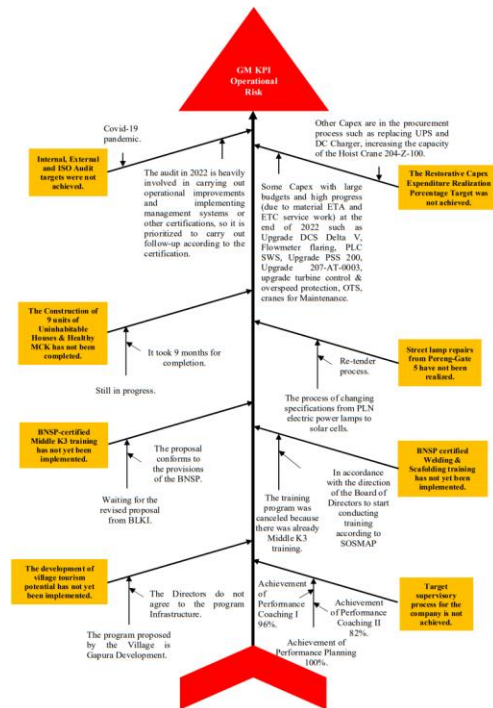


Figure 5 Operational KPI Fishbone Diagram

Source: Data processing, 2022.

Matrices and vectors are in boldface type. (If these cannot be typed in italic and boldface, italic type can be indicated by a hand-drawn straight underline and boldface by a wavy underline). Unusual and Greek symbols should be typed in the text using the Symbol capability. If no Symbol capability is possible, such special characters

should be identified by name in a marginal note. (This is important; the editor may be not familiar with these symbols and may have difficulty producing the correct one without a marginal note.) For equations that might be too long to type in a 6" column, indicate appropriate breaks.

Table 11 Solution

Factor	Problem	Solution	further action	
			Action	PIC
Man	Internal, External and ISO Audit targets were not achieved. Covid-19 pandemic	An email was sent regarding the call for the implementation of the 2022 Audit Findings Follow-up to all assembled units, so that it was carried out according to the agreed time and it would be better if it was carried out without crossing the year.	<ul style="list-style-type: none"> • Sending emails to related work units. • Conducting reminders for each person in charge of the Audit. 	All Related Managers & IA
Environment				
Material Machine	The Restorative Capex Expenditure Realization Percentage Target was not achieved.	<ul style="list-style-type: none"> • Accelerating the progress of an ongoing project • Accelerating the tender process for capex items. 	<ul style="list-style-type: none"> • Regular coordination meetings are held with related work units & contractors once a week • Coordinate regularly with VP Procurement so that tender documents that require BOD approval can immediately get approval and speed up several tenders procurement. 	EngDev/ Relita/ UOM/ HSSE/ Prod/ MNT/ Proc
Method Environment	The construction of 9 units of Uninhabitable Houses & Healthy MCK has not been completed.	Monitoring and coordinating with the job recipient to carry out work with an easy priority scale first.	Supervise the implementation of work strictly so that it is completed according to the specified time target.	PR & CSR S/H
Material Metode	Street lamp repairs from Pereng-Gate 5 have not been realized.	Create a new PR, RKS and HPS.	Follow up the tender process in Procurement.	PR & CSR S/H
Man Method	BNSP-certified Middle K3 training has not yet been implemented.	Coordination of proposal completion and immediate submission of IOM to BOD.	Submission of IOM to the Board of Directors, implementing programs and preparing implementation reports.	PR & CSR S/H
Man Method	BNSP certified Welding & Scaffolding training has not yet been implemented.	Switch to the Tourism development Training program.	Requesting proposals to Unair and submitting IOM to the Board of Directors, Conducting training and reporting.	PR & CSR S/H
Man Environment	The development of village tourism potential has not yet been implemented.	The budget will be diverted to the Beach/Tourism Area Greening Program and Trash Aid.	Submission of IOM to the Board of Directors, implementing programs and preparing implementation reports.	PR & CSR S/H
Man Method	Target supervisory process for the company is not achieved.	Maximizing the 2nd Performance Coaching with a target of 95-100%.	<ul style="list-style-type: none"> • HC has issued an announcement on the implementation of Performance Coaching II. • Ensuring that all heads of Function lines to their subordinates carry out the Performance Coaching process steps (approve to HR Online). 	All related Managers & HC.

Source: Data processing, 2022.

3.4 Risk Matrix

As in the previous calculation, after knowing the weight value of each section/item, the next step is to calculate the total risk value with the equation: **NTR = L x C x NB**

Where: NTR = Total Risk Value,
L = Likelihood,

C = Consequences,
NB = Weight Value

So that from the calculation equation, the Total Risk Value is obtained before risk control (solutions, follow-up actions and monitoring) is carried out, from each subsection/item as shown in table 12 below.

Table 12 Comparison of Total Risk Value Before and After Control

No.	Risk No.	Before Control				Category
		L	C	NB	NTR	
1	R1	2	3	0,02	0,12	Medium
2	R2	4	4	0,02	0,32	Extreme
3	R3	1	3	0,004	0,012	Low
4	R4	2	3	0,004	0,024	Low
5	R5	1	3	0,004	0,012	Low
6	R6	3	3	0,004	0,036	Low
7	R7	3	3	0,004	0,036	Low
8	R8	3	4	0,04	0,48	Extreme

Continued Table 12

No.	Risk No.	After Control				Category
		L	C	NB	NTR	
1	R1	1	3	0,02	0,06	Low
2	R2	1	4	0,02	0,08	Medium
3	R3	1	2	0,004	0,008	Low
4	R4	1	2	0,004	0,008	Low
5	R5	1	2	0,004	0,008	Low
6	R6	2	2	0,004	0,016	Low
7	R7	2	2	0,004	0,016	Low
8	R8	2	4	0,04	0,32	Extreme

Source: Data processing, 2022.

3. Conclusions

From the results of the research and discussion conducted on KPI (Key Performance Indicators) General Manager Operations, it can be concluded that:

1. During the data collection process, there were 8 (eight) risks (Risk Events) divided into 3 (three) main performance categories or indicators that occurred in operational KPIs (Key Performance Indicators) at PT XYZ.
2. After analyzing the risks that occur in the operational KPI (Key Performance Indicators) at PT XYZ in accordance with the Total Risk Value, it can be seen that the risk that has the greatest impact on operational sustainability is the category subsection/item Accuracy of Performance Management followed by Internal Audit, External & ISO, Restorative Capex and CSR Program.
3. The calculation is divided into 2 (two) calculation methods where the first calculation method is using FMEA so that the Total Risk Value is obtained, then the Probability & Impact Matrix calculation method is also used to obtain the Total Risk Value which is then converted into a risk matrix to risk mapping based on risk level or category.
4. Of all the existing risks, control, solutions/follow-up actions and monitoring or supervision were given and according to the

results of the discussion it succeeded in reducing operational risk at PT XYZ.

5. In accordance with ISO 31000:2018 Risk Management recommendations that based on the level of risk, risk treatment is divided into 4 (four) treatments according to the priority level of risk, which are as follows:

A. Risk Before Control

- a) Accepting Risk (Risk Acceptance) is applied to 5 (five) risks.
- b) Risk Mitigation (Risk Reduction) is applied to 1 (one) risk.
- c) Transfer of risk (Risk Sharing) there is no risk.
- d) Risk Avoidance is applied to 2 (two) risks.

B. Risk After Control

- a) Accepting Risk (Risk Acceptance) is applied to 6 (six) risks.
- b) Risk Mitigation (Risk Reduction) is applied to 1 (one) risk.
- c) Transfer of risk (Risk Sharing) there is no risk.
- d) Risk Avoidance is applied to 1 (one) risk.

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