ANALYSIS OF SAFETY CULTURE MATURITY IN THE IMPLEMENTATION OF THE OCCUPATIONAL SAFETY AND HEALTH MANAGEMENT SYSTEM AT PT XYZ

Alfian Fakhri [1]
Universitas Pembangunan Nasional "Veteran" Jawa Timur, Surabaya, Indonesia
20032010097@student.upnjatim.ac.id

Tranggono [2]
Universitas Pembangunan Nasional "Veteran" Jawa Timur, Surabaya, Indonesia
tranggono.ti@upnjatim.ac.id

Rizqi Novita Sari [3]
Universitas Pembangunan Nasional "Veteran" Jawa Timur, Surabaya, Indonesia
rizqi.novita.ti@upnjatim.ac.id

Abstract

PT XYZ is a company engaged in the energy sector in Indonesia. Based on the company's 2020-2023 report, minor work accidents occurred with the highest frequency and increased in 2021 and 2022. Moderate work accidents increased in 2023 and serious work accidents increased in 2021. The number of work accidents that occurred from 2020 to 2023 in the company remained relatively high. This indicates that OHS management is a crucial concern, so that it can reduce the number of work accidents. Therefore, this study aims to measure the level of maturity of occupational safety culture (OHS) so that it can be used as evaluation material or recommendations for OHS management in the company. This study will consider psychological, behavioral, and situational aspects and use seven dimensions: commitment, information & communication, leadership, organizational learning, competence, involvement & engagement, and responsibility, as well as a quantitative approach through the Analytic Hierarchy Process (AHP) method. The results of the study indicate that the level of maturity of XYZ's safety culture is 4.48, so the company is at the proactive safety culture maturity level. The proposed improvement recommendations are to ensure that the condition of PPE and work safety equipment is functioning properly, create SOPs for each position, hold regular briefings before each job is carried out, conduct work area inspections, install warning signs and safety information in the work area, document all work that has been done, conduct work safety training according to each worker's job description periodically, and hold regular meetings about the importance of K3.

Keywords: Safety Culture Maturity, Health, AHP

INTRODUCTION

Occupational safety is a state of physical, mental, financial, and social well-being, free from threats of factors that cause economic and health losses. In addition to safety, occupational health is also very important. Occupational safety is an important thing that must always be considered in carrying out various activities that have risks that can threaten the life or safety of oneself or others (Aziz & Djunaidi, 2022). In the industrial world, occupational safety and health are matters that must be considered. Occupational safety and health is one of the important aspects in industrial relations that is a concern and commitment to be implemented by all tripartite elements, including the government, employers, and trade unions (Devi & Trianasari, 2021). The Occupational Safety and Health Management System is one of the overall management systems (Magfirona et al., 2022). The Occupational Safety and Health Management System is also an integral part of the labor protection system. However, in reality, the implementation of the Occupational Safety and Health Management System in general is still often neglected. This is indicated by the still high number of work accidents that occur in companies.

PT XYZ is a company engaged in the energy sector engaged in the generation, system control, and distribution of energy in East Java (Rianawati, 2020). Work accidents at PT XYZ are divided into three types, namely minor work accidents, moderate work accidents, and serious work accidents. Minor work accidents include slips, impacts, minor electric shocks, and minor injuries due to equipment. Moderate work accidents include falls from ladders, moderate electric shocks, motor vehicle accidents, and being hit by tree trunks. Serious work accidents include falls from electric poles, high current electric shocks, being hit by transformer explosions, and being hit by heavy equipment.

According to the company's 2020-2023 report, the number of work accidents that occurred in the company can be seen in Figure 1.

Figure 1.
Company Work Accident Data

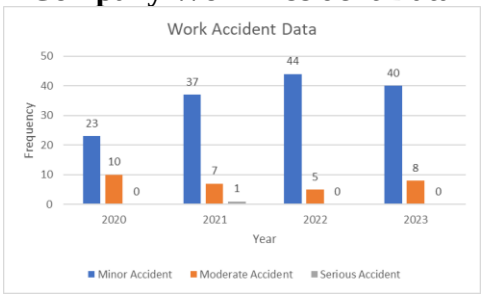


Figure 1 shows the number of workplace accidents from 2020 to 2023. Figure 1 shows that minor workplace accidents had the highest frequency and increased in 2021 and 2022. Moderate workplace accidents increased in 2023, and serious workplace accidents increased in 2021. The number of workplace accidents occurring in the company from 2020 to 2023 remained quite high. This indicates that OHS management is a crucial concern, thus reducing the number of workplace accidents. One effective way to improve OHS management performance is to cultivate it, commonly known as a safety culture.

Therefore, this study will measure the level of safety culture maturity that is appropriate to the company's conditions. The measurement of safety culture maturity will consider psychological, behavioral, and situational aspects and use seven dimensions:

commitment, information & communication, leadership, organizational learning, competence, involvement & engagement, and responsibility. The measurement will use the AHP (Analytical Hierarchy Process) method which contains a priority scale. The results of this study will explain the level of safety culture maturity and can be used as evaluation material or recommendations for OHS management in the company. Thus, it can reduce the number of workplace accidents.

REVIEW OF LITERATURE

Occupational Health and Safety

Safety is a vital aspect in all industrial sectors because it concerns human well-being and life. Safety has become a social and moral responsibility (Aziz & Djunaidi, 2022). Occupational safety means the process of planning and controlling situations that have the potential to cause workplace accidents through the development of standard operating procedures that serve as a reference in work. Occupational safety is related to workplace accidents, namely accidents that occur in the workplace or are known as industrial accidents. This industrial accident can generally be defined as an unexpected and undesirable event that disrupts the processes that have been regulated in an activity (Sari et al., 2022).

The Occupational Safety and Health (K3) program is designed to ensure the safety of all workers, ensuring they comply with all occupational safety and health (K3) laws and regulations, and preventing injury or illness while working. This is reflected in changing attitudes toward workplace safety. K3 is essential for understanding and implementing in companies, especially in employment. This relates to protecting workers from workplace accidents. To minimize workplace accidents, understanding and implementing K3 within a company needs to be properly and correctly socialized (Devi & Trianasari, 2021).

Occupational Health and Safety Management System

The Occupational Safety and Health Management System (SMK3) is an overall management system, encompassing work control and activities. Relevant risks are essential for establishing a safe and effective foundation for formulating, implementing, evaluating, and maintaining the organizational structure, responsibilities, implementation, procedures, and productive workplaces required for occupational safety and health policies. The ideal OHS Management System is one that is no longer imposed but embedded as a corporate culture. The safety culture that operates within a company can certainly be measured, one way being by assessing the level of safety culture maturity or the level of maturity or maturity of the safety culture (Devi & Trianasari, 2021).

ISO 45001:2018 is an international standard that specifies requirements for occupational safety and health or SMK3, with guidance for its use that enables an organization to proactively improve SMK3 performance in preventing work-related injuries and illnesses. (Ginting et al., 2022). ISO 45001 has proven effective in increasing performance, Occupational Safety and Health (K3), and productivity company. ISO 45001 provides a framework Work systematic and comprehensive that allows organizations to find danger, assess risks, and implement appropriate control to prevent accidents and illnesses consequence Work (Ramadani et al., 2025).

Safety Culture Maturity

The term safety culture first appeared in a report prepared by the International Atomic Energy Agency (IAEA) following the nuclear accident known as the Chernobyl disaster in 1986. The IAEA defines safety culture as the characteristics and attitudes within organizations and individuals that place safety as a top priority (Aziz & Djunaidi, 2022). This concept and maturity model represent an innovation in occupational safety research and have been applied in the development of occupational safety cultures in high-risk companies such as petrochemicals, oil and gas, electricity, even aviation and mining companies. Therefore, the concept of occupational safety and health is developed in the business culture and philosophy of the organization as a whole (Supriadi et al., 2022).

The maturity level of safety culture is divided into 5 (five) levels: pathological, reactive, calculative, proactive, and generative. The explanations are as follows:

1. Pathologically, safety is an employee-driven issue. The primary factors are business and the desire to avoid regulation.
2. Reactive, organizations gradually take safety seriously but only take action after an incident occurs.
3. Calculative, where safety is driven by a management system with data collection. Safety is still primarily driven by management and is not yet natural, not something employees themselves seek.
4. Proactive, that is, improving performance and challenges begin to emerge, employees begin to move and take initiatives, not just from a top-down approach.
5. Generative, Employees actively participate at all levels. Safety is an integral part of the business (Imandiya et al., 2024)

Analytical Hierarchy Process (AHP) Method

The Analytical Hierarchy Process (AHP) is a decision-making method developed by Thomas Saaty to prioritize alternatives when multiple criteria must be considered, and allows decision-makers to organize complex problems into a hierarchy or set of integrated levels (Pratama, 2023). The Analytical Hierarchy Process (AHP) is useful for providing decision-makers with qualitative and quantitative assessments. AHP prioritization uses the following basic principles:

1. Decomposition
2. Comparative assessment
3. Priority synthesis
4. Logical consistency

(Sudradjat et al., 2020)

RESEARCH METHOD

The data used includes primary and secondary data. Data collection was conducted through observation, interviews, literature review, and documentation. The instrument used was a quantitative approach using the AHP method. The problem-solving steps in this research are:

1. Beginning

This stage is the initial stage for researchers to conduct research, such as managing data collection permits from the company, creating a pre-thesis proposal, managing the administration of submitting the thesis topic to the study program, and getting a supervisor.

2. Identification of problems

This stage involves identifying problems within the company and finding solutions. This stage utilizes interviews, previous research, and field observations.

3. Literature Study

This stage aims to obtain and gather information regarding the relevant problem. Information is obtained from literature such as books, journals, or previous research relevant to the research being studied to identify theories and concepts that will assist in solving the problem.

4. Field Study

This stage aims to determine the actual situation in the company related to the problem being studied and to obtain data to be used in problem-solving. The focus of the field study is on the implementation of safety culture within the company through direct observation, namely conducting routine field inspections.

5. Formulation of the problem

The problem formulation that will be the main discussion in this research is the level of maturity of safety culture towards the implementation of the occupational safety and health management system at PT XYZ.

6. Research purposes

This study aims to measure the level of safety culture maturity and provide recommendations for improvements related to the condition of safety culture maturity at PT XYZ.

7. Variable Identification

The variables used in this study are independent variables and dependent variables. Independent variables are variables that influence the value of the dependent variable. The independent variables in this study include commitment, leadership, responsibility, involvement, information & communication, organizational learning, and competence. The dependent variable is a variable that is influenced by or is a result of the existence of the independent variable. The dependent variable in this study is the level of safety culture maturity.

8. Questionnaire Item Preparation

The questionnaire was developed based on predetermined variables, taking into account three aspects. This study used two types of questionnaires. The first questionnaire was the safety culture maturity questionnaire. This questionnaire aimed to measure the level of maturity of the company's safety culture. The safety culture maturity questionnaire consisted of 30 questions, with answers converted to a Likert scale. The second questionnaire was a weighting questionnaire. This questionnaire aimed to determine the priority scale of three aspects: psychological, behavioral, and situational.

9. Evaluation of Questionnaire Items

If there are questions that are not valid and reliable, then the questions must be replaced or deleted.

10. Data collection

Data collection will be used to solve the problem through a questionnaire of respondents' answers. The sample of respondents selected was managerial work units and work units with potential hazards in the work area. This will result in work units representing the maturity value of safety culture: managers, K3L, supervisors, maintenance services, and technical services.

The Slovin method was used to calculate the sampling method because it provides a minimum sample size that is still representative of a known population. The sampling method used was cluster sampling. The sampling process was grouped by work unit, with the number of respondents in each work unit based on the proportion of employees in that work unit to the respondent population.

11. Data processing

After data collection, data analysis was conducted to resolve the existing problems. Data processing included data adequacy testing, data validity testing, data reliability testing, and safety culture maturity calculations. Data adequacy testing was used to determine whether the number of data samples taken was sufficient for the subsequent data processing. Data validity testing was conducted to measure the validity of the questionnaire for each attribute in the distributed questionnaire. Data reliability testing was conducted to determine the reliability of the distributed questionnaire, which would then be tested for reliability. Safety culture maturity calculations were used to measure the level of safety culture maturity at PT XYZ.\

12. Results and Discussion

Explanation of the level of safety culture maturity at PT XYZ. In addition, the impact of safety culture maturity on the implementation of the Occupational Safety and Health Management System (SMK3) will also be studied, so that recommendations for improvements to improve the quality of K3 at PT XYZ will be obtained.

13. Conclusion and Suggestions

Draw analytical conclusions from the calculations obtained and make analysis from observations on the best way to improve the maturity of safety culture.

14. End

RESULTS AND DISCUSSION

Data collection

Data collection was conducted by distributing questionnaires to respondents. Each respondent conducted a self-assessment in answering the questionnaires. There were two types of questionnaires. The first questionnaire contained an assessment of the company's safety culture maturity, consisting of 30 questions with a total of 110 respondents in the work units of managers, K3L, supervisors, maintenance services, and technical services. The work units and the number of employees in each work unit are described in Table 1.

Table 1.
Details of the Number of Respondents

NO.	Work unit	Number of Respondents
1.	Manager	5
2.	K3L	6

3.	Supervisor	6
4.	Maintenance services	31
5.	Technical services	62
Total		110

The second questionnaire contains the weighting of aspects that will influence the dimensions of the safety culture maturity assessment, with a total of 6 respondents from the K3L work unit.

Data processing

1. Data Sufficiency Test

The data sufficiency test is used to determine whether the number of data samples obtained is sufficient to process the data in the next process. In this study, the researcher assumes that the population distribution is normally distributed with a research confidence level of 95% with a standard error of Z = 1.96. Based on data collection, the number of samples that can be obtained is 110 respondents, so the proportion of samples that can be processed is p = 105/110 = 0.955 and the proportion of samples that cannot be processed is 1 - p = 0.045. If the error rate is assumed = 5%. Then with the values above, the sample size in this study can be calculated as follows:

$$N' = \frac{Z^2 pq}{e^2} \qquad (1)$$

$$N' = \frac{(1{,}96)^2(0{,}955)(0{,}045)}{(0{,}05)^2}$$

$$N' = 66{,}04 \approx 66$$

Based on the results of the data adequacy test calculations, it can be seen that N' ≤ N, namely 66 ≤ 110, so the number of samples obtained has met the data completeness requirements, meaning that the number of samples used in this study is sufficient.

2. Data Validity Test

Validity testing was conducted to measure the validity of the questionnaire against each attribute in the distributed questionnaire. Testing of all questionnaire results using Pearson Correlation, namely the score of each item is associated with the total score, was carried out with the help of SPSS 29.0 software. With the number of respondents 110, df = 110 - 2 = 108; α = 5%, then the r-table obtained is 0.1874. The questionnaire can be declared valid if the r-calculated value > r-table. Based on the calculation, the r-calculated value for each attribute is greater than the r-table value. This result indicates that the questionnaire is declared valid.

3. Data Reliability Test

After the data validity test is conducted, the next step is the data reliability test. The best reliability value is 1, and the worst is 0. If the calculation is not reliable, then it is necessary to review the questionnaire preparation. The reliability test calculation uses SPSS 29.0 software to calculate the Cronbach Alpha (α) value. If (α calculated ≥ α table), then the questionnaire item can be declared reliable.

Table 2.
Reliability Test Results

N of Items	Cronbach's Alpha Value	Table of α values	Information
31	0.739	0.70	Reliable

Based on calculations, the level of importance has a Cronbach Alpha value > α table. At this level of importance, the Cronbach Alpha obtained is 0.739 > 0.70, so all attributes at this level of importance can be said to be sufficiently trustworthy and reliable to be used as a data collection tool.

4. Safety Culture Maturity Calculation

In this step, the steps for calculating safety culture maturity are explained. Two calculations are performed to obtain a safety culture maturity score. First, the score is calculated based on aspects.

$$NA_j = \sum_{i=1}^{j} \frac{JP_i A_j}{j} \quad (2)$$

NA_j = Aspect-j Value

$JP_i A_j$ = Answer Questions- i Aspect-j

Aspect value calculations are performed for all aspects in each work unit. Based on the equation above, the results of the aspect value calculations for each work unit are shown in Table 3.

Table 3.
Value of Aspects of Each Work Unit

Aspect	Manager	K3L	Supervisor	Maintenance	Technical
Psychological	4.50	4.57	4.45	4.52	4.46
Behavior	4.49	4.56	4.35	4.42	4.45
Situational	4.49	4.54	4.44	4.49	4.48

Based on Table 3, it is known that the lowest aspect value is found in the behavioral aspect of the supervisor's work unit. The highest aspect value is found in the psychological aspect of the K3L work unit.

The second step is to find values based on dimensions. During the questionnaire validation stage, it was explained that the 30 questions were divided into 7 dimensions. Each dimension is represented by 3 to 5 questions from 3 aspects. These aspects have different weights, so calculating dimension values is different from calculating aspects without considering weights. Aspect weights are obtained from AHP calculations using expert choice software. The following is the equation for calculating dimension values.

$$ND_k = \sum_{j=1}^{3} \sum_{i=1}^{2} \frac{JP_i D_k A_j}{2} \times BA_j \quad (3)$$

ND_k = k-Dimension Value

$JP_i D_k A_j$ = Answer to Question -i Dimension-k Aspect-j

BA_j = Aspect Weight-j

Dimensional value calculations were performed for all dimensions in each work unit. The results of the dimension value calculations in each work unit are shown in Table 4.

Table 4.
Dimensional Value of Each Work Unit

Aspect	Manager	K3L	Supervisor	Maintenance	Technical
Commitment	4.49	4.50	4.60	4.51	4.54

Leadership	4.52	4.55	4.39	4.49	4.49
Responsibility	4.33	4.65	4.29	4.33	4.37
Engagement & Involvement	4.78	4.62	4.46	4.47	4.50
Information & Communication	4.40	4.50	4.43	4.48	4.44
Organizational Learning	4.35	4.52	4.29	4.46	4.40
Competence	4.69	4.56	4.53	4.46	4.54

Based on Table 4, the dimension values range from 4.29 to 4.78. The lowest value trend is found in the supervisor's work unit responsibility dimension, with a value of 4.29. Meanwhile, the highest value is found in the manager's work unit involvement and attachment dimension, with a value of 4.78.

Next, calculate the safety culture maturity score. Based on the previously processed dimension data per work unit, an average calculation is performed to obtain the safety culture maturity score per work unit. The following is the equation for calculating the safety culture maturity score.

$$NSCM_1 = \sum_{k=1}^{7} \frac{ND_k S_1}{7} \quad (4)$$

NSCM $_1$ = Work Safety Culture Maturity Value Unit 1

ND $_k$ S $_1$ = Value of Dimension-k of Work Unit 1

The safety culture maturity score was calculated for each work unit. The results of the safety culture maturity score calculation for each work unit are shown in Table 5.

Table 5.
Safety Culture Maturity Value for each Work Unit

Information	Manager	K3L	Supervisor	Maintenance	Technical
Safety Culture Maturity Values	4.51	4.56	4.43	4.46	4.47

Based on Table 5, the safety culture maturity value in the work unit is in the range of 4.43 to 4.56. The lowest value is found in the supervisor work unit. Meanwhile, the highest score is found in the K3L work unit.

The previous calculations were carried out to determine the dimension values, aspect values, and safety culture maturity values in each work unit. Based on these results, the calculation of these three values was performed at the company level using the average values for each work unit. The resulting dimension values, aspect values, and safety culture maturity values were obtained, as shown in Table 6.

Table 6.
Dimensions, Aspects, and Values of Corporate Safety Culture Maturity

Information	Aspect / Dimension Name	Mark
Aspect	Psychological	4.50
	Behavior	4.46
	Situational	4.49
Dimensions	Commitment	4.53
	Leadership	4.49
	Responsibility	4.39

	Engagement & Involvement	4.57
	Information & Communication	4.45
	Organizational Learning	4.40
	Competence	4.56
	Safety Culture Maturity	**4.48**

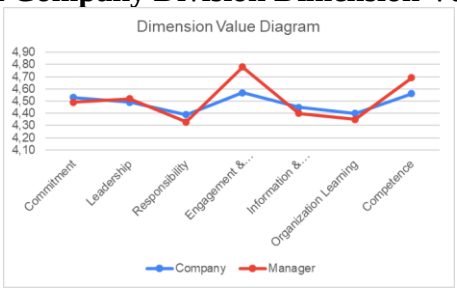
Based on Table 6, the lowest aspect value is the behavioral aspect and the highest aspect value is the psychological aspect. Meanwhile, for the dimension values, the highest value is found in the responsibility dimension, and the lowest value is found in the involvement & attachment dimension. Based on these values, the company's safety culture maturity score was 4.48, so the company is at the proactive safety culture maturity level.

Discussion Analysis

Based on previous calculations, the safety culture maturity scores in the work unit and company have been determined. Next, a comparison will be made between the safety culture maturity scores in the work unit and the company. This comparison is conducted to identify the weaknesses in each work unit.

1. Manager's work unit

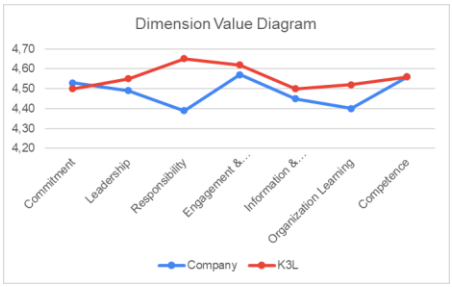
Figure 2.
Manager and Company Division Dimension Value Diagram



Overall, the safety culture maturity score of the manager's work unit is higher than the company's safety culture maturity score. There are 3 dimensions of the manager's work unit whose dimension scores are higher than the company's dimension scores, namely the dimensions of leadership, engagement & involvement, and competence. This shows a relevant relationship with the facts in the field with the existence of daily safety briefings and having an OHS certificate. Meanwhile, there are 4 dimensions of the manager's work unit whose dimension scores are lower than the company's dimension scores, namely the dimensions of commitment, responsibility, information & communication, and organizational learning. Some of the aspects in question are managers' lack of attention to PPE and work safety equipment in the work area, the absence of policies that make workers care about OHS, the lack of information obtained by workers regarding OHS knowledge, and the absence of an assessment of OHS strengths in the company.

2. K3L Work Unit

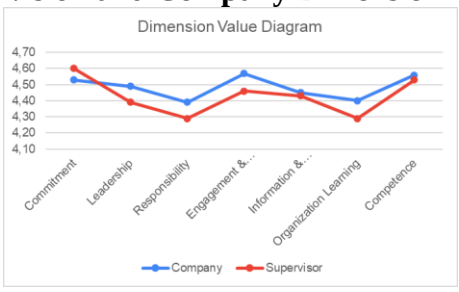
Figure 3.
K3L Division and Company Dimension Value Diagram



Overall, the safety culture maturity score of the K3L work unit is higher than the safety culture maturity score of the company. There are 5 dimensions of the K3L work unit whose dimension values are the same or even higher than the company dimension values, namely the dimensions of leadership, responsibility, involvement & engagement, information & communication, organizational learning, and competence. And there is 1 dimension of the K3L work unit whose dimension value is lower than the company dimension value, namely the commitment dimension. Based on the analysis above, it is known that the K3L work unit pays less attention to several aspects, so that the K3L dimension value is lower than the company dimension value. Some of the aspects in question are K3L paying less attention to PPE and work safety equipment in the work area, conducting Critical Control Verification (CCV) documentation only for formality, a lack of information obtained by workers regarding K3 knowledge, and the absence of an assessment of the K3 strengths in the company.

3. Supervisory work unit

Figure 4.
Supervisory Division and Company Dimension Value Diagram

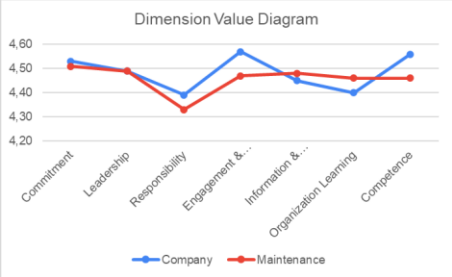


The safety culture maturity score in the supervisor's work unit is lower than the company's safety culture maturity score. There is 1 supervisor's work unit dimension whose dimension score is higher than the company's dimension score, namely the commitment dimension. And there are 6 supervisor's work unit dimensions whose dimension scores are lower than the company's dimension scores, namely the leadership, responsibility, involvement & engagement, information & communication, organizational learning, and competence dimensions. Based on the analysis above, it is known that the supervisor's work unit pays less attention to several aspects, so that the supervisor's dimension score is lower than the company's dimension score. Some of the aspects in question are supervisors not paying attention to workers wearing complete PPE and work safety equipment while in the work area, not documenting Critical Control Verification (CCV), not conducting inspections on each job, and the lack of information obtained by workers regarding OHS knowledge.

4. Maintenance work unit

Figure 5.

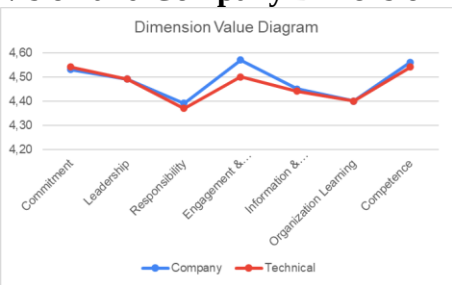
Supervisory Division and Company Dimension Value Diagram



The safety culture maturity score in the maintenance service work unit is lower than the company's safety culture maturity score. There are 3 dimensions of the maintenance service work unit whose dimension scores are the same or even higher than the company's dimension scores, namely the dimensions of leadership, information & communication, and organizational learning. There are 4 dimensions of the maintenance service work unit whose dimension scores are lower than the company's dimension scores, namely the dimensions of commitment, responsibility, involvement & engagement, and competence. Based on the analysis above, it is known that the maintenance service work unit pays less attention to several aspects, so that the maintenance service dimension scores are lower than the company's dimension scores. Some of the aspects in question are the maintenance service not wearing complete PPE when in the work area, not reminding fellow workers both when not wearing complete PPE or when at heights, some workers not attending safety briefings, not documenting Critical Control Verification (CCV), and some workers never attending K3 training and emergency simulations.

5. Technical work unit

Figure 6.
Supervisory Division and Company Dimension Value Diagram



The safety culture maturity score in the technical service work unit is lower than the company's safety culture maturity score. There are 3 dimensions of the technical service work unit whose dimension scores are the same or even higher than the company's dimension scores, namely the dimensions of commitment, leadership, and organizational learning. There are 4 dimensions of the technical service work unit whose dimension scores are lower than the company's dimension scores, namely the dimensions of responsibility, involvement & engagement, information & communication, and competence. Based on the analysis

above, it is known that the technical service work unit pays less attention to several aspects, so that the technical service dimension scores are lower than the company's dimension scores. Some of the aspects in question are technical services not reminding each other when not wearing complete PPE and when at heights, some workers not attending safety briefings, not documenting Critical Control Verification (CCV), lack of information about OHS knowledge, and not attending OHS training and emergency simulations.

Recommendations

Based on the results of data processing and analysis that have been carried out, recommendations for improvements can be obtained to improve the company's occupational health and safety as follows.

1. Recommendations for improving the manager's work unit

Size	Recommendations for Improvement
Commitment	• Create a company zero accident policy that is approved by the leadership of each work unit. • Allocate a special budget for OHS programs, such as purchasing quality personal protective equipment (PPE), OHS training, and OHS award programs. • Conducting surprise inspections of work areas to directly review the implementation of K3.
Responsibility	• Create an OHS job description for each position, so that all workers know their respective roles in maintaining a safe work environment. • Implement relevant K3-related Key Performance Indicators (KPIs) for each work unit. • Conducting K3 audits of Key Performance Indicators (KPIs) to assess their achievement periodically.
Information & Communication	• Hold daily safety briefings. • Hold weekly meetings focusing on the latest information regarding risks or safety procedures. • Create print and digital notices that display the latest OHS information, so all workers are always informed.
Organizational Learning	• Hold a meeting session where the causes of the incident and preventive measures are discussed collectively, after each incident occurs. • Implement ongoing training programs to update workers' knowledge of the latest OHS practices and procedures according to their respective job descriptions. • Utilizing Augmented Reality (AR) or Virtual Reality (VR) technology to simulate incidents.

2. Recommendations for improvements for K3L work units

Size	Recommendation For Repair
Commitment	• Ensure availability tool safety functional work with good , including PPE and facilities safety work in every work area .

	• Make sure all worker truly follow safety SOPs moment be in the work area . • In a way active campaigning policy without accident . • Give award or punishment to worker as encouragement For Keep going increase culture safety .

3. Recommendations for improvement to the supervisor's work unit

Size	Recommendations for Improvement
Leadership	• Demonstrate commitment to K3 by always wearing the correct Personal Protective Equipment (PPE) and following K3 Standard Operating Procedures (SOP) in the work area. • Conduct regular inspections and engage in direct dialogue with workers to understand safety challenges.
Responsibility	• Create a K3 Standard Operating Procedure (SOP) that must be carried out by every worker. • Conduct periodic evaluations of worker safety performance with managers, K3L, and supervisors.
Engagement & Involvement	• Invite all workers to participate in enforcing safety or risk evaluation, so that workers feel involved and more concerned about safety in the work area. • Create a regular discussion forum where workers can provide input or ideas about work safety improvements that need to be made in the work area. • Active in K3 inspections and audits in the work area.
Information & Communication	• Hold a daily safety briefing before starting work to discuss relevant risks and precautions in the work area. • Post warning signs and safety information in strategic work areas, so workers are always reminded of safety practices.
Organizational Learning	• Hold sessions with HSE managers and supervisors to evaluate the causes and preventive actions to be taken, after each incident. • Document all work and use it as a reference for future safety training, so all workers can learn from incidents that occur.
Competence	• Encourage all workers to take K3 training in accordance with the work unit's job descriptions on a regular basis. • Conduct emergency simulations or safety drills to ensure workers know how to respond in high-risk situations. • Conduct workshops on incidents that have occurred.

4. Improvement recommendations for maintenance work units

Size	Recommendations for Improvement
Commitment	• Ensure work safety equipment functions properly, including PPE and work safety facilities in each work area. • Ensure that other coworkers always comply with the K3 Standard Operating Procedures (SOP).

Responsibility	• Follow the K3 Standard Operating Procedures (SOP) in the work area. • Perform a self-examination of your body condition and work safety equipment before starting work. • Participate in periodic evaluations that address occupational safety issues and the development of K3 programs.
Engagement & Involvement	• Participate in question and answer sessions or discussions regarding K3 in the work area and suggestions for improvement. • Actively participate in providing input and suggestions to improve occupational safety.
Competence	• Attend regular workplace safety training, which includes basic safety procedures such as extinguishing small fires, using basic PPE, and evacuation techniques. • Participate in emergency situation simulations or safety drills.

5. Recommendations for technical work unit improvements

Size	Recommendation For Repair
Not quite enough answer	• Follow Procedure Operation K3 standards (SOP) in the work area . • Do inspection independent to condition body and equipment safety Work before start Work . • Participate in evaluation periodical that discusses problem safety work and development of K3 programs.
Engagement & Involvement	• Participate in session ask answer or discussion regarding K3 in the work area and suggestions for repair . • Participate active in give input and suggestions for increase safety Work .
Information & Communication	• Attend direction safety daily newspaper that discusses risk electricity and action mitigation before work started . • Put up a sign warnings and instructions safety on site Work risky high , with easy visual instructions understood , especially around equipment electricity tension tall . • Attend direction safety special For work electricity before each shift or work starts with emphasize risks and actions prevention electricity .
Competence	• Participate in training safety routine work , including use of PPE, introduction risk electricity and engineering responsive emergency If happen accident electricity . • Participate in simulation emergency or exercise safety . • Own Electrical K3 Expert certification for each worker .

CONCLUSION

Based on results analysis and discussion, value maturity culture PT XYZ's safety is 4.48, so PT XYZ is at level maturity culture safety proactive. This level show that PT XYZ has apply system systematic and structured K3 management with involving worker in stage improvisation K3 management, changing approach management pure top -bottom become

two- way communication. Awareness and involvement worker in K3 management has also been formed, so that worker No want to colleague Work other is at in danger.

Recommendations based on the results of the discussion include ensuring that the condition of PPE and work safety equipment is functioning properly, creating SOPs for each worker, holding regular briefings before each job, conducting work area inspections, installing warning signs and safety information in the work area, documenting all work carried out, conducting work safety training according to each worker's job description periodically, and holding regular meetings about the importance of K3.

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