

## Implementation of a Digital-Based Early Safety Warning System Program on Branch Logistics Company in Jakarta

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### ABSTRACT

Lack of involvement in interventions to carry out observations and analysis that causes the conditions and behavior of employees at one of the logistics companies at the Jakarta branch. The research aims to reduce potential unsafe of conditions & unsafe actions in the workplace environment. This process involves employees recognizing potential problems in the workplace within the procedures of observation, feedback, and employee behavior interventions. The methodology used in this study is a descriptive method to describe present or ongoing issues. This method allows for assessing a condition and program implementation to make further improvements in the future. There are still several obstacles in implementing the K3 Program (Safety, Health, and Environment), where the program is still being performed manually. BBS STAR program does not cover unsafe conditions and unsafe actions, so reporting workers to management regarding conditions at work still not optimal yet. Employees also have some difficulty reporting unsafe conditions and unsafe actions in the workplace. SEWS program can be a preventive step in the occurrence of potential danger. The quality of employees could increase with the habit of analyzing dangerous aspects of the workplace environment. Employees' involvement in the SEWS contribution program can also help establish moral consistency.

**Key words** : health, environment, early warning system, logistics distribution

### INTRODUCTION

The year 2022 is a challenging year for employees of Logistic companies Jakarta Branch. This year the company strives for the success of the process safety management program to be excellent and comprehensive through ISO 14001 (Environmental management system), ISO 9001 (Quality management), ISO 45001 (Safety management system) and Pas 99 (integrated management system) audit (Tristantia, 2018). Process safety management system is an integrated and comprehensive program managing safety, environment & quality in the operating process to identify, control, and prevent hazards arising from operating activities that can cause loss, injury, and damage to the and damage to the

process, safety until the environment (Irkas, 2020). One strive of PT. The "X" to achieve process safety management system is collaborate with workers to the reporting unsafe conditions and unsafe actions at the workplace.

There are findings in the workplace environment that can be found that become a non-compliance problem. The safety patrol aims to check conditions in the field, including unsafe conditions & unsafe actions. Several problems were found within the safety patrol that caused several rejected units. Rejected units from the customer are also a problem caused by the expiration of the eligibility of goods and discrepancies in checking data. The application of

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the potential unsafe conditions & unsafe actions reporting program owned by PT."X" previously used the conventional method, specifically by paper. Based on information from one of the HSSE teams of PT."X" when the conventional unsafe conditions & unsafe actions reporting program started from 2015 until mid-2021, participants who provided findings regarding potential unsafe conditions & unsafe actions at PT."X" Jakarta branch, there were no reporters at all. The lack of HSSE team enthusiasts reporting in monitoring the process of potential danger is the cause of it. Lack of sense of participation in reporting unsafe conditions and unsafe actions can cause problems and accidents. It is necessary to develop a much more credible reporting system. The development of Safety Early Warning System (SEWS) is expected to be more easy to report and effective in monitoring, so that reported problems can be dealt with swiftly.

This research refers to 5 (five) previous studies in the past as references. The first previous research is patient safety incident at the hospital. The objective is to evaluate the implementation of patient safety incident reporting system at a hospital of Surabaya using Health Metric Data (Tristantia, 2018). The difference between the previous research and with current research lies in the field studies that are covered. The previous studies focused on patient safety in the hospital evaluation on incident reporting, while this research is on reducing potentially unsafe conditions & unsafe actions in the workplace environment of a logistics company.

The second previous research is Unsafe action and unsafe condition relationship with work accident in car workshops. The purpose of this study is to determine the relationship between unsafe action and unsafe condition with the incident of work accidents in car repair workers (Shofi, 2021). The result proved that unsafe conditions are related to unsafe actions. It is also affecting the workplace environment and leads to some unwanted incidents. This previous research inspires us to implement the proper application that reports unsafe conditions and unsafe actions in workplace.

The third previous research is hazard & pollution reporting - android based application on the Contribution System at PT NUSIRA. This research aims to produce better work performance as well prevent accidents and pollution which is

more severe in the work environment (Ridwan, 2022). The results of the research was a success reporting of android based device of unsafe actions, unsafe conditions and pollution work environment for all employees.

Another reference of the previous research is Effects of unsafe actions and unsafe conditions against employee accidents in the environment of PT. FREYABADI INDOTAMA (Yogama, 2022). This research goal is only to measure how significant the unsafe conditions and unsafe actions using SEM Method. The method to handle both problems does not yet done in the previous research and will be demonstrated in this research.

The last reference of the past research is Implementation of Unsafe Actions and Unsafe Conditions Programs in PT XYZ (Irkas, 2020). In this previous research the employees reporting of the problems occurred, using web applications, short message services and also manually reporting. This conducted research focused on improving reporting the problems of Digital-Based Early Safety Warning System application. Based on the five previous studies, this research will be developing Safety Early Warning System built in application in the Power Apps. The results that of the research is to improve the Behavior Based Safety Observation Program with Safety Early Warning System (SEWS) Application using Power Apps, so that later it can proved optimal in making full reporting of unsafe conditions and unsafe actions in the workplace.

## **METHODS**

The company implements occupational Health and Safety (K3) or Health, Safety, Security, and Environment (HSSE) for workers because it is essential to realize optimal work productivity. Occupational safety improves conditions for survivors of suffering, damage, or loss at work [6]. It is also necessary to manage Work Safety and Health system management, handling the objectives, techniques, equipment requirements, production processes, and scheduling in the workplace objectives (Triyanni et al, 2017).

Safety Patrol is an inspection that aims to carry out identification of non-compliance, in the implementation of occupational Health and Safety (Luckyta & Pratiwi, 2012). Findings such as equipment in this patrol that are not suitable and items that are not following the data recap will be reported for the future evaluation. Consistently

monitoring the actions and conditions in the workplace is vital to ensure the workplace actions and conditions are optimal (Telaumbauna, 2022).

Power Apps is a suite of apps, services, and connectors, as well as a data platform, that provides a fast developing environment to build custom apps for custom needs. Safety Warning System Programs are developed in this research. Improvements in employee’s reportings are expected of K3, using this application in the workplace (Luckyta & Pratiwi, 2012).

**RESULTS AND DISCUSSION**

The consistencies of the reporting must be supervised to ensure the safety of work conditions. I-SLIM or Integrated SLI Management System is one of the efforts to integrate quality management, environmental management, K3 management & integrated management. The goal of this management system is to achieve operational excellence. It is indeed a challenge to HSE & SELOG Group because there are three main concerns on the monitoring reports. These concerns are; manual and inconsistent reporting, BBS STARS covering unsafe actions only, and employees' lack of involvement in reporting.

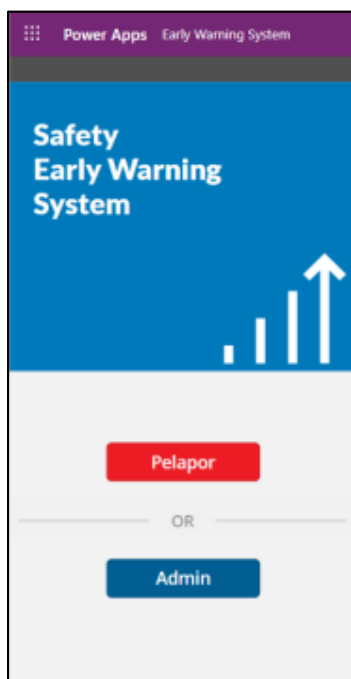


Figure 1. Main Page of Safety Early Warning System (SEWS)

The application of SEWS is a principle of continuous improvement regarding the integrated HSE management system. This program is an effort

by company management to reduce potential hazards by involving the entire workforce to recognize unsafe working conditions & behavior through observation, feedback, intervention, and behavior change. With the development of SEWS application using the Power Apps the result of consistent reporting will be improved.

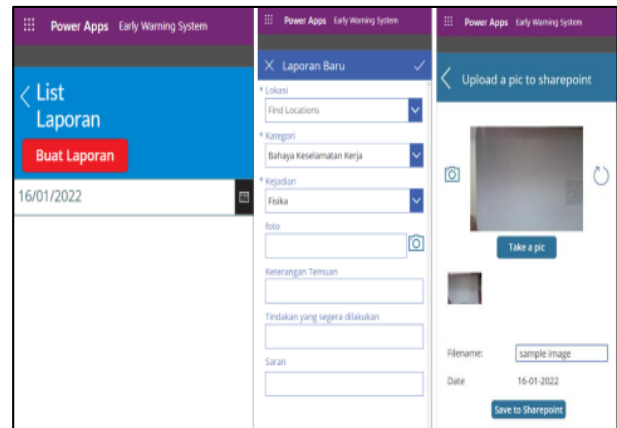


Figure 2. Reporting Page Menu

The SEWS application later began to be used effectively in these researched logistics companies regularly. Cases of unsafe conditions and unsafe actions for 18 months (January 2021 - August 2022) are noted to measure the effectiveness of SEWS application. The first six months are before the use of SEWS applications for reporting. Starting from September 2021 the second phase of six months of SEWS application begins to be used to do reporting. Here we can see the data routine reporting after the effective date of using this application by the employees.

Table 1. Example of Key Performance Indicator

Key Performance Indicator	Jan-21	Feb-21	Mar-21
Truck Incompliance	7	5	1
Target Per Month	NA	NA	NA

The consistency score and monitoring findings of unsafe actions & unsafe conditions for the past two years (2021 & 2022) are increasing, up to 61 findings. Regarding this fact, the goal of the SEWS program is achieved. The developed SEWS application is furthermore socialized for company employees for daily use in reporting activities. The following illustration is the proof of a case (broken faucet) after a report using SEWS application, before and after conditions. The quality of employees increases by being accustomed to analyzing hazards in the work environment so that

they can be a preventive measure in reducing potential danger. Morally, the consistency of the employees running the program will increase if employees contribute ideas related to the SEWS program. The SEWS program can be a preventative measure in the occurrence of potential hazards.

## CONCLUSIONS

Key Performance Indicator and report data showed the research goal is achieved. Regarding the inconsistent reporting of the SEWS program to management, additional point is needed at the PDCA meeting regarding SEWS findings. To ensure employees KPI consistencies, there is a need for additional KPIs related to employee involvement in reporting dangerous situations at work. There needs to be improvement on SEWS application development to have more features and be easily accessible.

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