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The Importance of Safety Culture with Safety Performance Measures

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Abstract

Measuring safety performance improves the organization's workplace to reduce the risk of accidents and obtain more robust safety procedures. Safety performance information reflects the effectiveness and the implementation of safety attitude. Developing a safety culture among employees is a vital element to ensure good safety performance. Safety culture is influenced by different variables such as beliefs, perceptions, attitudes, and values of employees. However, some empirical evidences in the literature relate safety culture with safety performance measurements. Safety performance is measured by a combination of leading and lagging indicators. This study uses these two indicators to make a comparison and description of both health and safety performance. This study review summarizes safety performance measurement processes and analyses the safety culture's predictable influence.

Keywords: Occupational safety and health • Safety performance • Measurements

Introduction

Safety performance measurements

The general definition of safety performance is the leading and lagging indicators metrics as the "Occupational Safety and Health Administration" (OSHA) recordable injuries rate (RIR); restricted work, days away, or transfer (DART)injuries rate on workers compensation. Management companies have already agreed on the significance to implement and certify the structure management system in the last decade [1]. Consisting of occupational health & safety management system, the performance measurement is still considered an important element, such as leading and lagging indicators [2,3].

When occupational safety and health (OSH) organizations live up to their core organizational value, they must inevitably make significant investments in resources to measure the performance of their occupational health and safety programs [4].

Participants are also involved in discussing the differences between leading and lagging indicators, while near- miss accidents are one of the process metrics examples of leading and lagging indicators, as such, they raised at least as many questions as they answered. As a method of self-reflection, safety performance measurement (SPM) must strive to find answers to the given questions, for example: What is the position relative to theoverall occupational health and safety aims and objectives? How is the company in comparison with others"? "Does the management system improve the OHS"? "Is the management of OHS effective? "Is the OHS management reliable"? "Is the OHS management efficient"?. "Is the company culture supportive of OHS, particularly pressed by competing demands?".

Such questions have been asked at the different management levels not only at the highest level and across the organizations. The purpose of this study is to provide the company a comprehensive image of its occupational health and safety performance. Although the major goal of performance measurement is to suit the organization's internal goals, there is a growing requirement to demonstrate to external stakeholders that measures to control occupational health and safety risks are in place; and that they are operating efficiently and correctly.

Conventional safety performance indicators

The construction industry, like other industries, began its quest for safety by researching and analyzing accidents. The preoccupation with analyzing these failures has resulted in a strong preference for accident recording as the main instrument for evaluating safety performance [5,6].

Leading and lagging indicators of safety performance are distinguished and consist of a set of selected measurers that describe the level of effectiveness of a safety operation [7]. Knowledge of accidents in terms of injuries and fatalities helps define the key perception (safety climate) aspects that need alignment to improve safety culture on the construction site [8] which the numbers of accidents are increasing time to time as shown in Figure 1.

Occupational health and safety are measured from various area fields by managers due to the success lead to no catastrophic consequences (accident or disease) rather than existence. A low rate of accidents or poor health conditions, furnace over years, does not guarantee the control of risks and would not end up in any accidents or occupational diseases in the future. Especially, when companies have a low probability of such accidents but

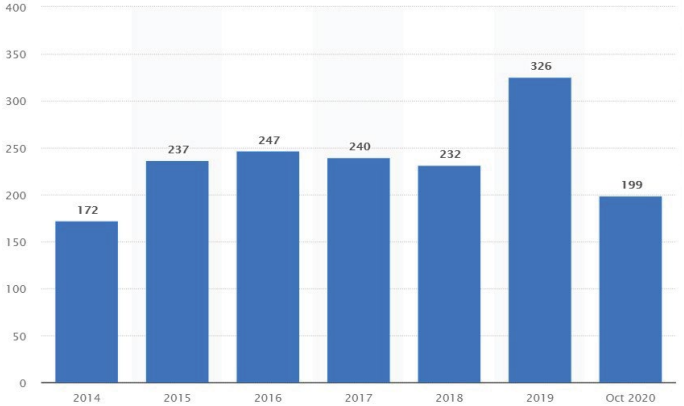

Figure 1. Total number of constructs accidents in Malaysia between 2014 to 2020.

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the significant risk is still available. Accidents and illnesses statistics from the past can mislead indicators of safety performance in this case [9,10]. Most significantly, these unstable workers are more likely to take more risks on the job, work without proper training or protective equipment, and fail to report unsafe working conditions. This situation is most precarious for migrant workers who lack a work permit and are at risk of losing their jobs or perhaps deportation [11].

Physically demanding jobs are common among the occupations in which immigrant workers are employed. Because working conditions may be dangerous or unregulated, these demands raise the risk of injuries and fatalities. Furthermore, because of their precarious status, immigrants are unable to make adjustments to their working conditions when an unsafe state is discovered [12]. Leading indicators are designed to identify problems early enough to take corrective action and assist to identify weaknesses in the organization's action plans or behavior of employees before they have a chance to do any serious harm. Due to preventing this degradation, as well as injuries or fatalities, is time-sensitive, it is critical for leading indicators to actively monitor the level of occupational health and safety(OHS) [13].

The role of performance indicators (commonly known as leading and lagging indicators) has been the focus of much discussion in the occupational safety and health community in recent times. Occupational health and safety professionals should educate themselves about the historical use of these indicators as well as the advantages and disadvantages of their current use [14]. Safety performance leading indicators are in place to identify defects through routine inspection, to plug holes before an accident occurs. However, safety performance lagging indicators reveal gaps through accidents, incidents, or defects at which action can be taken to avoid recurrence [15] as shown in Figure 2.

Safety culture usage

The use of the terms "safety culture" or "safety climate" have been used to characterize the output of an organization in terms of such an assumption about significance given to safety issues by a person or group of individuals. The term "climate" appears to indicate seasonal or temporary characteristics [16,17]. Safety culture is increasingly important in any organization, especially for industries that have high levels of risk such as the petroleum sector. Since governments are now imposing strict laws legislation, implementing high levels of safety performance is critical to success and sustainability among competitors [18,19].

- Safety culture-: the collection of traits and behavioral segments in organizations and individuals that establishes nuclear plant safety as a top priority [20].
- Safety culture-: "the set of beliefs, attitudes, norms social and roles and technological practices concerned with reducing the worker's exposure, customers, managers, and members of the public to conditionsthat are regraded unsafe or injuries" [21].
- Safety climate: "the objective measuring of perceptions and attitudes toward occupational safety and health (OS&H) problems has been largely overlooked, with lost time and frequency rate used to evaluate the efficacy of occupational safety and health initiatives" [22,23].

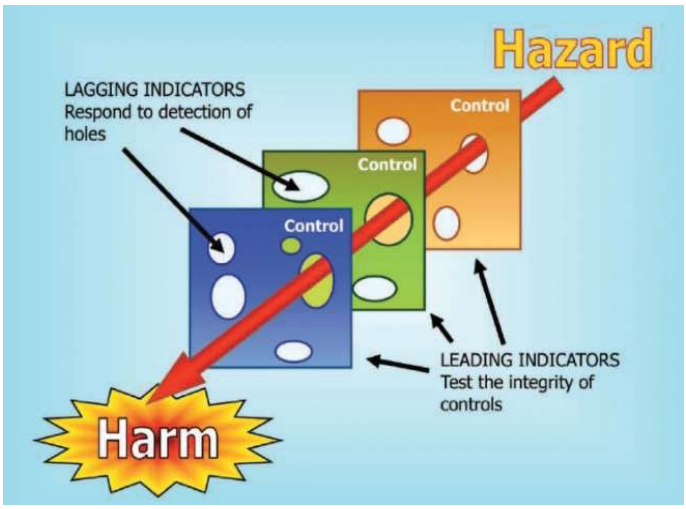

Figure 2. Safety performance measurement (leading and lagging indicator).

Therefore, "safety climate" and "safety culture" are often used interchangeably. For instance, indicates that common aspects are emphasized in both sets of definitions [24]. The main distinction between the two definitions is that, while safety culture is defined by shared values, underlying beliefs, and attitudes towards employees and the organization in general, safety environment identification is defined by daily observations of the working organizational policies, working practices, environment and management [25]. Workplace safety issues can have a detrimental impact on employees' lives, represent a social cost in the form ofincreased health and social security demands, and generate production disruptions and/ or poor publicity for enterprises andorganizations [26,27]. These conclusions, on the other hand, are largely connected to physical risk tolerance in high-risk surroundings, like offshore oil and gas exploration, chemical plants and nuclear. However, there are only a few studies available in occupational situations with lower risk or more minor hazards [28]. Various techniques for measuring and monitoring performance are provided in the standardized guidelines for management system implementation, including the use of many approaches such as:

- The risk identification, assessment, and management outcomes;
- Regular workplace inspections utilizing and using checklists;
- Prior evaluation of new installations, materials, equipment, etc.
- Analysis of workers behavior to detect harmful work practices that may be remedied;
- Benchmarking of occupational health and safety practices, additionally evaluating worker attitudes regarding the health and safety management system implementation.

Therefore, effective steps of safety performance indicators are as following:

- Design to create organizational structures for preparing and implementing safety performance indicators
- Identify the measuring system's scope.
- Determine the risk control mechanism in existence and establish a lagging indicator for failure.
- Establish leading indicators for essential aspects of the risk control system, such as actions or processes that must perform well.
- Set up a system for data gathering and reporting.
- Analyze the result and take action.

Conclusion

This study work described safety performance measurement methods and examines how it might be done utilizing safety culture and the closely related idea of a safe environment. As part of this investigation, it is clear that SPM is a vital part of occupational safety and health. Indicators for safety performance, like accident statistic indicators, appear to be limited in scope and may not accurately reflect a company's safety performance. The most common source is to define and analyze the safety culture that has been in high-complex or high-risk industries, such as chemical, nuclear, and oil and gas. In addition, it is still new to the incorporation of safety culture assessment into occupational management systems for both safety and health. Despite the relevance of the notions studies, there is still an argument among safety personnel and experts on how safety culture must be recognized and if it is not essentially similar to the approach of safety climate. This study is designed to help researchers and safety professionals better understanding how terms like safety culture can be utilized to assess a company's safety performance. This allows such

companies to measure and evaluate their performance in safety, regardless of the limitation of illness and accident statistics, ultimately assisting in the formulation of policies for improving working conditions.

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