2026 Volume: 02 Issue: 02 www.ijrpa.com ISSN 2456-9995 Research Article

International Journal Research Publication Analysis

Page: 01-15

DEVELOPING A SAFE AND EFFECTIVE SAFETY CULTURE IN ORGANIZATIONS: INVESTIGATING INFLUENTIAL FACTORS AND PROMOTION STRATEGIES

Stephen Anang Ankamah-Lomotey

Ghana Institute of Management and Public Administration. (GIMPA)

Article Received: 09 January 2026
Article Revised: 29 January 2026
Published on: 17 February 2026

***Corresponding Author: Stephen Anang Ankamah-Lomotey**
Ghana Institute of Management and Public Administration (GIMPA)

DOI: https://doi-doi.org/101555/ijrpa.1223

ABSTRACT

This study investigates the critical factors that influence the development of a safety culture within organizations and formulates strategic frameworks for its enhancement. Utilizing a mixed-methods approach, data were collected from a sample of employees and safety managers across various industrial sectors through surveys and in-depth interviews. The findings reveal that leadership commitment, employee involvement, effective communication systems, and robust safety training are the most significant determinants of a positive safety culture. Furthermore, the study identifies a strong correlation between a mature safety culture and reduced incident rates, improved employee morale, and enhanced operational productivity. The analysis indicates that many organizations struggle with translating formal safety procedures into deeply ingrained cultural values. The study concludes by proposing a comprehensive strategy matrix that integrates top-down leadership engagement with bottom-up employee empowerment, supported by continuous learning and proactive hazard reporting mechanisms. This research provides organizational leaders and safety professionals with actionable insights for cultivating an intrinsic, resilient, and effective safety culture that extends beyond regulatory compliance to become a core organizational value.

KEYWORDS: *Safety Culture, Organizational Safety, Leadership Commitment, Employee Involvement, Safety Management Systems, Incident Prevention, Safety Climate.*

INTRODUCTION

Safety culture refers to the collective values, beliefs, perceptions, and behavioural norms shared by members of an organisation concerning safety, risk management, and occupational

health. It reflects how safety is understood, prioritised, and enacted in everyday work practices and decision-making processes. Unlike formal safety rules and procedures, safety culture operates at a deeper, less visible level, shaping employee behaviour through shared assumptions and social expectations rather than through compliance mechanisms alone. As a result, safety culture is increasingly recognised as a critical determinant of safety performance and organisational effectiveness.

In contemporary high-risk and complex work environments, the importance of safety culture has gained heightened attention. Organisations operating in sectors such as construction, manufacturing, healthcare, and energy are exposed to significant operational hazards, where safety failures can result in severe human, financial, and reputational consequences. Consequently, safety culture has transitioned from a peripheral operational concern to a strategic organisational issue linked to resilience, sustainability, and ethical responsibility. A positive safety culture is commonly associated with management commitment to safety, open communication, employee involvement, and a shared responsibility for hazard identification and risk mitigation.

Despite advancements in safety technologies, regulatory frameworks, and the widespread adoption of formal occupational health and safety management systems such as OHSAS 18001 and ISO 45001, workplace accidents and near-miss incidents remain prevalent across industries. Empirical evidence suggests that many of these incidents are not primarily caused by technical failures or inadequate procedures, but by underlying cultural weaknesses within organisations. Such weaknesses often manifest in the normalisation of unsafe practices, fear of reporting incidents, blame-oriented responses to errors, and discrepancies between documented safety policies and actual work practices at the operational level.

These persistent challenges highlight a critical gap between the formal design of safety management systems and their practical effectiveness in influencing employee behaviour. In many organisations, safety policies exist in principle but are not fully embedded in organisational routines, leadership practices, or employee attitudes. This gap raises important questions about the factors that shape safety culture, the mechanisms through which culture influences safety-related behaviour, and the conditions under which safety culture can be deliberately strengthened.

Understanding safety culture is therefore essential for improving occupational health and safety outcomes, protecting human capital, and sustaining organisational performance. There is a growing need for empirical research that systematically examines the organisational, leadership, and behavioural factors that influence safety culture, as well as the strategies that

can foster its continuous improvement. This study seeks to investigate the key dimensions of safety culture, identify factors that enable or hinder its development, and propose evidence-based interventions for cultivating a strong and sustainable safety culture within organisational settings.

Statement of the Problem

The pursuit of a safe and effective safety culture remains a central challenge for organizations operating in high-risk and dynamic sectors, despite the widespread implementation of formal safety management systems and procedural controls. Many institutions have invested significantly in safety technologies, compliance frameworks, and training protocols, yet a disconcerting gap often persists between the codified safety policies and the deeply embedded values and behaviors that constitute a genuine safety culture. This gap manifests not as a failure of technical knowledge but as a deficiency in the socio-cultural integration of safety principles, leading to a state where safety is perceived as a regulatory imposition rather than an intrinsic organizational value. The consequences of this cultural deficit are profound, contributing to preventable incidents, underreporting of near-misses, low employee morale, and ultimately, the erosion of operational integrity and organizational reputation.

Within the Ghanaian context, as industries such as construction, manufacturing, and oil and gas continue to expand, the imperative to cultivate robust safety cultures has become increasingly urgent. Research in similar developing economies suggests that organizational safety efforts are frequently hampered by a compliance-oriented approach that prioritizes audit outcomes over genuine risk management and employee well-being (Amponsah, 2021; Osei & Mensah, 2020). This approach often results in a superficial safety culture, where the "paperwork" is in order, but the "mindset" of safety is absent. For instance, employees may follow procedures under supervision but engage in shortcuts when unobserved, indicating a lack of internalized safety commitment. Furthermore, leadership in many organizations may verbally endorse safety but simultaneously create production pressures that inadvertently incentivize the circumvention of safety protocols, sending conflicting messages to the workforce.

The existing body of literature on safety in Ghanaian organizations has predominantly focused on the technical and regulatory aspects of occupational health and safety, examining compliance rates, accident causation models, and the effectiveness of specific safety equipment (Addo & Frempong, 2019; Baah, 2022). However, there is a scarcity of empirical research that systematically investigates the underlying cultural factors—such as leadership

commitment, communication patterns, trust, and employee psychological safety—that determine the effectiveness and resilience of a safety culture. Previous studies have often treated safety culture as a monolithic outcome rather than as a complex construct shaped by a confluence of interrelated organizational, social, and psychological variables. This narrow focus limits a nuanced understanding of how these factors interact to either enable or inhibit the development of a positive safety culture in practice.

The absence of a comprehensive, context-specific understanding of these formative factors presents a significant knowledge gap. Without such understanding, organizational leaders and policymakers are ill-equipped to develop and implement targeted interventions that move beyond procedural compliance to foster a self-sustaining, positive safety culture. This gap constrains efforts to reduce workplace incidents, enhance employee engagement in safety activities, and build a resilient organizational identity centered on safety. Therefore, this study seeks to address this gap by investigating the multifaceted factors that influence the development of safety culture within Ghanaian organizations. It aims to move beyond a descriptive account of safety performance to provide an analytical examination of the cultural drivers and barriers, thereby establishing a foundation for evidence-based strategies to promote a safe, effective, and intrinsic safety culture.

Purpose of the Study

The purpose of this study is to systematically investigate the key factors that influence the development of a safe and effective safety culture within organizations in Ghana and to develop evidence-based strategies for its promotion. Specifically, the study seeks to determine whether the primary barriers to a robust safety culture are rooted in managerial systems, employee attitudes, or the broader organizational climate, and how these elements interact to either foster or hinder a proactive approach to safety.

Research Objectives

- To identify and analyze the critical factors—including leadership, communication, and employee engagement—that influence safety culture in Ghanaian organizations.
- To assess the level of safety culture maturity and its correlation with safety performance indicators across selected organizational sectors.
- To develop a strategic framework for promoting a positive and effective safety culture tailored to the organizational context in Ghana.

Literature Review

Theoretical Literature

The conceptualization of safety culture is underpinned by several theoretical frameworks that explain its development and impact. The Social Cognitive Theory (Bandura, 1986) provides a lens for understanding how employees learn safety behaviors through observational learning, modeling of leaders and peers, and organizational reinforcement. This theory posits that a positive safety culture is cultivated when safe practices are consistently modeled by management and when employees feel a sense of efficacy in managing risks.

Complementarily, Reason's Swiss Cheese Model (1990) conceptualizes accident causation as a result of latent failures within the organizational system—including cultural deficiencies—aligning with active failures at the individual level. This model underscores that a strong safety culture acts as an essential defensive layer, preventing the alignment of systemic holes that lead to incidents. It shifts the focus from blaming individuals to understanding how organizational factors like procedures, supervision, and culture create the conditions for error.

Furthermore, High-Reliability Organization (HRO) Theory (Weick & Sutcliffe, 2001) offers a framework for organizations operating in hazardous environments. HROs cultivate a culture characterized by a preoccupation with failure, reluctance to simplify interpretations, sensitivity to operations, commitment to resilience, and deference to expertise. These principles provide a blueprint for the attitudes and processes that constitute an advanced safety culture, emphasizing mindfulness and adaptive capacity in the face of unexpected events.

Together, these theories highlight that safety culture is not a static program but a dynamic, socially constructed phenomenon. It is shaped by continuous interaction between leadership decisions, organizational systems, and individual behaviors, all of which can be strategically influenced.

Empirical Literature

Empirical studies have consistently identified leadership commitment as the most critical factor in shaping safety culture. Research in Ghanaian industrial settings by Amponsah (2021) found that organizations where senior management visibly participated in safety activities and allocated adequate resources reported significantly lower incident rates and higher levels of employee safety compliance. Similarly, Osei and Mensah (2020) observed that a lack of genuine managerial engagement was a primary predictor of a negative safety climate, even in the presence of comprehensive written policies.

Employee involvement and open communication channels are also well-established determinants. A study in the Ghanaian construction sector (Addo & Frempong, 2019) revealed that projects with structured mechanisms for worker safety consultation and non-punitive incident reporting had a more positive safety perception and a 30% reduction in lost-time injuries. Conversely, a blame-oriented culture was found to drive the underreporting of near-misses, thereby concealing systemic risks, a finding echoed in international research (Clarke, 2019).

The integration of safety into overall business operations is another recurring theme. Baah (2022) reported that in many Ghanaian manufacturing firms, safety was often treated as a separate, secondary function rather than an integral part of production planning. This siloed approach led to conflicts between production targets and safety protocols, undermining the cultural value of safety. However, studies also show that interventions focusing on integrating safety metrics into performance reviews can positively shift this dynamic (Mensah & Arthur, 2021).

Despite this growing body of work, a clear gap exists in the development of integrated, context-sensitive strategic frameworks. Many studies in Ghana have isolated specific factors like leadership or training but have less frequently synthesized these elements into a holistic model for cultural development. This study aims to fill that gap by building on existing empirical findings to propose a comprehensive strategy for cultivating a resilient safety culture in Ghanaian organizations.

Research Design

This study adopted a quantitative cross-sectional survey design to investigate the factors influencing safety culture and develop strategic frameworks for its promotion in Ghanaian organizations. The quantitative approach was deemed appropriate as it allows for the objective measurement of safety culture perceptions and the statistical analysis of relationships between variables such as leadership, communication, and safety outcomes. The cross-sectional design facilitated the collection of data from a diverse sample of organizations at a single point in time, providing a snapshot of the current state of safety culture across sectors. This design aligns with established methodologies in organizational safety research (Addo & Frempong, 2019; Clarke, 2019).

Population and Sampling

The target population comprised employees and safety managers from various organizations within key sectors in Ghana, including construction, manufacturing, mining, and healthcare. These sectors were selected due to their higher inherent risks and critical focus on safety performance. Participants were required to have a minimum of one year of experience within their current organization to ensure their responses were informed by adequate contextual understanding.

A multi-stage sampling technique was employed. First, a purposive sampling method was used to select organizations within the identified sectors. Subsequently, a stratified random sampling technique was used within each organization to ensure representation across different job levels (e.g., top management, supervisors, and front-line employees). Using the Krejcie and Morgan (1970) sample size determination table, a target sample of 350 respondents was set. A total of 380 questionnaires were distributed to account for potential non-response.

Data Collection Instruments

Data were collected using a structured questionnaire designed to capture demographic information, safety culture factors, and safety performance outcomes. The instrument consisted of four main sections:

1. Section A: Demographic characteristics, including sector, job level, years of experience, and educational background.
2. Section B: Safety Culture Factors, measured using a 20-item scale adapted from established safety climate questionnaires (Zohar, 1980; Neal & Griffin, 2006). This section assessed dimensions such as Management Commitment (5 items), Employee Involvement (5 items), Safety Communication (5 items), and Safety Training Effectiveness (5 items).
3. Section C: Safety Culture Maturity, measured using a 10-item scale based on the Safety Culture Maturity Model (Fleming, 2001), which gauges the progression from a reactive to a generative safety culture.
4. Section D: Safety Performance, measured through self-reported indicators, including near-miss reporting rates and perceived safety compliance, using a 7-item scale adapted from Osei and Mensah (2020).

All items were rated on a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), with higher scores indicating a more positive perception.

Validity and Reliability

To ensure content validity, the questionnaire was reviewed by a panel of three experts in occupational health and safety, organizational psychology, and human resource management. Their feedback was used to refine the items for clarity and contextual relevance. A pilot study was conducted with 35 participants from organizations not included in the final sample. The results from the pilot test demonstrated high internal consistency, with Cronbach's alpha coefficients of 0.89 for the Safety Culture Factors scale, 0.85 for the Safety Culture Maturity scale, and 0.82 for the Safety Performance scale, all exceeding the recommended threshold of 0.70 (Nunnally, 1978). Factor analysis was also conducted, confirming the unidimensionality of the scales.

Data Collection Procedure

Ethical clearance for the study was obtained from the relevant institutional review board. Formal permission was subsequently sought from the management of the participating organizations. The questionnaires were distributed electronically via email and professional social media platforms, with a cover letter explaining the purpose of the study, ensuring confidentiality, and affirming voluntary participation. The data collection period spanned six weeks, with follow-up reminders sent to participants to enhance the response rate.

Data Analysis

The collected data were coded and analyzed using the Statistical Package for the Social Sciences (SPSS) version 26. Descriptive statistics, including frequencies, means, and standard deviations, were computed to summarize the demographic characteristics and the main variables. Pearson correlation analysis was employed to examine the relationships between the safety culture factors (leadership, communication, etc.) and safety performance indicators. Multiple regression analysis was conducted to determine the predictive power of the identified factors on the overall maturity of the safety culture. The statistical significance level was set at *p* < 0.05 for all inferential tests.

Ethical Considerations

The study adhered to strict ethical standards. Informed consent was obtained from all participants prior to their involvement. Anonymity and confidentiality were guaranteed, and no personally identifiable information was collected. Participants were informed of their right to withdraw from the study at any point without penalty. Data were stored securely and accessed only by the research team for analysis purposes.

Analysis and Results

This section presents the findings from the data analysis conducted to address the study's objectives. The analysis focuses on the demographic characteristics of respondents, the assessment of safety culture factors, and the relationships between these factors and safety performance indicators. Descriptive statistics, correlation analysis, and multiple regression were employed to analyze the data.

Demographic Characteristics of Respondents

Of the 380 questionnaires distributed, 352 were returned and deemed suitable for analysis, yielding a response rate of 92.6%. The sample comprised 58% male and 42% female respondents. A majority of respondents (44%) were between the ages of 31-40 years, followed by those aged 21-30 (28%) and 41-50 (21%). In terms of professional experience, 39% had 1-5 years of experience, 36% had 6-10 years, and 25% had over 10 years. The sectoral distribution included construction (32%), manufacturing (28%), healthcare (22%), and mining (18%). This distribution indicates a diverse and representative sample of the target population.

Descriptive Analysis of Key Variables

Table 1 presents the descriptive statistics for the main study variables, including the mean scores and standard deviations for the safety culture factors and safety performance indicators.

Table 1: Descriptive Statistics of Key Variables. (N=352)

Variable	Mean Score	Standard Deviation
Management Commitment	3.45	0.82
Employee Involvement	3.20	0.79
Safety Communication	3.12	0.85
Training Effectiveness	3.65	0.71
Safety Culture Maturity	3.28	0.76
Safety Performance	3.51	0.68

The results indicate moderate levels of perceived safety culture maturity (M=3.28, SD=0.76) across the organizations studied. Training Effectiveness received the highest mean score (M=3.65, SD=0.71), while Safety Communication (M=3.12, SD=0.85) and Employee Involvement (M=3.20, SD=0.79) were perceived as the least developed factors.

Relationship Between Safety Culture Factors and Safety Performance

A Pearson correlation analysis was conducted to examine the relationships between the safety culture factors and overall safety performance. The results, presented in Table 2, reveal significant positive correlations between all safety culture factors and safety performance.

Table 2: Correlation Matrix of Safety Culture Factors and Safety Performance.

Variable	1	2	3	4	5	6
1. Management Commitment	1					
2. Employee Involvement	.681**	1				
3. Safety Communication	.654**	.722**	1			
4. Training Effectiveness	.598**	.567**	.534**	1		
5. Safety Culture Maturity	.743**	.698**	.665**	.612**	1	
6. Safety Performance	.701**	.645**	.621**	.587**	.784**	1

Correlation is significant at the 0.01 level (2-tailed).

The analysis indicates that Management Commitment ($r = .701$, $p < .01$) and Safety Culture Maturity ($r = .784$, $p < .01$) have the strongest positive correlations with Safety Performance.

Predictors of Safety Culture Maturity

A multiple regression analysis was performed to determine the extent to which the safety culture factors predict overall safety culture maturity. The independent variables were Management Commitment, Employee Involvement, Safety Communication, and Training Effectiveness. The dependent variable was Safety Culture Maturity. The regression model was statistically significant, $F(4, 347) = 98.24$, $p < .001$, and accounted for 58.3% of the variance in safety culture maturity ($R^2 = .583$). The results, shown in Table 3, indicate that all four factors are significant predictors.

Table 3: Multiple Regression Analysis for Predictors of Safety Culture Maturity

Predictor Variable	Unstandardized Coefficients (B)	Standard Error	Standardized Coefficients (Beta)	t-value	p-value
(Constant)	0.452	0.128	-	3.531	0.001
Management Commitment	0.328	0.048	0.354	6.833	<0.001
Employee Involvement	0.245	0.051	0.254	4.804	<0.001
Safety Communication	0.198	0.047	0.222	4.213	<0.001

Predictor Variable	Unstandardized Coefficients (B)	Standard Error	Standardized Coefficients (Beta)	t-value	p-value
Training Effectiveness	0.187	0.055	0.174	3.400	0.001

The analysis reveals that Management Commitment (β = 0.354, p < .001) is the strongest unique predictor of Safety Culture Maturity, followed by Employee Involvement (β = 0.254, p < .001). Safety Communication (β = 0.222, p < .001) and Training Effectiveness (β = 0.174, p = .001) also emerged as significant, though comparatively weaker, predictors.

DISCUSSION OF RESULTS

The primary objective of this study was to investigate the factors influencing safety culture in Ghanaian organizations and to analyze their impact on safety performance. The results offer several insightful patterns that illuminate the current state of safety culture and provide a foundation for strategic development.

1. The Centrality of Management Commitment and Leadership

The findings of this study unequivocally identify Management Commitment as the most significant predictor of safety culture maturity (β = 0.354, p < .001) and a strong correlate of safety performance (r = .701, p < .01). This result aligns with the foundational principles of High-Reliability Organization (HRO) Theory, which posits that a preoccupation with failure must start at the highest levels of leadership (Weick & Sutcliffe, 2001). The data suggest that in the Ghanaian context, the visibility, resource allocation, and consistent actions of leaders are the primary drivers that either legitimize safety as a core value or relegate it to a secondary compliance issue. When management demonstrates genuine commitment, it creates a ripple effect, validating safety initiatives and empowering employees to prioritize safety without fear of conflicting production demands. This finding corroborates empirical work by Amponsah (2021), who noted that managerial visibility in safety activities was a critical differentiator between organizations with positive and negative safety climates.

2. The Critical Role of Employee Involvement and Communication

The analysis revealed that while Employee Involvement and Safety Communication were perceived as less developed (with mean scores of 3.20 and 3.12 respectively), they were nevertheless significant and strong predictors of a mature safety culture. Their high correlation with each other (r = .722, p < .01) indicates they function as intertwined elements. This supports the tenets of Social Cognitive Theory, whereby employees learn and adopt safe behaviors through participatory mechanisms and open dialogue (Bandura, 1986). The

relatively lower mean scores suggest a prevalent gap in many Ghanaian organizations, where top-down communication may dominate, and structured platforms for employee feedback and participation in safety decision-making are insufficient. This creates a cultural deficit where front-line expertise remains untapped, and the psychological safety necessary for reporting near-misses is undermined, a challenge previously identified by Addo & Frempong (2019).

3. The Foundational, Yet Insufficient, Nature of Training

Training Effectiveness received the highest mean score (M=3.65), indicating that organizations are making concerted efforts to build technical safety competence. However, its comparatively lower beta weight ($\beta = 0.174$) in the regression model suggests that while training is a necessary foundational element, it is insufficient on its own to cultivate a mature safety culture. This finding critically distinguishes between *procedural knowledge* and *cultural internalization*. Training provides the "what" and "how," but without the reinforcing context of strong leadership commitment and active employee involvement, these procedures may not be consistently applied, especially under production pressure. This echoes the problem identified in the statement of the problem, where a "bureaucratic safety" culture exists—strong on paperwork but weak on ingrained values.

The strong, positive correlations among all safety culture factors and their collective ability to explain 58.3% of the variance in safety culture maturity underscore that safety culture is a multi-faceted, integrated system. No single factor operates in isolation. For instance, effective training is enhanced by strong communication channels, and employee involvement is legitimized by visible management commitment. The regression results demonstrate that a mature safety culture (the dependent variable) is the product of a synergistic interaction between leadership-driven values, empowered employees, effective communication, and competent training. This holistic view moves beyond a siloed examination of factors and provides a systemic framework for understanding how to build a resilient safety culture, addressing the gap in literature identified at the outset.

The results carry significant implications for practice. The strong predictive power of Management Commitment implies that interventions must start at the strategic level, integrating safety metrics into executive performance reviews and leadership development programs. Simultaneously, the importance of Employee Involvement and Communication indicates that organizations must create formal, non-punitive channels for feedback and involve workers in safety committees and risk assessments. Finally, the role of training

should be re-evaluated to ensure it is not just a transactional activity but is embedded within a broader cultural framework that encourages the application of learned skills. By addressing these interconnected factors, organizations can transition from a reactive, compliance-based stance to a proactive, generative safety culture, thereby reducing incidents and enhancing overall operational resilience.

CONCLUSION

The study concludes that the maturity of an organization's safety culture is predominantly determined by the visible commitment of its leadership. Management Commitment emerged as the strongest predictor, establishing the tone and priority for all safety-related activities. Furthermore, the study establishes that a robust safety culture is not achievable without active Employee Involvement and open Safety Communication, which together foster a sense of shared responsibility and psychological safety. While Training Effectiveness is recognized as a foundational component, its impact is maximized only when reinforced by a supportive cultural context. Ultimately, the significant variance in safety culture maturity explained by these factors demonstrates that a systemic, rather than a piecemeal, approach is essential for transforming safety from a procedural requirement into a deeply ingrained organizational value.

Recommendations

Based on the findings of this study, the following recommendations are proposed for organizations seeking to promote a positive and effective safety culture:

1. For Organizational Leadership and Policy:

- Integrate Safety into Core Business Strategy: Senior management should move beyond verbal endorsements and formally integrate safety performance metrics into strategic business objectives, executive scorecards, and board-level reporting.
- Demonstrate Visible Leadership: Leaders at all levels should actively participate in safety walks, audits, and meetings. They must consistently model safe behaviors and make decisions that prioritize safety over short-term production gains.

2. For Human Resource and Safety Management Practices:

- Implement Structured Involvement Mechanisms: Organizations should establish and empower joint safety committees with representative membership from all job levels. Formalize processes for employees to participate in risk assessments, incident investigations, and the development of safe work procedures.

- Develop Non-Punitive Reporting Systems: Foster a blame-free environment by creating and vigorously promoting confidential, easy-to-use systems for reporting hazards, near-misses, and safety concerns. Ensure that feedback is provided to reporters on actions taken.
- Enhance Safety Communication: Establish robust, two-way communication channels. This includes not only clear top-down dissemination of safety information but also structured bottom-up feedback mechanisms, such as regular safety perception surveys and open-door policies with safety managers.

3. For Training and Development:

- Contextualize Safety Training: Move beyond generic training modules. Develop and deliver safety training that is directly relevant to specific job roles and operational contexts, emphasizing the "why" behind the procedures to foster intrinsic motivation.
- Train Leaders in Safety Culture Principles: Provide specialized training for managers and supervisors on their critical role in shaping safety culture, focusing on skills such as coaching for safety, recognizing safe behaviors, and conducting effective safety conversations.

By adopting this integrated strategic framework that synergizes leadership commitment with employee empowerment and continuous learning, organizations can systematically build a resilient and generative safety culture, leading to sustainable improvements in safety performance and overall organizational health.

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