

## **Exploration of safety culture and performance in the selected multinational organisation in Saudi Arabia: an occupational accidents perspective.**

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### **Abstract**

*The multiple case studies explored and examined the relationship between safety culture and OHS performance from the perspective of an occupational accident and adopted a mixed-method approach to delivering a complete explanation of the phenomena. The study was conducted in Saudi Arabia in an organisation to examine whether safety culture directly impacts the OHS performance or not. The study examined the realism of weaknesses and strengths of an organisation's OHS management system given employees' perceptions, attitudes, and behaviours.*

*At the time of the study, despite implemented policies and enforced legal requirements by both the government and the organisation, there was an increased level of fatalities, injuries, and property damages. Despite stringent measures, a public outcry drove the need to understand the increased death rate. In 2019 statistics, the organisation recorded 63 fatalities which economically cost an enormous amount of \$27.3m attributed to direct cost. The qualitative research adopted the "research onion concept" to socially construct knowledge. It was characterised by interpretivism and complemented by post positivism as a mixed-method approach. The exploration was based on the adopted culture model dimension integrated within the organisational practices (OHS management system). The descriptive and interpretive research design applied an inductive and context analysis for the organisation's five years of data performance through a grounded theory, self-administered questionnaires, focused group participant interviews, and non-participant observations gathered through interactive and interlocked group discussion.*

*The study concluded that zero accidents/incident rate does not stand for employees' satisfaction. Therefore, OHS performance cannot predict safety culture, nor can safety*

*culture be a single predictor of an organisation's OHS performance. The study also concluded that 'individual culture is a predictor and directly impacts an organisation's safety performance—this conclusion signified the importance of 'individual culture' over 'safety culture' or organisational culture.*

*Recommendations included avoiding prescriptive OHS systems, migrating from a stand-alone to a continual, improvement system of the Plan, doing a check and act cycle, and exploring ways to reduce errors and influence behaviours. Others included investment in a competency program (Plan, do, check, and act cycle approach), implementation of a 'just culture' and transferable leadership skills and exploration of Psycho-social improvements, and organisational development, e.g., social learning.*

**Key words: Safety culture; performance; weakness and strength; safety; individual culture**

### **Introduction**

Culture could be summarised as all formal and informal community behaviours for a perceived identity. It is aligned with social values embroiled in organisational culture (Buchanan & Huczynski, 2010; Ismail, 2012). It has been recognised as a critical influencer component of organisational culture (Kotter & Heskett, 2011). Since the 1990s, 'culture' had been projected as an element of every management system. The broader range of elements entails why culture had been considered a conceptualised theory due to its unclear definition despite various researchers and scholars' attempts. Kroeber and Kluckhohn (1978) defined culture as patterns of behaviour acquired and transmitted by various media of human groups, including their embodiment in artefacts.

Avruch (2000) defined culture as a concept-driven by experiences that people may have undergone and framed in a systematised way and acts as a conduit for their future reactions to situations. It can either be considered as an individual or a population. Therefore, it is worth noting that culture may be considered a group of people's attributes, such as shared values, attitudes, ideologies, and beliefs (Schneider & Barsoux, 2003). These attributes will reflect how people or individuals will behave, both at work and in their social life outside work.

From an industrial perspective, culture is forcefully driven for a positive change to create an impact on employees' interests and values (Wheelen and Hunger, 2006). Studying the 'exploration of safety culture and OHS performance had many considerations. It included examining the organisation's degree of influence on their employees' attitudes and perceptions of occupational health and safety (OHS). The organisation examination covered employees' behaviours while working within and outside organisation environments.

### Problem Statement

A study conducted by Sherrat (2014) states that encompassing several integrated elements involving all stakeholders will realise zero injuries and fatalities. It is focused on the 'safe person and safe work approach. Having a goal to achieve the zero target is not only treated as an integral part of the OHS management system but is complementary to having an accident-free working environment.

The study was performed in an environment where there were more live operations with high exposure to hazards and risks. The environment created a basis for exploration since examining occupational health and safety culture was critical to the organisation and the public.

With 24 hours, seven days a week operation of distributions covering over and beyond 50 million km/month coupled with other operational risks, the organisation aimed and endeavoured to achieve and sustain improvements in health and safety as part of its corporate social responsibility.

The organisation believes that if employees are motivated, they will be more productive and innovative and follow detailed safety instructions. It was on an account that leaders and managers of an organisation should display active visual leadership. Flin et al. (2000) and Yule and Flin (2002) stated that it inevitably cascades down to the workforce when the 'belief' is attained. This act was key to the organisational safety culture because culture is predominately established by the management practices that exist within the organisation. However, despite all investment in OHS measures, the rate of injuries and fatal accidents involving employees and the public had increased over five years and was not reducing (figure 1).

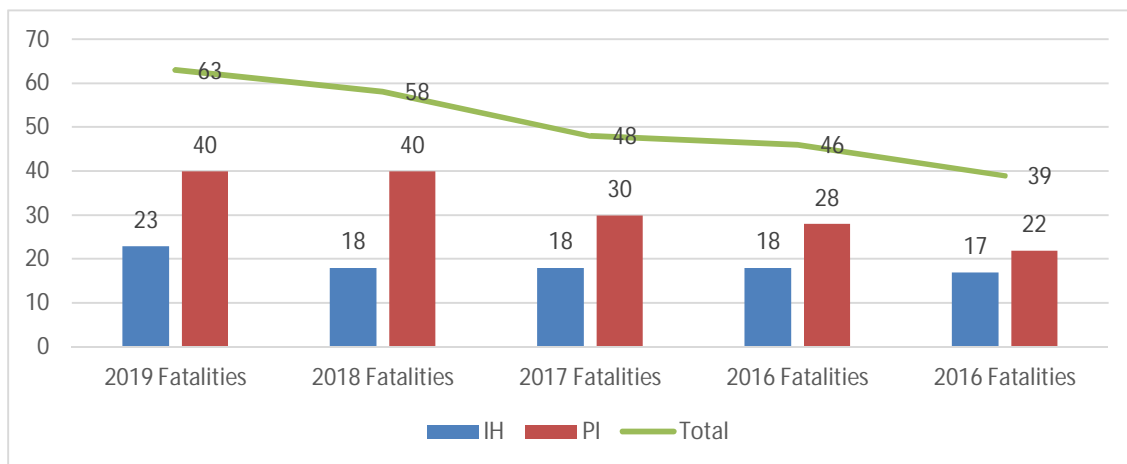


Figure 1 Organization OHS Performance statistics - Fatalities.

As illustrated by the 2019 statistics, the organisation recorded 63 fatalities which economically cost an enormous amount of \$27.3m attributed to direct cost. At the time of the study, the organisation's safety culture and poor OHS performance were still unknown.

They had not been explored to examine the relationship between culture and the increased number of occupational accidents.

### **Aim**

The study explored a relationship between safety culture and OHS performance for an organisation based in Saudi Arabia. It is to ensure that the prevention of occupational fatalities of workers and other public members who may be affected by the organisation's operation can be achieved. The exploration was conducted from an 'occupational accidents' perspective and examined whether safety culture directly impacts the OHS performance or not.

### **Objective**

The objective of this study was to examine the OHS management system's strengths and weaknesses by exploring employees' perceptions, attitudes, and behaviours.

### **Significance of the study**

Understanding the impacts of the OHS culture (values and practices) on occupational health and safety performance concerning occupational accidents was critical and beneficial. At the time of the study, no OHS culture study had been conducted within the Kingdom with occupational accidents. Therefore, findings act as a new credible knowledge base and a basis to advance organisational policy formulation for the company and other similar industries wanting to enhance OHS performance.

It is undoubtedly that the organisation and other similar industries will benefit by achieving a sustainable and continued system improvement as required by the ISO 45001: 2018 OHS Management system. Specific benefits include eliminating all work-related fatalities and reducing the time injury severity rate (LTISR) and the frequency of lost time injury (LTIFR), indirect and direct costs incurred on property damages, medical expenses, claims, and insurance premiums. Globally, from an audit perspective, the study will showcase a platform for integrating an in-depth cultural assessment within an ISO 45001:2018 OHSMS audit process. It will establish a complete assessment and measurement of the effective implementation of the overall management system, which, unlike the previous ohs cultural studies, did not.

### **Theoretical Framework**

The study aimed to explore and examine the relationship between safety culture and OHS performance from an occupational accident perspective in an organisation. The research focused on understanding the relationship of safety culture dimensions to assess employees' behaviour towards safety and health. It was to ascertain any association of individuals' perspectives impacts the organisation's overall OHS performance. The study arose from controversies surrounding various contradictory research findings on the relationships between safety culture and an organisation's safety performance. Fernandez-

Muniz et al. (2007) stated that reducing accident and incident rates provide the best measure of the safety culture. In another research, Otitolaiye (2021) research findings indicated that safety culture and safety management system positively correlated with safety performance. Contrarily, this theory with the dimensions employed was argued by other four researchers. Richter and Koch (2004) illustrated safety culture as not being a predictor of safety and health performance. In addition, Everon (2010) stated that his research did not “link accident rates to the safety cultures. His findings indicated that combined Safety culture values and practices scores did not predict 2009 OSHA, LTA, and severity rates (ibid). In another research, Kusumawati (November 2021) stated that safety culture and the maturity index alone could not predict safety performance. Therefore, it was established in this research that there is an existing gap as past scholars did not reach a consensus on establishing a relationship between safety culture and OHS performance.

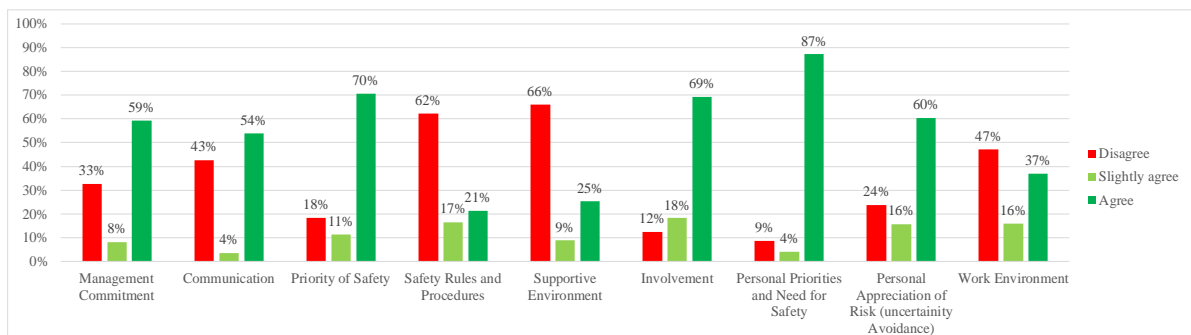
In order to address the research gap in the methodological process done by Kusumawati (November 2021), a model was integrated and interrelated for this research into the implemented OHS Management system as the system was based on the continual improvement approach of a PDCA concept. The collated data was then triangulated with KPIs variables to ascertain whether the conflicts impact the effectiveness of an occupational health and safety system and OHS performance.

The model applied was the Excellent culture (2019) model based on norms that form part of examinable dimensions for beliefs and values. The model states that shared norms, beliefs, and values affect employees’ psychological behaviours. Admittedly, this approach validated the purpose of this research conducted in Saudi Arabia.

Data presentation

Strengths and weaknesses Self-Administered

It was concluded that the overall demographic strength was management commitment by 59%, communication, Priority of safety by 70%, worker involvement by 87%, and personal Priority and the need for safety scored high at 87%, while other strengths included



personal appreciation. However, three weaknesses were recorded based on employees’ perception of effective safety rules and procedures, a supportive environment, and a conducive environment.

Figure 2 Demographic Strength and weakness - self-administered responses  
Strength and Weakness Interview Questionnaire

Figure 3 concludes that the overall demographic strength was management commitment by 59%, communication, Priority of safety by 70%, worker involvement by 87%, and personal Priority and need for safety scored high at 87%, while other strengths included personal appreciation. However, three weaknesses were recorded based on employees' perception of effective safety rules and procedures, a supportive environment, and a conducive environment.

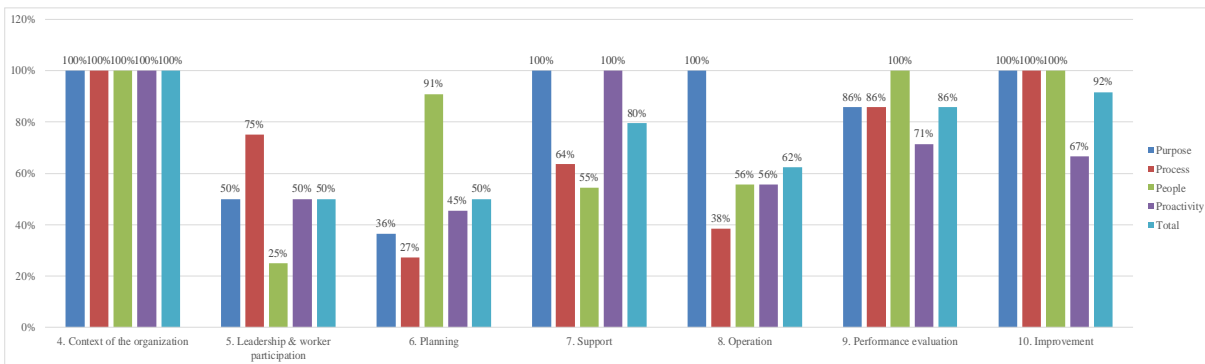


Figure 3 Organisational Strength and Weakness (all four categories)

Figure 4 illustrates the total number of identified weakness per demographic. This shows scores on a scale of maturity based with regards to the perception of satisfaction

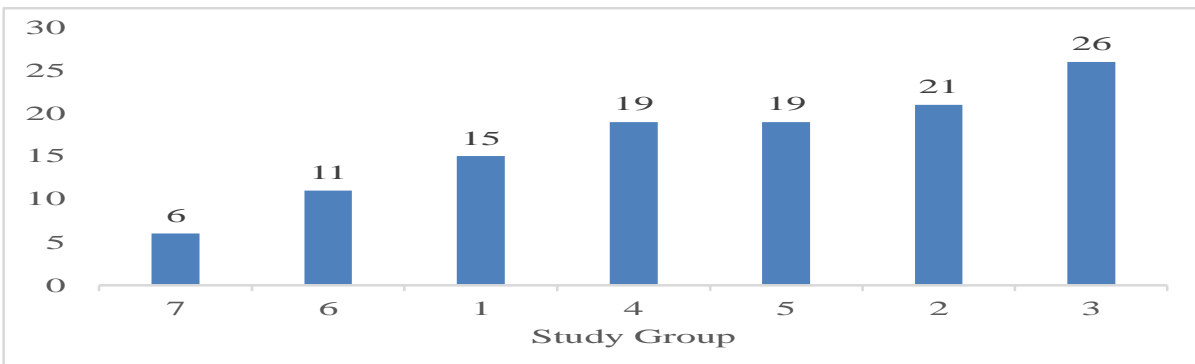


Figure 4 Total number of identified weakness per demographic

Based on the demographic difference in responses per location. It can be established that the individual and overall weaknesses and strengths of an organisation's OHS management system concerning employees' perceptions, attitudes, and behaviours were identified. The findings include the display of differences in perceptions as demonstrated by groups' responses, with the weakest being group 3 while group 7 identified fewer weaknesses (figure 4). The findings addressed the specified research question and associated gaps where previous research failed to explore the health and safety culture and its relationship to occupational accidents by exploring human behaviours and attitudes in Barrimah (2012) for the Qassim Epidemiology of road traffic injuries within Saudi Arabia. These findings

addressed the gap in the research conducted by Khan et al. (2010), who investigated public injury patterns, not an occupational perspective. Neither was there a reference to a management system that these research findings addressed. His research, therefore, ended with identifying a correlation of a causal factor to injuries and did not address root causes within an occupational setup. The research findings addressed the contrast or gaps in the Khan et al. (2010) research identified concerning accident rates in Saudi Arabia. His research indicated that some causal factors remained unique to the region. This study proved not to be a correct statement as this research has identified the root cause of factors while using an established management system as a unifier and two renowned culture models and dimensions. The findings proved that the causation factors of road traffic accidents in the Southern region of KSA are like the rest of the world. The findings proved that the causation factors of road traffic accidents in the Southern region of KSA are like the rest of the world.

Overall findings indicated that 'leadership and workers participation' was recorded as weak in all clauses of an OHS management system. Under the 'leadership and workers participation' people category of the four categories integrated within an occupational health and safety management system under leadership and workers participation were scored as weakest.

Under the 'planning' clause of the OHS management system, three categories, e.g., purpose, process, and proactivity, scored weak, while strength was recorded in the people category. Under the 'support' category, people and process were recorded as weak, while purpose and proactivity were recorded under strength. Under the 'operations' clause of the OHS management system, process, People and proactivity were recorded as weak while strength was recorded in purpose. The 'performance evaluation and 'improvement' clauses were satisfactory responses and recorded as strengths.

The overall; category strength and weakness responses indicated that 'leadership and workers participation' was recorded as weak while recording over average to strength in planning, operations and other OHSMS clauses. The 'people' category was identified as the weakest at 25% within the 'leadership and workers participation' clause, while an average score was responded in the 'support' and 'operations' clauses. The 'Process' category was recorded as weak under the 'planning' and 'operations' clause, while the 'purpose' category was recorded as weak under the 'leadership and workers participation' and 'planning' clauses. The 'proactivity' category recorded a weak response in 'planning' while recording average responses in 'leadership and workers participation' and operations.

## Secondary Data

Other secondary data findings included the quantitative organizational health and safety performance records.

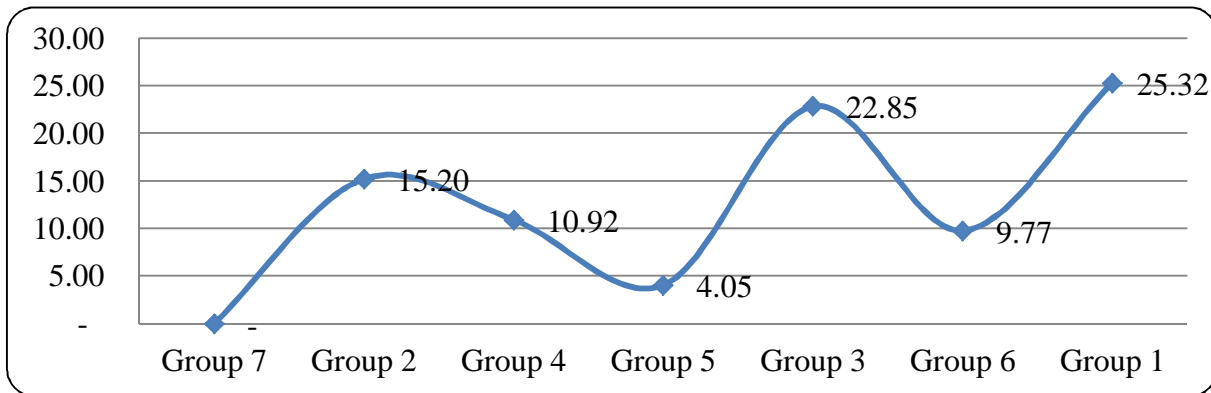


Figure 5 Accident/Incident rate by study group

### Analysis of data

The findings addressed the gap in the research conducted by Khan et al. (2010), who investigated public injury patterns and neither did they investigate occupational samples nor reference to a management system that the research findings addressed. The research findings addressed the contrast and gap in the Khan et al. (2010) research identified concerning accident rates in Saudi Arabia. His research indicated that some causal factors remained unique to the region. This study proved that not to be a correct statement as this research has identified the root cause of factors earlier identified while using an established management system as a unifier and two renowned culture models and dimensions. In addition, the findings proved that the causation factors of accidents in the Southern region (group 3) of KSA are like the rest of the world as the research findings are sampled across KSA.

Table 1 illustrates the case study comparison in relation to weaknesses of the recorded self-administered responses and group focused interviews aligned to the implemented OHS management system. The findings did not establish a single readable contextual pattern based on the employees' perceptions. It is related to each study case group identified weaknesses by participants against the performance record per group. Therefore, the overall findings of all groups are a contradiction to Fernandez-Muniz (2007) research, which indicated that the decrease in accident and incident rates offers the most effective way to measure the safety culture.

The findings from group one to group six correlate with the findings of three researchers. Richter and Koch (2004) illustrated that safety culture was not a predictor of safety and health performance. This research findings also supported the findings of Everon (2010), who could not establish patterned accident rates to safety cultures where he indicated that combined safety culture values and practices scores did not predict 2009 OSHA, LTA, and severity rates (ibid). The research findings agreed with Kusumawati (November 2021), who



stated that the safety culture and maturity index alone could not predict safety performance. The implication suggests that the existence of multiple realities can be examined by any organisation where immediate causes or causal factors can be identified and are more likely to be universal. However, further exploration of analysing cause factors into the root causes enhances and allows organisations to find underlying causes directly linked to incident rates. These findings are more likely to be specific to each organisation's setup. However, the correlations of this research with three past research studies do not affirm their findings but view them as insufficiently investigated. The findings of group seven provide a base for new knowledge in addition to the past four research findings. The results indicated that the non-recorded lagging indicators (zero accidents rate) do not represent employees' satisfaction within the established processes. The six weaknesses recorded indicated dissatisfaction with communication, safety rules and procedures, and a conducive working environment. Therefore, group seven findings in table 1 contradict Fogarty and Shaw (2010). They indicated that safety performance is driven by many factors, including safety culture, declaring that workers' attitudes, behaviour, and actions impact safety performance (ibid). Therefore, the no 'accidents or incident rates' were contributed by 'other factors' such as 'individual culture' other than 'safety culture' opposing a statement that 'many factors, including safety culture, drive safety performance.' As addressed in this case by Barbiz (2011), other factors indicated that families and tribes have a significant effect on individual and group behaviours. Group seven findings also contradicted Otitolaiye (2021) research findings which indicated that safety culture and safety management system positively correlated with safety performance. A zero-incident rate did not reflect a 'safety culture' and 'safety management system' positive correlation to safety performance as employees recorded weaknesses in the implemented management system, i.e., Planning, support, and operation focused on people, process, and proactivity. The implication suggests that organisations that are likely to be inclined to this finding and primarily affected are those where the organisation's cultural image is attained and upheld by the ultimate accountability of employees.

Table 1 Summary of Study group study case comparison - weakness

Group	Weakness elements	Weakness OHS Management system	Weakness Dimensions	Overall employees evaluation	OHS performance
One	management commitment safety priority supportive	Planning, support, operation, improvement	Process Proactivity	17	25.32
Two	Safety rules and procedures Supportive Work environments	Leadership Planning, support, operation, improvement	People Process Proactivity	21	15.20
Three	safety rules and procedures communication supportive	Leadership Planning, support, operation, performance evaluation, improvement	Purpose People Process Proactivity	28	22.85
Four	safety rules and procedures. management commitment involvement Personal appreciation of risk	Leadership Planning Support Operation performance evaluation,	People Process Proactivity	19	10.92
Five	involvement	Leadership Planning, support, operation improvement	Purpose People Process Proactivity	19	4.05
Six	supportive environment	Planning Support operation,	People Process Proactivity	11	9.77
Seven	supportive environment	Planning Support	People Process	6	0.00

	communication safety rules and procedures work environments	operation,	Proactivity		
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In Figure 37 of organisational strength and weakness of combined categories, findings would imply that the organisation will evaluate the future within the organisation's hierarchy to understand which levels of leadership that was not committed to the management of the organisation's content.

**Conclusion**

Study findings identified the root causes or underlying causes of incident rates as perceived by individuals. The research did not establish a single readable contextual pattern based on the employees' perceptions. The perceptions impact how an individual socially constructs their world. The study approach achieved the identifications while using an established management system as a unifier and established culture model and dimensions which makes this research so vital in applying the findings in any industry around the world.

The research established how past similar research was insufficiently investigated as they did not further explore to identify underlying causes. The research established that good or no 'accidents or incident rates' are contributed by 'other factors' such as 'individual culture' other than 'safety culture' as individual culture drive safety performance.

Therefore, the study concluded that 'individual culture is a predictor and directly impacts an organisation's safety performance. This conclusion signifies the importance of 'individual culture' over 'safety culture' or organisational culture.

The research perceived measures could not correlate strategic measures proposed to specific root or underlying causes identified to respond to the culture mitigation strategies for integration within the existing OHS management system. These findings imply that an organisation certification must not be endorsed without the examination of employees' perception to be integrated within a system in compliance with ISO 45001: 2018 OHSMS clause 8, which state that an organisation shall plan, implement, control, and maintain the processes needed to (d) 'adapting work to workers'. Recommendations, therefore, established the most generalised key strategic measure based on weaknesses identified.

**Recommendations**

Organisations/institutions must avoid implementing prescriptive systems and promote employees' autonomy, ownership, and authority to deal with potential safety problems at work.

Migration from a Stand-alone system to a continual improvement system of the Plan, do check, and act cycle must be adopted through the application of principles of managing organisational (Hollnagel,2013)

Organisations must invest in exploring ways to reduce errors and influence behaviours. As management is accountable, incidents are no longer an acceptable norm attributed to human behaviours.

An organisation must invest in a competency program (Plan, do, check, and act cycle approach) to ensure competency is focused on training, skills, knowledge, experience and mental stress ability, appreciation of competency limitations, and vulnerabilities.

For an organisation that has been exposed more to external factors, individual culture is more critical to the organisation than safety as the individual becomes the ultimatum/ability to choose the outcome of every situation.

Organisations must implement a 'just culture' (not only a safety culture) coupled with transferable leadership skills.

Invest in Psycho-social improvements and organisational development, e.g., motivation for employees' participation and consultation and promotion of social learning. (Peters & Waterman 1982).

The research recommended that 'Proactive OHS management system safety II' and 'just culture' be investigated and how they directly impact "individual culture'. Secondly, how 'individual culture' can be cultivated as the ultimate safety solution.

Organisation culture examination of employees' perceptions must be a pre-requisite to ISO 45001:2018 OHSMS certification.

As Safety culture is not predicted by OHS performance, a future study can 'explore if the number of proactive interventions represents safety culture within a working setup.'

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