

BEYOND RECOVERY: A MANAGERIAL FRAMEWORK FOR BUILDING RESILIENT TEAMS IN HIGH-RISK AND COMPLEX OPERATIONAL ENVIRONMENTS

ALÉM DA RECUPERAÇÃO: UMA ESTRUTURA GERENCIAL PARA CONSTRUIR EQUIPES RESILIENTES EM AMBIENTES OPERACIONAIS COMPLEXOS E DE ALTO RISCO

MÁS ALLÁ DE LA RECUPERACIÓN: UN MARCO DE GESTIÓN PARA LA CREACIÓN DE EQUIPOS RESILIENTES EN ENTORNOS OPERATIVOS COMPLEJOS Y DE ALTO RIESGO

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DOI: 10.54899/dcs.v23i91.5797

Recibido: 08/05/2026 | Aceptado: 28/05/2026 | Publicación en línea: 08/06/2026.

ABSTRACT

Organizations operating in high-risk and high-complexity sectors are exposed to disruptions whose consequences may be catastrophic for people, assets, communities and institutional legitimacy. In this context, organizational resilience cannot be reduced to post-crisis recovery. It involves the capacity to anticipate weak signals, adapt routines, absorb shocks, recover operational functionality and institutionalize learning. The central problem addressed in this study is the absence of an integrated managerial framework capable of explaining how organizations can deliberately build resilient teams rather than treating resilience as an intuitive, fragmented or post-event phenomenon. The study adopts a qualitative, theoretical and conceptual design supported by an integrative literature review. The review draws on peer-reviewed literature on organizational resilience, high-reliability operations, internal crisis communication, operational risk management, safety voice, leadership and occupational well-being. Methodologically, the study follows principles of evidence-informed management review and integrative synthesis, with explicit inclusion criteria, thematic coding and conceptual mapping. The results propose a multidimensional understanding of resilient teams and an integrated six-phase managerial cycle that connects vulnerability diagnosis, resilient leadership development, dialogic communication, well-being and readiness, simulation-based training and continuous learning. The study argues that resilience is not a static attribute but a dynamic team capability produced by managerial choices, communication quality, psychological safety, operational discipline and learning routines. The framework is transferable across high-risk sectors and provides a basis for subsequent empirical validation in industrial settings.

Keywords: Organizational Resilience. Resilient Teams. High-Risk Environments. Internal Crisis Communication. Operational Risk Management. Psychological Safety.

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RESUMO

Organizações que operam em setores de alto risco e alta complexidade estão expostas a interrupções cujas consequências podem ser catastróficas para pessoas, ativos, comunidades e legitimidade institucional. Nesse contexto, a resiliência organizacional não pode ser reduzida à recuperação pós-crise. Ela envolve a capacidade de antecipar sinais fracos, adaptar rotinas, absorver choques, recuperar a funcionalidade operacional e institucionalizar o aprendizado. O problema central abordado neste estudo é a ausência de uma estrutura gerencial integrada capaz de explicar como as organizações podem construir equipes resilientes de forma deliberada, em vez de tratar a resiliência como um fenômeno intuitivo, fragmentado ou pós-evento. O estudo adota uma abordagem qualitativa, teórica e conceitual, apoiada por uma revisão integrativa da literatura. A revisão se baseia em literatura revisada por pares sobre resiliência organizacional, operações de alta confiabilidade, comunicação interna em crises, gestão de riscos operacionais, voz da segurança, liderança e bem-estar ocupacional. Metodologicamente, o estudo segue os princípios da revisão gerencial baseada em evidências e da síntese integrativa, com critérios de inclusão explícitos, codificação temática e mapeamento conceitual. Os resultados propõem uma compreensão multidimensional de equipes resilientes e um ciclo gerencial integrado de seis fases que conecta diagnóstico de vulnerabilidade, desenvolvimento de liderança resiliente, comunicação dialógica, bem-estar e prontidão, treinamento baseado em simulação e aprendizagem contínua. O estudo argumenta que a resiliência não é um atributo estático, mas uma capacidade dinâmica da equipe, produzida por escolhas gerenciais, qualidade da comunicação, segurança psicológica, disciplina operacional e rotinas de aprendizagem. A estrutura é transferível entre setores de alto risco e fornece uma base para validação empírica subsequente em ambientes industriais.

Palavras-chave: Resiliência Organizacional. Equipes Resilientes. Ambientes de Alto Risco. Comunicação Interna em Crises. Gestão de Riscos Operacionais. Segurança Psicológica.

RESUMEN

Las organizaciones que operan en sectores de alto riesgo y gran complejidad están expuestas a perturbaciones cuyas consecuencias pueden ser catastróficas para las personas, los activos, las comunidades y la legitimidad institucional. En este contexto, la resiliencia organizacional no se reduce a la recuperación posterior a la crisis. Implica la capacidad de anticipar señales débiles, adaptar rutinas, absorber impactos, recuperar la funcionalidad operativa e institucionalizar el aprendizaje. El problema central que aborda este estudio es la ausencia de un marco de gestión integrado capaz de explicar cómo las organizaciones pueden construir deliberadamente equipos resilientes, en lugar de tratar la resiliencia como un fenómeno intuitivo, fragmentado o posterior al evento. El estudio adopta un diseño cualitativo, teórico y conceptual, respaldado por una revisión integradora de la literatura. Esta revisión se basa en literatura revisada por pares sobre resiliencia organizacional, operaciones de alta fiabilidad, comunicación interna de crisis, gestión del riesgo operacional, comunicación de seguridad, liderazgo y bienestar laboral. Metodológicamente, el estudio sigue los principios de la revisión de gestión basada en la evidencia y la síntesis integradora, con criterios de inclusión explícitos, codificación temática y mapeo conceptual. Los resultados proponen una comprensión multidimensional de los equipos resilientes y un ciclo gerencial integrado de seis fases que conecta el diagnóstico de vulnerabilidad, el desarrollo del liderazgo resiliente, la comunicación dialógica, el bienestar y la preparación, la capacitación basada en simulación y el aprendizaje continuo. El estudio sostiene

que la resiliencia no es un atributo estático, sino una capacidad dinámica del equipo, producto de las decisiones gerenciales, la calidad de la comunicación, la seguridad psicológica, la disciplina operativa y las rutinas de aprendizaje. El marco es transferible a sectores de alto riesgo y proporciona una base para su posterior validación empírica en entornos industriales.

Palabras clave: Resiliencia Organizacional. Equipos Resilientes. Entornos de Alto Riesgo. Comunicación Interna de Crisis. Gestión del Riesgo Operacional. Seguridad Psicológica.



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INTRODUCTION

In high-risk and complex operational environments, organizations are continuously exposed to disruptions whose consequences may exceed the boundaries of the firm and affect workers, communities, regulators and ecosystems. Oil and gas, metallurgy, electric power, heavy construction, mining and high-acuity healthcare share a common characteristic: apparently local deviations may escalate through technical interdependence, time pressure and organizational fragmentation. Under these conditions, resilience is not a decorative managerial vocabulary. It is a condition for preserving life, operational continuity and institutional legitimacy (Linnenluecke, 2017; Duchek, 2020; Chaudhri *et al.*, 2024).

The relevance of this problem lies in the fact that accidents and crises rarely emerge only from isolated technical failures. They frequently develop from the interaction between weak signals, normalization of deviations, inadequate communication, fatigue, hierarchical inhibition and insufficient learning from prior events. High-reliability thinking emphasizes preoccupation with failure, sensitivity to operations, reluctance to simplify interpretations, commitment to resilience and deference to expertise, all of which depend on teams that can notice, discuss and act on early signs of deterioration (Walsh *et al.*, 2021).

At the same time, resilience cannot be treated as an improvised reaction after disruption. Contemporary research understands organizational resilience as a dynamic capability involving anticipation, coping, adaptation and learning (Duchek, 2020). Positive organizational psychology also suggests that resilient organizations mobilize psychological, social and organizational resources that allow people not only to withstand adversity, but also to recover meaning, agency and collective functioning after crises (Salanova, 2020). This broader view is essential for high-

risk environments because technical barriers alone cannot compensate for teams that are exhausted, silent, poorly coordinated or unable to learn.

The practical problem remains significant. Many organizations invest in procedures, risk matrices, emergency plans and training programs, but still fail to create the relational and managerial conditions that make these instruments effective in real operations. Evidence from industrial risk management indicates that top-management commitment, communication, training, trust and organizational culture condition the effectiveness of risk management (Abu Kwaik *et al.*, 2023). Similarly, internal crisis communication research in oil and gas shows that communication quality influences perceived organizational support, affective commitment and risk perception among employees (Mohamad *et al.*, 2022).

This study therefore addresses the following research question: how can organizations deliberately and systematically build resilient teams capable of anticipating, absorbing, adapting to, recovering from and learning through operational adversity? The general objective is to propose an integrated managerial framework for building resilient teams in high-risk and complex operational environments. The specific objectives are to characterize team resilience as a multidimensional construct, to identify managerial practices associated with each dimension, to organize these practices into a sequential and cyclical model and to discuss indicators and risks associated with the absence of critical factors.

The contribution of the article is conceptual and integrative. It connects literature that are often treated separately: organizational resilience, high-reliability operations, operational risk management, internal crisis communication, leadership and occupational well-being. By doing so, it reframes resilience as a managerial capability that can be intentionally designed, practiced and improved, rather than as an informal attribute that organizations discover only after a crisis.

THEORETICAL FRAMEWORK

Organizational Resilience as a Dynamic Capability

Organizational resilience has moved beyond the narrow idea of returning to a prior state after adversity. In business and management research, resilience has been conceptualized as a dynamic capacity to deal successfully with significant change, turbulence and disruption (Linnenluecke, 2017). Duchek (2020) advances this debate by presenting resilience as a

capability-based construct that unfolds through anticipation, coping and adaptation. This processual view is important because it prevents resilience from being reduced to heroic recovery after failure.

In high-risk environments, the temporal structure of resilience matters. Anticipation refers to the ability to identify threats before they become crises. Absorption concerns the capacity to maintain essential functioning under pressure. Adaptation involves adjusting roles, routines and decisions as conditions change. Recovery restores functionality after disruption. Learning transforms the event into improved organizational capability. Sincora *et al.* (2021) also connect resilience to the ability to survive, adapt and grow in turbulent environments, especially when organizations and supply chains use analytical orientation to support decisions.

This study adopts a multidimensional view of resilient teams. A resilient team is not merely a group that endures adversity. It is a team that detects weak signals, communicates operational concerns, maintains coordination under stress, protects the well-being of its members, adapts work practices and incorporates lessons into future routines. This definition deliberately bridges the organizational, relational and human dimensions of resilience.

High-Reliability Operations and Operational Risk Management

High-risk operations are marked by interdependence, uncertainty and potential for rapid escalation. The literature on high-reliability operations is relevant because it examines how organizations sustain reliable performance despite exposure to hazardous conditions. Walsh *et al.* (2021), in the context of emergency team training, mobilize the principles of high-reliability organizations: preoccupation with failure, reluctance to simplify interpretations, sensitivity to operations, commitment to resilience and deference to expertise. These principles are not abstract ideals. They require daily practices that make weak signals visible and allow expertise to influence decisions.

Operational risk management complements high-reliability thinking by providing tools for risk identification, assessment, response and monitoring. Daryanto *et al.* (2020) illustrates the practical logic of risk assessment by relating risk to the probability and severity of harmful events and by emphasizing hazard identification as a disciplined process. Abu Kwaik *et al.* (2023) show, however, that risk management effectiveness in industrial companies depends on organizational factors such as leadership commitment, communication, training, trust and culture. For resilient

teams, this means that risk tools are necessary but insufficient. Their value depends on whether people use them, challenge them and update them when operational reality changes.

Internal Crisis Communication and Safety Voice

The model of internal communication is one of the central mechanisms through which resilience becomes operational. Kalla (2005) argues that integrated internal communication includes formal and informal communication occurring inside the organization and is closely related to knowledge sharing. Welch and Jackson (2007) also position internal communication as a strategic stakeholder process that affects the capacity of managers to engage employees and achieve objectives. In high-risk settings, this communication is not merely administrative. It is part of the safety system.

Internal crisis communication research reinforces this point. Mohamad *et al.* (2022), in a study of the Malaysian oil and gas industry, show that safety culture, supportive environment and management commitment influence internal crisis communication, which in turn is associated with perceived organizational support, affective commitment and employee crisis perception. Haavisto and Linge (2022) demonstrate that transparent and participative communication supports sensemaking and trust during crises. Kim *et al.* (2023) further show that dialogic competency, including mutuality and openness, is associated with trust, belonging and support for organizational decisions.

Safety voice is the behavioral expression of this communicative infrastructure. Curcuruto and Griffin (2023) distinguish promotive, preventive and proscriptive safety voice, emphasizing that speaking up about safety concerns can reduce future injuries by alerting those able to act. Edmondson (1999, 2018) helps explain why voice does not occur automatically: psychological safety determines whether people feel able to take interpersonal risks, ask questions, report mistakes and challenge assumptions. Resilient teams require not only channels, but also the confidence that using those channels will not result in punishment or humiliation.

Leadership, Culture and Occupational Well-Being

Leadership is the converting mechanism between formal systems and lived practice. Crisis management research suggests that effective responses depend on context, complexity and the

capacity to coordinate under uncertainty (Kuipers, 2019). Deverell (2021) shows that professionalized crisis management relies on trust building and functional collaboration, both of which can be disrupted by status and influence imbalances. Chaudhri *et al.* (2024) add that organizations need a state of preparedness sustained by engaged leadership, peacetime relationships and recognition of communication as a strategic resource.

Culture operates as the medium through which these leadership practices become durable. Inacio *et al.* (2022) argue that organizational culture is shaped by managerial attitudes and choices and conditions the success of transformation processes. In resilient teams, culture appears in how people interpret near misses, how managers respond to uncomfortable information, how errors are investigated and how learning is institutionalized.

The human substrate of resilience is occupational well-being. Sarkar *et al.* (2024) emphasize that mental health and well-being at work require leadership attention, capacity building and organizational policies capable of identifying and responding to mental health risks. This is particularly important in high-risk environments, where fatigue, chronic stress, shift work and emotional exhaustion may directly affect attention, communication and decision-making. A team that is technically trained but psychologically depleted is unlikely to sustain resilient performance under pressure.

METHODOLOGY

This study adopts a qualitative, theoretical and conceptual design operationalized through an integrative literature review. This methodological choice is appropriate because the research problem is not confined to one empirical domain. The construction of resilient teams in high-risk environments requires the integration of organizational resilience, operational risk, internal communication, leadership, psychological safety and occupational well-being. Integrative reviews are particularly useful when a field is conceptually fragmented and requires synthesis across different traditions, concepts and levels of analysis (Torraco, 2005; Van der Have & Rubalcaba, 2016).

The review also followed principles of evidence-informed management synthesis. Tranfield, Denyer and Smart (2003) argue that management reviews should move beyond unsystematic narrative selection by making the review process more transparent, replicable and auditable. Accordingly, this study used an explicit protocol composed of five stages: definition

of the guiding question, delimitation of thematic axes, selection of sources, analytical coding and framework construction.

The guiding question was: how can organizations deliberately and systematically build resilient teams in high-risk and complex operational environments? From this question, six thematic axes were established: organizational resilience, high-reliability operations, operational risk management, internal and crisis communication, leadership and crisis governance, and occupational mental health and well-being. Sources were included when they met at least one of the following criteria: peer-reviewed publication, strong conceptual recognition in the field, empirical relevance to high-risk or high-complexity environments, or methodological relevance for integrative and evidence-informed reviews.

The review prioritized sources available in the author's Google Drive corpus, in accordance with the research constraint adopted for this revision. Preference was given to recent peer-reviewed publications from 2020 onward. Seminal works were retained when they provided foundational concepts that recent literature continues to mobilize, such as psychological safety and evidence-informed review methodology. The inclusion of classic references was therefore conceptual rather than decorative.

The analytical procedure combined thematic coding and interpretive synthesis. First, each selected source was read for its central claim, empirical context, relevant construct and managerial implication. Second, propositions were coded according to five resilience dimensions: anticipation, absorption, adaptation, recovery and learning. Third, managerial practices were extracted and grouped by functional affinity. Fourth, the practices were organized into a six-phase cycle that could guide managerial action in high-risk settings. Fifth, the framework was checked for conceptual coherence, citation adequacy and practical transferability.

To improve citation rigor, each major claim in the theoretical and analytical sections was anchored in at least one source from the reviewed corpus. Tables and figures were introduced before presentation and explained after presentation. References not cited in the text were excluded from the final list, and citations without corresponding references were corrected. The study does not use primary empirical data and therefore does not claim statistical generalizability. Its contribution lies in analytical generalization: the development of a theoretically grounded framework that can be empirically tested in future longitudinal and multi-case studies.

RESULTS AND DISCUSSION

The Multidimensional Structure Of Resilient Teams

The synthesis indicates that resilient teams are sustained by five interdependent dimensions. Table 1 presents these dimensions; their managerial meaning and the principal theoretical support identified in the reviewed literature. The purpose of the table is not to separate resilience into isolated variables, but to clarify the specific managerial work required by each dimension.

Table 1

Dimensions of resilient teams in high-risk environments

Dimension	Managerial meaning	Primary theoretical support
Anticipation	Detection of weak signals, near misses and early operational drift before escalation.	Duchek (2020); Walsh <i>et al.</i> (2021); Abu Kwaik <i>et al.</i> (2023)
Absorption	Capacity to maintain essential functioning under pressure while protecting people and critical processes.	Salanova (2020); Sarkar <i>et al.</i> (2024)
Adaptation	Reconfiguration of routines, roles and decisions as operational conditions change.	Duchek (2020); Sincora <i>et al.</i> (2021); Kuipers (2019)
Recovery	Restoration of functional capacity after disruption with legitimacy, coordination and care.	Salanova (2020); Somers (2009); Chaudhri <i>et al.</i> (2024)
Learning	Institutionalization of lessons from incidents, simulations and crises into routines, training and culture.	Tranfield <i>et al.</i> (2003); Abu Kwaik <i>et al.</i> (2023); Deverell (2021)

Source: prepared by the authors based on Duchek (2020), Salanova (2020), Sincora *et al.* (2021), Walsh *et al.* (2021), Abu Kwaik *et al.* (2023), Sarkar *et al.* (2024) and Chaudhri *et al.* (2024).

The table reinforces a central argument of the study: resilience is not identical to recovery. Recovery is only one of its dimensions. A team may recover after an event and still remain fragile if it fails to detect weak signals, protect well-being, adapt decisions or institutionalize learning. Conversely, teams that develop anticipation, absorption, adaptation and learning reduce the likelihood that recovery will be needed in catastrophic form.

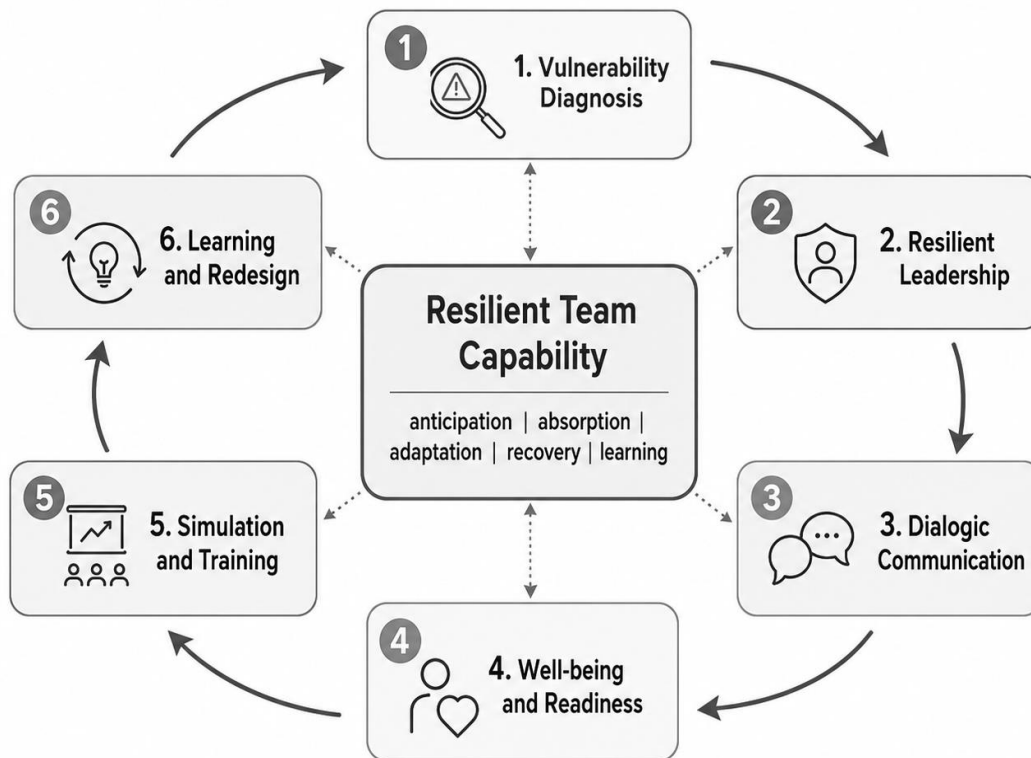
An Integrated Six-Phase Managerial Cycle

The managerial practices extracted from the literature were organized into a six-phase cycle. Figure 1 represents this logic. The cycle begins with the diagnosis of vulnerabilities and

ends with learning and redesign, which then feeds back into renewed diagnosis. This circular structure reflects the understanding that resilience is never complete. It must be continuously reproduced through routines, relationships and managerial decisions.

Figure 1

Integrated six-phase cycle for building resilient teams



The first phase, vulnerability diagnosis, maps risk exposure, weak signals, cultural barriers and psychosocial vulnerabilities. This phase is aligned with high-reliability principles and with evidence that risk management depends on organizational factors beyond technical instruments (Walsh *et al.*, 2021; Abu Kwaik *et al.*, 2023). The second phase, resilient leadership development, prepares managers to communicate under pressure, make context-sensitive decisions and model psychological safety (Kuipers, 2019; Edmondson, 2018; Chaudhri *et al.*, 2024).

The third phase, dialogic communication, creates bidirectional channels through which operational knowledge can move upward, downward and laterally. This phase draws on internal communication theory and internal crisis communication evidence (Kalla, 2005; Welch &

Jackson, 2007; Mohamad *et al.*, 2022). The fourth phase, well-being and readiness, recognizes that resilient performance depends on human energy, mental health and sustainable workload. The fifth phase, simulation and training, converts knowledge into practiced coordination under pressure. The sixth phase, learning and redesign, transforms incidents, near misses and exercises into revised procedures, renewed training and improved culture.

Managerial Practices and Mechanisms

The six phases become actionable through managerial practices that operate as mutually reinforcing mechanisms. Table 2 connects these practices with their expected contribution to resilience and examples of application in high-risk settings.

Table 2

Managerial practices for building resilient teams

Managerial practice	Contribution to resilience	Application in high-risk settings
Resilient leadership development	Strengthens adaptive decision-making, psychological safety and preparedness.	Industrial plants, emergency response teams and maintenance shutdowns.
Structured risk dialogue	Converts tacit frontline knowledge into managerial awareness and preventive action.	Safety briefings, shift handovers, risk alerts and toolbox meetings.
Bidirectional internal communication	Reduces uncertainty, improves trust and supports crisis sensemaking.	Oil and gas, metallurgy, healthcare, energy and mining operations.
Near-miss and weak-signal reporting	Increases anticipation and reduces the probability of repeated deviations.	Anonymous reporting, no-blame reviews and operational learning boards.
Well-being and fatigue management	Protects attention, emotional regulation and sustainable readiness.	Shift work, emergency teams, field operations and high-acuity care.
Simulation and after-action learning	Builds shared mental models, procedural memory and collective learning.	Emergency drills, tabletop exercises and high-fidelity simulations.

Source: prepared by the authors based on Edmondson (1999, 2018), Mohamad *et al.* (2022), Haavisto and Linge (2022), Kim *et al.* (2023), Curcuruto and Griffin (2023), Walsh *et al.* (2021) and Sarkar *et al.* (2024).

These practices should not be interpreted as an optional checklist. Their effect is systemic. Leadership shapes whether communication is credible. Communication shapes whether weak signals are reported. Reporting shapes whether learning is possible. Learning reshapes risk controls. Well-being sustains the human capacity to participate in the entire cycle. Removing one element weakens the others.

Critical Success Factors and Risks of Absence

The synthesis also identified critical success factors whose absence undermines the resilience cycle. Table 3 summarizes these factors, their observable indicators and the risks generated when they are weak or absent.

Table 3

Critical success factors, indicators and risks of absence

Critical factor	Observable indicators	Risks of absence
Safety-oriented culture	Near-miss reporting, open incident reviews, consistent adherence to critical procedures.	Normalization of deviation, recurrent incidents and hidden operational drift.
Leadership commitment	Visible participation in safety routines, fast response to concerns, coherent decisions under pressure.	Cynicism, symbolic compliance and distrust of safety initiatives.
Psychological safety	Workers ask questions, report errors, challenge assumptions and request help.	Silence, defensive routines and late escalation of abnormal conditions.
Integrated internal communication	Clear channels, consistent messages, dialogic forums and rapid feedback loops.	Rumors, ambiguity, delayed response and fragmented sensemaking.
Occupational well-being	Fatigue controls, mental health support, sustainable workload and reduced absenteeism.	Burnout, attention failures, interpersonal conflict and safety degradation.
Continuous learning	Updated procedures, lessons learned, redesigned training and cross-team dissemination.	Repeated failures, blame culture and loss of organizational memory.

Source: prepared by the authors based on Linnenluecke (2017), Duchek (2020), Salanova (2020), Mohamad *et al.* (2022), Abu Kwaik *et al.* (2023), Curcuruto and Griffin (2023) and Sarkar *et al.* (2024).

The presence of these factors allows the resilience cycle to function as a managerial system. Their absence creates a false sense of preparedness. For example, a company may have emergency plans but lack psychological safety. It may have safety indicators but weak learning. It may have leaders who speak about resilience but overload teams to the point of fatigue. In such cases, resilience exists as discourse rather than as operational capability.

Theoretical and Managerial Implications

The theoretical implication of the framework is that resilient teams should be understood as sociotechnical units. They are shaped by risk controls, communication channels, psychological conditions, leadership practices and learning routines. This interpretation avoids two reductions:

the technical reduction, which treats resilience as a matter of procedures and tools, and the psychological reduction, which treats it as individual toughness. In high-risk environments, resilience is collective, relational and managerial.

The managerial implication is direct. Building resilient teams requires disciplined attention to the ordinary routines that preceded crises. A serious pre-shift dialogue, a manager who listens to a weak signal, a well-designed simulation, a transparent explanation during uncertainty and a no-blame review of a near miss are not small gestures. They are the daily infrastructure of resilience. The framework therefore offers a roadmap for organizations seeking to convert the language of resilience into observable practices.

FINAL CONSIDERATIONS

This study proposed an integrated managerial framework for building resilient teams in high-risk and complex operational environments. The central argument is that resilience is not a spontaneous reaction to crisis and cannot be reduced to recovery. It is a systemic team capability built through anticipation, absorption, adaptation, recovery and learning, sustained by leadership, communication, psychological safety, operational discipline and occupational well-being.

The integrative review showed that the literature on organizational resilience, high-reliability operations, operational risk management, internal crisis communication and well-being converge around a common insight: systems become resilient when people are able to notice threats, communicate concerns, coordinate action, protect human capacity and learn from experience. In this sense, the resilient team is not the one that never faces adversity. It is the one that remains sufficiently attentive, cohesive and adaptive to traverse adversity without losing its capacity to act and learn.

The proposed six-phase cycle offers a practical contribution for managers. It translates conceptual knowledge into a sequence of actions: diagnose vulnerabilities, develop resilient leadership, strengthen dialogic communication, protect well-being and readiness, train through simulation and institutionalize learning. The model is deliberately cyclical because high-risk environments do not allow permanent closure. Each incident, drill, audit or weak signal should renew the diagnosis and improve the system.

The study has limitations. It is conceptual and based on secondary literature, so its propositions should be read as analytically grounded hypothesis rather than as empirically tested

causal claims. The corpus was intentionally bound by the sources available in the Google Drive repository and by thematic relevance to high-risk environments. Future research should test the framework through longitudinal case studies, comparative multi-case designs and mixed-method investigations in sectors such as metallurgy, oil and gas, energy, mining, emergency response and high-acuity healthcare. Indicators such as near-miss reporting, response time to risk alerts, psychological safety, absenteeism, training effectiveness and incident recurrence may be used to operationalize the model.

Resilience, ultimately, is not the absence of failure. It is the capacity to detect fragility before collapse, to act under uncertainty without losing coordination, to protect people while preserving operations and to transform painful experience into safer practice. In high-risk environments, that capacity is not optional. It is a managerial duty.

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