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# Embedding risk culture in a financial institution: an action research perspective

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## Abstract

This paper documents a one-year Action Research project designed to embed risk culture within a financial institution. Through a participatory and iterative process, the study integrates initial survey results, collaboratively develops targeted interventions, and aligns them with organizational strategies. The phased approach included defining risk culture, analyzing survey data, implementing structured interventions, and institutionalizing governance mechanisms to ensure long-term cultural alignment. Key outcomes include the establishment of governance structures such as guiding principles, a formalized review process, and performance-linked indicators (KPIs) to monitor progress. Additionally, tailored actions were designed to drive measurable improvements in employee engagement with risk culture principles. This study contributes to the literature by demonstrating how risk culture can be operationalized through structured yet participatory processes, bridging the gap between compliance expectations and internal cultural transformation. It also highlights the underexplored potential of Action Research as a dynamic methodology for enabling change in regulated environments. By integrating diagnostic insights, governance mechanisms, and cultural adaptation into a coherent transformation process, the study provides a replicable framework for embedding risk culture in financial institutions and contributes to ongoing debates on methodological interdisciplinarity in management research.

**Keywords** Risk culture · Action research · Organizational development · Governance · Regulatory compliance · Interdisciplinarity

**JEL Classification** M14

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## 1 Introduction

In today's dynamic and evolving financial environment—shaped by regulatory changes, technological innovation, and shifting market conditions—risk management remains central to ensuring organizational resilience and stability (Baghersad and Zobel 2022; Marquez-Tejon et al. 2022; Lisdiono et al. 2022; Durst et al. 2019). A robust risk culture is a crucial part of effective risk management, as it not only enhances an organization's capacity to manage uncertainties and maintain continuous operations during disruptions (Osman and Lew 2021; Aven and Ylönen 2021; Sheedy et al. 2019) but also contributes to the development and effectiveness of well-structured, efficient, and effective risk governance frameworks. These frameworks play a critical role in aligning organizational objectives and ensuring operational stability, as highlighted by Agnese and Capuano (2021). Empirical research suggests that financial institutions with well-established risk cultures not only demonstrate higher levels of compliance but also achieve better financial performance and risk-adjusted returns (Sheedy et al. 2017; Bianchi et al. 2021).

Management scholarship has long drawn on insights from multiple disciplines to address organizational, societal, and regulatory challenges. In the context of cultural change in regulated environments, interdisciplinary perspectives remain particularly valuable for capturing the dynamic, systemic nature of such transformations. Such perspectives allow researchers to combine theoretical lenses and methodological tools from neighboring fields to design interventions that are both context-sensitive and practically actionable. Traditional methods and theories often struggle to fully reflect this complexity, especially in areas such as cultural change in regulated environments. Interdisciplinary methodologies—particularly those adopted from neighboring disciplines—offer fresh perspectives and tools for studying and managing such phenomena (Miller et al. 2008; Aversa et al. 2024). Recent research has highlighted, for example, how the alignment between organizational culture and governance structures (Einhorn et al. 2024), the ambivalence of cultural stability in innovation processes (Janka et al. 2020), and the theoretical underpinnings of organizational change (Parastuty et al. 2015) all contribute to understanding and shaping complex transformation efforts. Building on these insights, this study applies an Action Research framework to examine how cultural change can be embedded into formal governance mechanisms in a regulated organizational context. Yet, as several scholars have pointed out, the implementation of interdisciplinarity is often constrained—not only by structural boundaries and institutional inertia but also by epistemic tensions between fields and concerns about disciplinary coherence (Jacobs and Frickel 2009; Markóczy and Deeds 2009).

Complementing these critiques, Zahra and Newey (2009) emphasize that intersections between academic disciplines can foster creative theory development, particularly when research addresses complex, real-world challenges. However, this position has been challenged by Markóczy and Deeds (2009), who caution that while interdisciplinarity may generate novel theories, it can also compromise the consolidation of management as a distinct academic discipline with its own theoretical and methodological identity.

This exchange reflects the dual nature of interdisciplinarity: both structurally constrained and potentially generative. This paper builds on that insight by integrating Action Research (AR), a participatory methodology with roots in social psychology and educational research, into the field of risk culture management in financial institutions. As scholars have noted, methodologically grounded interdisciplinarity enables richer, more actionable insights in management research—particularly when such approaches engage with complex, multi-level organizational phenomena (Jarzabkowski et al. 2025; Bakker et al. 2019).

Following the global financial crisis of 2007–2009, regulators such as the Financial Stability Board (FSB), the European Central Bank (ECB), and the Basel Committee on Banking Supervision reinforced the importance of risk culture for financial system stability. The FSB introduced guiding principles to strengthen risk culture, while regulatory requirements such as AT 3 MaRisk (BaFin 2023) mandate the management board of financial institutions to observe and promote risk culture within their governance structures. While these regulatory initiatives provide structural guidance on the importance of risk culture, they do not in themselves create a strong risk culture, as their effectiveness depends on sustained commitment from organizational leadership and active participation across all levels beyond compliance (Bockius and Gatzert 2023).

Despite these regulatory efforts, organizations continue to face difficulties in translating risk culture principles into sustainable practices. Varied approaches to the implementation and auditing of risk culture create challenges in ensuring resilience and compliance. As Sinha and Arena (2020) show, internal auditing of risk culture is approached differently by key stakeholder groups in the financial sector. Regulators and implementers tend to emphasize verification-oriented controls, whereas consultants and normalizers combine auditing with employee empowerment through training. This divergence in emphasis shapes how risk culture is embedded into governance structures and influences the balance between compliance assurance and cultural development.

Various measurement approaches have been proposed, including psychometric risk culture scales (Ghafoori et al. 2023) and alternative data-driven assessments (Agarwal et al. 2019). Although the FSB framework provides guiding principles for strengthening risk culture and AT 3 MaRisk (BaFin 2023) mandates its observation and promotion, they do not specify how organizations should implement cultural change in practice. Prior research has identified key elements such as tone from the top, accountability, communication, and incentives as essential for fostering risk culture (Bianchi et al. 2021). Additionally, Kunz and Heitz (2021) highlight that fragmented approaches and tensions between regulatory and market demands often hinder the development of a cohesive risk culture within banks, particularly when risk culture is not effectively embedded into management control systems. Another challenge is assessing cultural adaptation, as existing measurement approaches remain fragmented and often fail to integrate governance structures with employee perceptions (Ghafoori et al. 2023).

While previous research has outlined key components of risk culture (Bockius and Gatzert 2023), less attention has been given to the mechanisms that facilitate its institutionalization beyond compliance requirements. Many organizations struggle to

move beyond regulatory adherence and embed risk culture as an integral part of their strategic and operational frameworks. This gap highlights the need for a broader perspective on risk culture—one that accounts for both formalized governance mechanisms and the underlying values that shape organizational behavior.

Recent research highlights that risk studies remain fragmented, with risk being understood either as a quantifiable metric or as a value-driven organizational construct (Jarzabkowski et al. 2025). While regulatory frameworks establish formal structures for risk governance, the dominance of metric-based control mechanisms often obscures the underlying value systems that shape risk perceptions and organizational responses. This study contributes to this discussion by providing empirical insights into how financial institutions institutionalize risk culture through an Action Research approach, bridging the gap between compliance-driven mechanisms and participatory organizational change. In this paper, compliance-driven mechanisms are understood as formal governance tools such as policies, reporting systems, and control procedures that primarily serve regulatory assurance. While they provide structural anchors, our findings indicate that they do not by themselves trigger cultural transformation unless they are embedded into communicative and participatory processes that create shared meaning. By integrating both metric-driven risk controls and value-based cultural dimensions, this research underscores the need for a more holistic approach to risk governance that acknowledges the entanglement of epistemic and strategic bases of risk.

In particular, the study provides insights into the practical implementation of risk culture, identifying key drivers for acceptance, challenges in operationalization, and implications for long-term institutionalization in a real-world setting. Grounded in the principles of Action Research, the study follows iterative cycles of action, observation, and reflection (Lewin 1946; Reason and Bradbury 2008), ensuring that interventions remain dynamic and responsive to organizational needs. Our approach offers a replicable method for financial institutions seeking to embed risk culture sustainably. In doing so, it contributes to the growing conversation on methodologically grounded interdisciplinarity in management research—demonstrating how participatory approaches from neighboring disciplines can be translated into the context of organizational governance and cultural transformation (Bartunek and Rynes 2014; Jarzabkowski et al. 2025; Bakker et al. 2019).

More specifically, while this study follows an Action Research methodology, our findings reveal connections to existing theoretical frameworks. Change management theories (Kotter 1996; Buick 2024) suggest that cultural change in organizations is often met with resistance, requiring structured interventions and leadership engagement to align individual and collective behaviors with strategic goals. In the context of risk culture, these principles help ensure that governance mechanisms are not perceived as mere regulatory formalities but are actively embraced by employees. Psychological Safety (Edmondson 1999; Edmondson and McManus 2007; Sadek 2024) plays a crucial role in this process, as employees must feel comfortable voicing concerns without fear of repercussions. Without such an environment, risk culture initiatives risk being perceived as externally imposed rather than as meaningful efforts to improve organizational resilience. The iterative nature of risk culture transformation suggests that employees do not simply adopt predefined frameworks but

actively construct their own understanding of risk-related policies. Sensemaking Theory (Weick 1995; Taarup-Esbensen 2023) helps explain this dynamic interpretation process, demonstrating how individuals and teams shape their responses to governance structures and cultural interventions. In this process, discursive framing and language play an important role in guiding meaning-making and shaping the perceived legitimacy of control practices (Whittle et al. 2023). Symbolic signals, such as leadership messaging and narrative framing, complement formal governance by providing interpretive cues that embed risk-related expectations in culturally resonant terms. Additionally, non-financial and cultural control mechanisms—such as appraisal criteria, value-based communication, or nudging—can support alignment between formal systems and internalized behavior (Malmi and Brown 2008; Thaler and Sunstein 2008; Roy et al. 2024).

From an Institutional Theory perspective (Greenwood and Hinings 1996; Zietsma and Lawrence 2010), organizations navigate between regulatory compliance and internal cultural adaptation. Rather than viewing compliance as a rigid constraint, institutions can leverage governance frameworks to drive cultural change, embedding risk culture into their strategic and operational structures.

Finally, Corporate Governance research (Cohen 2015) highlights the role of formal structures, policies, and accountability mechanisms in shaping risk-related behaviors. While good governance, by definition, encompasses vision, values, and culture, in practice governance-based approaches often focus on formal structures and control mechanisms. In such cases, complementary participatory processes are essential to ensure that risk culture is co-developed with employees through iterative learning cycles.

By integrating these theoretical perspectives into a participatory, interdisciplinary methodology, our findings suggest that the institutionalization of risk culture is not solely a compliance-driven process but an evolving interplay of governance structures, employee engagement, and cultural adaptation. This illustrates how methodologically grounded interdisciplinarity—in this case, Action Research—can serve as a bridge between theory and practice, supporting the translation of academic concepts into meaningful organizational transformation.

## 2 Literature review

### 2.1 Risk culture in the financial sector

Risk culture, as a subset of organizational culture, encompasses the shared attitudes, values, norms, and behaviors within an organization that shape how risks are identified, assessed, and managed. Schneider et al. (2013, p. 362) define organizational culture as “the shared basic assumptions, values, and beliefs that characterize a setting and are taught to newcomers as the proper way to think and feel, communicated by the myths and stories people tell about how the organization came to be the way it is as it solved problems associated with external adaptation and internal integration.” Building on this foundation, risk culture reflects how organizational norms, beliefs, and principles influence risk-related decision-making and practices (Schein 1990;

Schneider et al. 2013; Willcoxson and Millett 2000). According to Kunz and Heitz (2021, p. 443), risk culture “constitutes the shared experiences of individuals and comprises norms, values, traditions, and attitudes, which lead to particular activities related to the handling of risk and its consideration in decision processes.”

Several frameworks further define and operationalize risk culture. The Financial Stability Board (FSB) (2014) identifies four key attributes of effective risk culture: tone from the top, accountability of employees, adequate incentives, and effective communication and challenge. Similarly, the Institute of International Finance (2009) describes risk culture as “the norms and traditions of the behavior of individuals and of groups within an organization that determine the way in which they identify, understand, discuss, and act on the risks the organization confronts and the risks it takes.” These attributes underscore the integration of individual and collective actions in shaping organizational responses to risk.

Risk culture is critical in all organizations, but particularly consequential in financial institutions due to the extent of the promises made to customers and the difficulty customers face in independently evaluating the security of those commitments. In this context, risk culture helps ensure alignment between strategic objectives and risk management practices. As Roeschman (2014) notes, risk culture is a product of organizational learning, evolving from past experiences to address specific challenges and opportunities. However, as each organization faces unique risks, the Australian Prudential Regulation Authority (2016) emphasizes the importance of aligning risk culture with the institution’s specific business objectives and values.

Additionally, scholars emphasize the multidimensionality of risk culture. For example, the Institute of Risk Management (IRM) (2012) highlights that risk culture embodies values, beliefs, and shared understandings about risk within an organization. These elements influence daily decision-making, risk awareness, and management practices.

In conclusion, risk culture serves as a cornerstone of effective risk management, linking organizational behavior with strategic resilience. By incorporating frameworks such as those provided by the FSB and IRM and considering the unique contexts of individual organizations, risk culture development can address both regulatory requirements and operational challenges.

## 2.2 Action research methodology

Action Research (AR) is a participatory and collaborative methodology designed to develop practical knowledge and drive meaningful change. It integrates systematic inquiry with practical problem-solving, making it particularly suitable for addressing complex organizational challenges. Reason and Bradbury (2008) describe AR as an approach that “seeks to bring together action and reflection, theory and practice, in participation with others, in the pursuit of practical solutions to issues of pressing concern to people, and more generally the flourishing of individual persons and their communities” (p. 4). The methodology originated with Kurt Lewin, who in 1946 introduced AR as a cyclical process comprising iterative phases of planning, acting, observing, and reflecting. Lewin emphasized that this structure not only solves immediate problems but also contributes to generalizable knowledge (Lewin 1946).

Iteration is central to AR, as the process unfolds in cyclical phases like diagnosing, planning, acting, observing, and reflecting. While the core phases of planning, action, observation, and reflection remain central, the specific steps and methods vary depending on the study context and research objectives (Puri 2023; Susman and Evered 1978). This spiral cycle of self-reflection allows for ongoing adjustments and refinements to the research process, ensuring that it remains responsive to the evolving context and needs of the participants (Cordeiro et al. 2017; Marshall et al. 2014). Over the years, AR has diversified into multiple forms, leading to a variety of terms to describe its approaches, such as participatory action research, collaborative inquiry, feminist participatory research, community-based participatory research, and participatory rural appraisal (Reason and Bradbury 2008). Despite its evolution and variations, Lewin's foundational principles remain essential. This methodological positioning also resonates with broader theoretical conceptions of organizational change. In their systematic review, Parastuty et al. (2015) identify a range of theories—including organizational learning and evolutionary approaches—that conceptualize change as an incremental, cyclical process. Such perspectives align well with the iterative and participatory nature of Action Research as applied in this study.

Action Research actively involves stakeholders as co-researchers, fostering collaboration to address challenges relevant to the community and grounding the research in participants' real-world experiences (McTaggart 1991; Kidd and Kral 2005). Its practical orientation ensures that AR not only seeks to understand phenomena but also generates actionable solutions with tangible benefits (McNiff 2003). By integrating the perspectives of researchers and practitioners, AR bridges theory and practice, enabling sustainable change and delivering both actionable outcomes and theoretical insights (Yang et al. 2017). This methodology addresses diverse challenges, from organizational to societal issues, emphasizing practical problem-solving over theoretical abstraction (Cordeiro et al. 2017; Canlas and Karpudewan 2020).

### 2.3 Action research in the context of risk culture

Developing a robust risk culture in financial institutions requires methodologies that align strategic objectives with behavioral change while navigating complex organizational dynamics. AR, with its participatory and iterative framework, offers an effective approach to addressing these challenges. By combining theoretical insights with practical problem-solving, AR provides a flexible methodology for fostering risk culture and achieving measurable outcomes.

AR's iterative nature enables dynamic adaptation of risk-related interventions, ensuring relevance in evolving contexts. Yang et al. (2017) demonstrate how AR fosters operational risk management through feedback-driven processes that continuously align strategic goals with organizational practices. Moreover, the participatory orientation of AR fosters legitimacy and sustainability of cultural change by actively involving stakeholders as co-researchers (McTaggart 1991; Kidd and Kral 2005).

In summary, AR's emphasis on iterative improvement, stakeholder engagement, and measurable outcomes aligns closely with these complementary strategies, enhancing its utility as a holistic methodology for fostering risk culture in financial institutions. Building on these insights, Table 1 (see Discussion) synthesizes the

**Table 1** Theoretical mechanisms across risk culture interventions

Dimension	Theoretical foundation	Cross-case implications
Problem diagnosis	<p>Institutional theory: decoupling &amp; symbolic legitimacy (Meyer and Rowan 1977; Suchman 1995)</p> <p>Sensemaking theory: lacking interpretive cues (Weick 1995; Maitlis and Christianson 2014)</p> <p>Language as a sensemaking resource (Whittle et al. 2023)</p>	<p>Across all vignettes, employees perceived a disconnect between formal structures (e.g., control systems, strategies, reporting channels) and their cultural relevance. This eroded legitimacy, fostered ambiguity, and weakened shared sensemaking</p>
Intervention logic	<p>Cultural &amp; administrative controls (Malmi and Brown 2008)</p> <p>Symbolic recoupling (Bromley and Powell 2012)</p> <p>Communicative sensemaking (Weick 1995; Whittle et al. 2023)</p> <p>Ethical culture: transparency &amp; discussability (Roy et al. 2024)</p> <p>Behavioral nudging (Thaler and Sunstein 2008)</p> <p>Psychological safety: learning climate &amp; voice behavior (Edmondson 1999)</p>	<p>Interventions aimed to restore cultural alignment by reframing existing systems through narrative tools, symbolic signals, and leadership communication—thereby enhancing interpretive clarity, fostering psychological safety, and reinforcing shared norms without altering core structures</p>
Methodological foundation	<p>Action Research (Lewin 1946; Reason and Bradbury 2008)</p>	<p>The iterative Action Research cycles of Diagnosis, Planning, Action, and Reflection provided the framework to jointly define risk culture measures, align them with existing governance mechanisms, and refine them through participatory feedback loops. This methodological approach ensured that the initiatives were not only formally anchored but also culturally embedded, thereby enhancing both their legitimacy and sustainability</p>

theoretical mechanisms observed across our case vignettes. To strengthen the link between literature and findings, we include Action Research as a methodological foundation alongside institutional, sensemaking, and control perspectives. This highlights AR's distinctive role in bridging structural mechanisms with cultural interpretation through iterative, participatory engagement.

### 3 Methodology

#### 3.1 Action research framework

The project was initially conceived as a practical initiative to strengthen and promote risk culture within a German Bausparkasse (a building society specializing in home savings and mortgage lending). The institution is an integral part of a larger German financial group whose core business lies in insurance, and is therefore subject to group-wide governance structures, policies, and oversight mechanisms. The Bausparkasse employs around 400 staff, while the parent group (excluding the Bausparkasse) has approximately 16,000 employees. Compared to universal or investment banks, Bausparkassen typically operate with a narrower business model, lower

product complexity, and more stable customer relationships. As Sheedy et al. (2017) notes, size and organizational complexity can influence the dynamics of risk culture, with smaller and more specialized institutions often facing different cultural challenges than large, diversified banks.

Its design focused on developing and implementing a comprehensive catalog of measures aimed at enhancing risk culture across the organization. In this paper, the term *measures* primarily refers to organizational actions implemented to promote and embed risk culture. For stylistic variation, synonymous terms such as initiatives, actions, interventions are used interchangeably throughout the manuscript. As the project unfolded, its structure naturally aligned with the principles of AR, particularly through its cyclical process. Recognizing this alignment allowed us to frame the project retrospectively within an AR framework, highlighting both its practical outcomes and its contribution to research methodology. While the framework of Diagnosis, Planning, Action, Reflection, and Outcome provides a structured lens for analyzing the project, the actual work did not follow a strictly sequential order. Instead, iterative cycles characterized the process, with team members frequently revisiting earlier stages as new insights emerged. Actions discussed during diagnostic sessions were refined during planning and action phases, while reflections on feasibility often prompted adjustments to earlier steps. This iterative approach ensured that interventions remained dynamic and responsive to organizational needs. The project was organized into the following phases: Defining Risk Culture, Survey Analysis and Action Identification, Designing and Finalizing Risk Culture Initiatives.

### 3.2 Context and participants

The project was conducted in a regulated environment that emphasized the development, promotion, integration, and monitoring of a sustainable risk culture. Compliance with AT 3 MaRisk (BaFin 2023) served as a foundational driver, aligning the organization's practices with the European Central Bank's (ECB 2024) guidelines on governance and risk culture, as well as the Financial Stability Board's (FSB 2014) framework. These regulatory frameworks underscored the need for a cohesive risk culture across all levels and departments of the organization. An anonymous employee survey conducted in late 2022, using a scientifically validated scale developed by the authors in collaboration with the organization, revealed opportunities for improvement, particularly regarding employee awareness and alignment with risk culture principles. The survey instrument was developed in line with the FSB framework and validated through psychometric testing; details of the scale development process are provided in Appendix A.

The primary objective of the project following these observations was to strengthen the organization's risk culture by developing and implementing a catalog of actionable initiatives. These actions were integrated into a newly developed policy document, specifically designed during the project to outline the organization's approach to fostering and embedding risk culture at all levels. This document serves as a cornerstone for aligning cultural practices with governance structures and regulatory requirements, ensuring long-term sustainability. Moreover, it has been incorporated into the Schriftlich fixierte Ordnung (SfO) of the company, further solidifying its

role within the organization. The SfO is a structured compilation of all valid organizational and operational regulations, as required under MaRisk AT5 (BaFin 2023). It encompasses all directive information related to the organization's governance, including the business and risk strategy, the corresponding guidelines derived from these strategies, detailed descriptions of business processes, and process documentation. Additionally, it includes supplementary information in its appendix, ensuring a comprehensive framework for organizational and strategic alignment. While specific to the German regulatory environment, the SfO serves a comparable function to internal control frameworks under the UK Corporate Governance Code, enterprise risk management manuals in Australia, or governance, risk, and compliance (GRC) systems commonly used in U.S. financial institutions. By embedding the newly developed risk culture policy document into the SfO, the project ensures that the measures to strengthen risk culture are systematically anchored in the organization's overarching regulatory and operational architecture, enhancing both accountability and sustainability.

The project was designed as a cross-departmental initiative, involving 14 representatives from all departments and hierarchy levels of the building society. This diverse team composition ensured a broad spectrum of perspectives, enhancing the relevance and applicability of the project outcomes. The participant group included representatives from all three lines of defense, including one person from each special function according to MaRisk—the risk control function (AT 4.4.1), the compliance function (AT 4.4.2), and internal audit (AT 4.4.3). Additionally, one of the authors of this paper acted as an embedded researcher, contributing to the project while observing and analyzing its processes retrospectively through the lens of Action Research. Participants acted as intermediaries, gathering input from their respective departments and fostering organization-wide engagement. The project was led by two internal employees in the role of project leaders, who provided guidance by facilitating collaborative efforts and ensuring alignment with organizational and strategic goals.

The project was structured within an overarching timeline to provide a framework for coordination and progress monitoring. While the timeline included key milestones, such as the integration of actions into the SfO and the handover of responsibilities to line management, the iterative nature of Action Research provided flexibility for continuous refinement. The commissioning phase in January 2024 focused on defining the project charter and conducting a materiality analysis as part of the planning process, in line with regulatory requirements (MaRisk AT2, BaFin 2023). The materiality analysis aimed to assess the potential impact and scope of changes required by the end of the project, providing an early estimation of the magnitude of adjustments needed. This process aligns with the principles outlined in MaRisk AT 8.2 (BaFin 2023), ensuring that potential risks associated with changes to organizational processes and structures were identified and addressed. Additionally, it ensured that the project leadership considered all critical functions and regulatory aspects, facilitating comprehensive project planning and alignment. The formal kickoff meeting in February 2024 set the stage for collaborative work, emphasizing shared understanding and alignment with both regulatory expectations and organizational strategy. Subsequent phases incorporated iterative cycles of diagnosis, planning, action, and reflection, ensuring responsiveness to emerging insights.

The project was strategically significant as it addressed both regulatory compliance and the organization's broader goal of fostering a sustainable risk culture. By embedding risk culture into governance structures through the newly developed SfO, the initiative aligned organizational behavior with strategic objectives and regulatory frameworks. The inclusive, cross-departmental approach ensured diverse input and broad engagement, enhancing the sustainability and impact of the outcomes. The balanced combination of structured milestones and iterative adaptability underscored the project's alignment with Action Research principles, offering a dynamic model for cultural transformation in a regulated environment.

To provide richer insight into the change dynamics of each phase, we integrated short reflective elements at the end of each project cycle. These were based on concrete experiences from the project team and included observations, group-level sensemaking, and contextual interpretation. This approach allowed us to make local learning dynamics visible without interrupting the chronological flow of the project description. It aligns with the iterative and participatory nature of Action Research and supports a more grounded understanding of cultural transformation as a negotiated, context-sensitive process.

## **4 Results: action research phases**

### **4.1 Phase 1: defining risk culture**

The initial phase of the project focused on developing a shared understanding of risk culture across the organization and establishing guiding principles (“Leitsätze”) to anchor subsequent activities. While the project followed a structured plan based on the PRINCE2 methodology, ensuring clear timelines and responsibilities, the iterative and participatory nature of the process allowed for flexibility in execution. Representatives from all departments were actively engaged to align the project with the organization's strategic goals and regulatory requirements.

Spanning a period of two months, the process was characterized by regular meetings of the core project group, complemented by informal exchanges and departmental discussions. The kick-off meeting was followed by a three-week interval to allow participants sufficient time to work on assigned tasks, after which the project group met weekly. In total, six formal project meetings were held, maintaining a balance between structured planning and iterative adaptation to ensure stakeholder engagement and continuous learning.

#### **4.1.1 Diagnosis: understanding risk culture**

The diagnosis phase began with a kickoff meeting on February 7, 2024, involving 11 team members, including representatives from all organizational departments, two project leaders, and one of the study's authors. This session aimed to establish the project's scope, set expectations, and provide a foundation for collaborative work. Participants agreed on using a virtual whiteboard for brainstorming and Confluence, the company's internal wiki, for documenting and sharing results, ensuring transpar-

ency and accessibility throughout the process (Marshall et al. 2014). In addition, a special project drive was set up to centralize and store all relevant materials, providing easy access to all project participants from the various project areas. This combination of tools facilitated efficient collaboration and ensured that all participants had access to the latest project updates and documentation.

Two primary activities characterized the diagnosis phase: exploring perceptions and definitions of risk culture and conducting a comprehensive cataloging of existing initiatives. This cataloging served as a systematic inventory of current practices and interventions already in place across the organization. During the sessions, participants shared their departmental perspectives on risk culture, which were visualized on the virtual whiteboard using Post-it notes. One section of the board captured what each department understood by “risk culture”, while another highlighted terms that participants found unclear or difficult to explain. These terms were flagged for further clarification and eventually incorporated into a glossary. This exercise not only revealed areas of alignment but also highlighted gaps in understanding, which became focal points for subsequent discussions.

In parallel, representatives conducted a detailed inventory of existing actions related to risk culture, such as policies, training programs, and guidelines. This information was systematically documented on the virtual whiteboard, with each department allocated a dedicated space to outline their contributions. The findings were then consolidated into a shared repository on the project drive, providing all participants with a central resource for collaboration. By building on this comprehensive overview of existing initiatives, the project team was able to identify specific opportunities to enhance and better integrate risk culture practices across the organization.

During the diagnosis process, it became clear that risk perceptions varied significantly across departments. These differences were shaped by operational exposure, hierarchical level, and prior experience. Surfacing these divergent views was essential to build a shared understanding and underscored the importance of developing a common glossary and inclusive dialogue.

#### 4.1.2 Planning: establishing key concepts

Building on the insights gathered during the diagnosis phase, the planning step focused on clarifying and standardizing key terms and concepts related to risk culture. This step was designed to address the inconsistencies and misunderstandings identified during initial workshops. Participants revisited the terms flagged during the diagnosis phase and worked collaboratively to ensure a consistent understanding across the organization.

One of the outcomes of this phase was the development of a glossary that included terms essential for understanding and operationalizing risk culture, ensuring a common language that was accessible to all employees regardless of their prior knowledge. These terms were selected based on their perceived ambiguity or potential for misunderstanding, both among project team members and across the broader organization. By iteratively refining the glossary through feedback from team members and departmental representatives, the team established a shared language that would serve as a foundation for subsequent activities.

In parallel, the team developed a “Risk Culture Map,” a visual representation of the organization’s collective understanding of risk culture. Using insights from the diagnosis phase, participants grouped related ideas into broader themes and connected them using the digital whiteboard. This mapping process helped highlight the relationships between different aspects of risk culture and provided a structured framework for drafting the guiding principles. To prioritize the themes, the team conducted a structured rating process, where participants systematically evaluated the relevance and importance of each element. This process led to three core themes that later formed the guiding principles: We consciously weigh risks and opportunities to avoid or seize them, We promote risk culture at all levels, and We foster an open culture of dealing with mistakes.

These prioritized themes formed the foundation for the guiding principles developed in the subsequent phase. The planning step thus successfully transitioned the project from exploratory discussions to a structured and actionable framework, ensuring alignment with both organizational goals and stakeholder expectations.

#### **4.1.3 Action: developing guiding principles**

The action step was centered on transforming the prioritized themes from the Risk Culture Map into actionable guiding principles. This process involved multiple iterations, with team members collaboratively drafting, reviewing, and refining the principles to ensure they were both aspirational and practical.

The development process incorporated strategic ambitions to align the guiding principles with the organization’s overarching objectives. Participants considered how each principle could contribute to embedding risk culture into the organization’s governance structures. Initial drafts were discussed during project meetings, and informal discussions among departmental representatives provided additional perspectives. This iterative feedback process ensured that the guiding principles were comprehensive, resonant, and aligned with the organization’s strategic direction.

To enhance the applicability of the principles, team members added descriptive explanations to clarify their practical implications. For example, the principle “We foster an open culture of dealing with mistakes” was accompanied by an explanation emphasizing the importance of creating a safe environment for reporting errors and learning from them. These descriptions were designed to make the principles actionable and relatable for employees at all levels.

#### **4.1.4 Reflection: validating results**

The reflection step was integral to ensuring the relevance, clarity, and applicability of the guiding principles developed during the action phase. This process involved both formal validation sessions and ongoing informal feedback from team members and departmental representatives.

The project meeting, held on March 27, 2024, brought together all participants to review the draft guiding principles in detail. Each principle was evaluated for its alignment with the organization’s strategic ambitions and its potential to drive meaningful cultural change. Feedback was gathered through structured group discussions,

where participants raised concerns, suggested refinements, and assessed whether the principles effectively captured the shared understanding of risk culture.

In addition to the formal meetings, informal discussions among team members played an important role in refining the guiding principles. Representatives frequently consulted with their colleagues within their departments to gather broader perspectives and validate the practical relevance of the principles. These discussions provided valuable insights, ensuring that the principles resonated across all organizational levels.

The feedback and validation process also extended to the glossary and the Risk Culture Map. Both tools were reviewed and adjusted to incorporate additional input from the group. This iterative process emphasized the participatory nature of the initiative, with all stakeholders contributing to the final outcomes.

#### 4.1.5 Outcome: foundational anchors for risk culture

Phase 1 culminated in the development of a robust set of guiding principles that encapsulated the organization's shared understanding of risk culture. These principles, which were carefully aligned with the organization's strategic objectives, formed the cornerstone for embedding risk culture into governance structures and future initiatives. The three guiding principles are: We consciously weigh risks and opportunities to avoid or seize them, We promote risk culture at all levels, and We foster an open culture of dealing with mistakes. Each principle was accompanied by detailed explanations that highlighted its relevance to day-to-day organizational practices. While fostering accountability can, in some contexts, risk discouraging openness about mistakes, this potential tension was explicitly addressed during the participatory development of the guiding principles. In the project, accountability was not framed as attributing blame, but as proactively taking responsibility, being aware of the implications of one's actions, and explaining decisions transparently. This interpretation was embedded in the "open culture for dealing with mistakes" principle, which the project team enriched with descriptions such as learning from experiences, sharing insights openly, building mutual trust, and viewing mistakes as opportunities for improvement. By integrating accountability into a learning-oriented and trust-based framework, the initiative aimed to ensure that responsibility-taking would strengthen—rather than undermine—the openness needed for cultural change.

In addition to the guiding principles, the project team created a comprehensive glossary of key terms. This glossary addressed inconsistencies in the understanding of core concepts and served as a shared reference point for the organization. The Risk Culture Map, developed through participatory workshops, visually represented the organization's collective understanding of risk culture, connecting themes and concepts in a way that was accessible and actionable.

The project also consolidated existing interventions related to risk culture into a shared repository. This catalog, which documented policies, training programs, and other initiatives, provided a valuable foundation for identifying opportunities to enhance and integrate risk culture more effectively across the organization.

The first phase of the project can be understood as a participatory sensemaking process (Weick 1995), in which members from across the organization collectively

worked to define and structure their understanding of risk culture. Given the conceptual ambiguity and initial skepticism surrounding the topic, this phase focused not only on gathering perspectives but on enabling a shared construction of meaning through interaction, reflection, and negotiation.

The diversity of departmental views revealed during the diagnosis phase illustrates the presence of institutional complexity (Greenwood et al. 2011), where competing logics—such as regulatory compliance, operational risk management, and behavioral norms—coexist within the same organization. Rather than eliminating these differences, the process aimed to make them visible and negotiable.

An important condition for this process was the presence of psychological safety (Edmondson 1999), which enabled participants to voice uncertainties, raise critical questions, and openly reflect on divergent understandings of risk culture without fear of negative consequences. This environment of openness and mutual respect was crucial for surfacing conceptual tensions and building inclusive, cross-functional consensus.

Tools such as the glossary and the Risk Culture Map functioned as boundary objects (Star and Griesemer 1989): artifacts that supported communication and coordination across professional and disciplinary boundaries. By making tacit assumptions explicit and enabling visual negotiation of key concepts, these tools fostered convergence while respecting pluralism.

Taken together, this phase laid an important foundation for cultural change by creating the language and the conceptual architecture needed to embed risk culture into the organization's strategic and operational fabric.

#### **4.1.6 Transition to Phase 2**

By late March 2024, two key deliverables of Phase 1 were finalized: the guiding principles and the glossary of terms. The analysis of existing initiatives, which had initially focused on cataloging documents and initiatives, was also nearing completion. However, during the final meetings, the project team identified a need to extend this analysis by considering the intended audience and recipients of the documented actions. This additional task, coupled with discussions about the project's next steps, laid the groundwork for Phase 2.

Phase 2 would build on the completed tasks of Phase 1, focusing on aligning survey findings with the guiding principles and deriving actionable initiatives based on these insights. This marked a clear shift in focus, as the team transitioned from exploring foundational concepts to developing targeted actions that aimed at fostering a stronger risk culture within the organization.

### **4.2 Phase 2: survey analysis and action identification**

#### **4.2.1 Diagnosis: analyzing survey results and existing measures**

Phase 2 began with an in-depth analysis of the results from the employee survey, which served as the baseline measurement for risk culture within the organization. The survey was developed using a scientifically validated scale aligned with the FSB

framework (FSB 2014), ensuring its robustness and relevance for assessing risk culture (Dürst and Kunz 2025). One of the authors presented the survey findings to the project group, highlighting both areas of organizational strength and opportunities for improvement. During this phase, the project group met approximately once a week and 5 times in total. To systematically evaluate the survey results, the project team organized the items and corresponding responses in an Excel sheet, ranking them from weakest to strongest based on employee perceptions. This process provided a clear overview of the organization's risk culture, highlighting areas for improvement, such as the perceived openness to alternative opinions and the visibility of consequences for misconduct. These improvement areas indicated divergences between the intended organizational culture and employee perceptions, requiring targeted intervention.

Simultaneously, the project team conducted a comprehensive review of existing actions, including policies, training programs, and communication initiatives, to assess their alignment with the survey findings. Several insights emerged from this analysis, including a lack of awareness among employees regarding existing initiatives and challenges related to the balance between visibility and privacy. For example, opportunities for voicing alternative opinions—such as board interviews, a recurring format in which employees could voluntarily speak directly with executive board members—were available but not widely recognized as part of risk culture. Similarly, interventions addressing misconduct were discreetly implemented to protect confidentiality, which led to the perception among employees that such measures were absent.

These insights underscored the need for enhanced communication and targeted training to bridge the gap between existing actions and employee understanding. By identifying specific areas of improvement, the diagnosis phase provided a solid foundation for developing actionable initiatives in the subsequent stages of Phase 2.

#### 4.2.2 Emerging pattern: gaps between structure and perception

As the project team discussed the lowest-rated survey items in detail, a recurring pattern emerged: many areas where employee perceptions were critical had already been addressed through formal structures or initiatives. However, these interventions were often not perceived as culturally relevant, accessible, or meaningful by employees. The team recognized that risk culture is not only a matter of implementation, but of interpretation and communication.

To explore how these perception gaps shaped the development of cultural measures, the following section presents two vignettes in depth. Each vignette highlights a concrete cultural tension, the organization's initial response, and a theoretical reflection linking the episode to relevant concepts such as sensemaking, decoupling, and symbolic legitimacy. These cases illustrate how reframing, narrative alignment, and soft control mechanisms were used to reconnect formal structures with cultural meaning.

Following the two deep-dive cases, a synthesis section briefly outlines three additional vignettes that exhibit similar dynamics. While not discussed in the same theo-

retical detail, these examples reinforce the recurring need to address interpretation gaps through communication, symbolic integration, and value-oriented framing.

**4.2.2.1 Vignette 1: interpreting compensation in a tariff system** Two items addressing compensation—*“Appropriate risk behavior is considered in compensation”* and *“Remuneration is also aimed at the implementation of corporate values.”* received comparatively low ratings. The discussion highlighted a structural constraint: the building society operated under collective wage agreements that limited the ability to directly link behavior to compensation. However, the team identified an indirect lever in the performance appraisal system. Although salaries were fixed, employee evaluations were aligned with organizational values, which influenced development paths and career progression. To strengthen this connection, the project team proposed making these links more visible in appraisal materials and leadership communication, reframing existing systems to reinforce their cultural relevance.

The challenge described in this vignette reflects a classic case of structural decoupling (Meyer and Rowan 1977), in which formal systems—such as compensation structures—exist largely to meet institutional legitimacy requirements but are not functionally aligned with the behavioral goals they are meant to support. The collective wage agreements constrained the organization’s ability to directly link individual compensation to risk-conscious behavior or value-driven decision-making. As a result, employees perceived a disconnect between formal reward systems and cultural expectations, particularly with respect to risk ownership. This perception also resonates with sensemaking theory (Weick 1995), which suggests that individuals seek coherent narratives that help them understand how their actions relate to broader organizational values and outcomes. When formal systems fail to support such coherence, employees may struggle to interpret how normative expectations (e.g., “owning risk”) meaningfully affect their professional trajectory.

To address this misalignment, the project team identified an alternative behavioral lever: the performance appraisal process. Although base salaries were fixed, employee evaluations were tied to cultural criteria—such as leadership, collaboration, and risk awareness—that influenced development opportunities and long-term advancement. By making these links more explicit in appraisal materials and leadership communication, the team sought to reframe existing systems in a way that would strengthen their cultural relevance and behavioral impact.

This intervention addresses a deeper challenge: how to foster value-aligned behavior when direct monetary incentives are not an option. In such cases, organizations may draw on non-financial control elements. In this example, the approach reflects what Malmi and Brown (2008) describe as administrative controls—through the use of formal appraisal systems—and cultural controls, by promoting shared values and expectations.

Viewed through a behavioral lens, the intervention can be seen as a form of cultural nudging (Thaler and Sunstein 2008), subtly reshaping how employees interpret the consequences of their actions. By embedding cultural cues into leadership narratives and evaluation criteria, the organization created a coherent frame through

which employees could perceive risk-conscious behavior as a driver of personal and professional recognition.

From a sensemaking perspective (Weick 1995; Maitlis and Christianson 2014), the reframing effort helped individuals reconstruct the perceived relevance of their own behavior: even if not financially rewarded, it mattered for how they were seen, supported, and developed within the organization. In this way, the intervention supported internalized risk ownership by restoring narrative alignment between organizational values and perceived career dynamics. Moreover, by clarifying how cultural expectations are reflected in appraisal processes rather than direct monetary incentives, the intervention may have also fostered a greater sense of psychological safety (Edmondson 1999). Employees were better able to understand the rules of the game, reducing ambiguity and fear around value-driven behavior—even in the absence of traditional incentives.

**4.2.2.2 Vignette 2: confidentiality and the perception of accountability** The item “*In my company, the consequences of misconduct are clearly communicated.*” was also rated lower than anticipated. Compliance officers explained that disciplinary processes had been tightened in recent years and were systematically monitored. However, employees were often unaware of these actions due to confidentiality, legal requirements, and internal discretion. The project team recognized the dilemma: consistent enforcement of consequences was essential to credibility, yet excessive visibility could violate privacy and undermine trust. To address this, the team proposed sharing anonymized, aggregated statistics and communicating the process architecture more clearly—thus balancing transparency with legal and ethical constraints.

The observed dilemma—the perceived lack of accountability despite well-functioning disciplinary systems—can be understood as a case of misalignment between actual control practices and their perceived legitimacy. Several theoretical perspectives offer valuable lenses for interpreting both the problem and the intervention strategy.

Using Meyer and Rowan’s (1977) concept of decoupling, conflicting institutionalized expectations (confidentiality vs. visible accountability) lead to a symbolic disconnect: formal structures are in place but fail to confer legitimacy because they are not publicly visible. The intervention—sharing anonymized statistics and clarifying processes—aims to partially re-couple structure and perception, maintaining ceremonial legitimacy while respecting legal and ethical constraints.

As Suchman (1995) argues, legitimacy is not only a matter of structural compliance but of perceived appropriateness. In this case, employees question both the moral legitimacy (is it right?) and cognitive legitimacy (is it understandable?) of the system. The organization thus fails to meet the cultural-normative expectations of its internal audience, despite adhering to legal requirements.

The intervention—sharing anonymized, aggregated disciplinary statistics and process descriptions—can be seen as a form of “recoupling” (Bromley and Powell 2012), i.e., reconnecting internal control practices with cultural expectations. It provides symbolic reassurance without violating institutional constraints, thereby restoring perceived legitimacy.

According to Weick's sensemaking theory (1995), employees construct meaning based on available cues in their environment. In the absence of visible consequences, they may infer that misconduct goes unpunished—regardless of actual enforcement. This lack of transparency creates a gap in the interpretive framework employees use to understand organizational norms.

As Whittle et al. (2023) emphasize, organizational sensemaking is contingent upon linguistic cues, communicative practices, and discursive structures. When consequences are neither visible nor verbalized, employees lack the narrative and rhetorical framing needed to make sense of accountability norms. Thus, while disciplinary action may take place, the absence of communicative transparency impedes effective sensemaking and may inadvertently foster perceptions of impunity.

The intervention addresses this by introducing new sensemaking cues through indirect yet credible forms of communication. Sharing anonymized statistics or outlining typical procedural pathways helps employees construct more accurate mental models of the organization's accountability mechanisms—reinforcing the seriousness of behavioral expectations while respecting confidentiality.

This case also reflects a dilemma discussed in Roy et al. (2024): while misconduct was consistently sanctioned, employees were unaware due to confidentiality. This lack of visibility undermines the credibility of ethical enforcement—one of the core elements of ethical culture.

The solution—sharing anonymized disciplinary data and explaining the process architecture—aligns with the ethical culture dimensions of transparency and discussability (Roy et al. 2024). It illustrates how organizations can strengthen ethical culture by enhancing the visibility of ethical procedures while respecting privacy. In doing so, the intervention also addresses an emotional component of cultural alignment: psychological safety (Edmondson 1999; Edmondson and McManus 2007). When employees are unsure about the fairness or consequences of speaking up or making mistakes, silence becomes the safer option. By offering clarity without naming or shaming, the organization created a communicative environment in which behavioral expectations and boundaries became more understandable—reducing fear and supporting open dialogue.

**4.2.2.3** Theoretical patterns in additional cases The interpretive patterns discussed in the previous vignettes—particularly the role of symbolic alignment, sensemaking cues, and cultural framing—also manifested in several other cases. While not analyzed in full theoretical detail, the following examples reinforce the central mechanisms identified earlier: cultural misalignment often stems not from the absence of formal systems, but from a lack of shared meaning, narrative integration, or perceived relevance.

**4.2.2.4** Visibility and meaning of control processes During the discussion of the survey item “*The existing control processes are suitable for resolving issues quickly,*” the project team noted that the item had received lower-than-expected ratings. This stood in contrast to the actual state of implementation: control procedures were systematically documented in the GRC (Governance, Risk and Compliance) system and

supported by random-sample quality checks. In addition, tools like Jira were used in other areas to manage issue resolution. The discussion revealed a framing gap: these tools were not perceived as part of the organization's risk culture. Drawing on similar mechanisms as before, the intervention focused on highlighting these systems in internal communications as expressions of responsiveness and joint problem-solving—providing new sensemaking cues to culturally anchor existing structures (Weick 1995).

**4.2.2.5 Strategic communication without cultural impact** Despite being available via internal systems and integrated into training programs, the organization's risk strategy received low visibility ratings. Discussions revealed that employees knew of the document's existence, but did not see it as relevant to their day-to-day work. As discussed before, the issue lay in symbolic decoupling: the strategy had structural legitimacy but lacked perceived relevance. In response, the team reframed the strategy using narrative translation—through leadership videos and team dialogues—thereby enhancing cognitive and normative legitimacy (Suchman 1995).

**4.2.2.6 Fragmented voice channels** The item *“There are clearly defined processes to express concerns about product weaknesses or operational errors”* was critically rated despite the presence of several reporting channels, including operational risk systems, complaint management, and quality controls.

However, these were not experienced as part of a coherent speak-up culture. The intervention sought to re-couple structure and perception (Bromley and Powell 2012) by simplifying and mapping voice channels, and by positioning them as a unified feedback infrastructure through leadership messaging—thus reinforcing both symbolic clarity and psychological safety.

These episodes reaffirm the broader insight that emerged across all vignettes: cultural interventions must go beyond structural design. They require deliberate efforts to shape how systems are interpreted, integrated into narratives, and experienced as meaningful by employees. Reframing, symbolic anchoring, and communicative sensemaking emerged as critical levers in this process.

### 4.2.3 Planning: aligning survey findings and guiding principles

Building on the insights gained during the diagnosis step, the project team began aligning the survey findings with the guiding principles established in Phase 1. This process involved a preliminary review of each survey item in the context of the guiding principles to evaluate areas of conceptual alignment and identify potential gaps. The analysis demonstrated that all three guiding principles were broadly represented within the survey framework, underscoring their relevance to the organization's risk culture and validating their alignment with employee perceptions. A detailed mapping of survey items to specific interventions, however, was deferred to later phases, when the initiatives would be more granularly defined.

To further refine these insights, the project team clustered survey items and their corresponding results into thematic areas. This clustering process was guided by criteria such as the relevance of survey items to key risk culture dimensions and their potential to inform actionable priorities. By incorporating an assessment of existing initiatives, the team also identified areas where additional initiatives were needed to address gaps or enhance effectiveness. For instance, themes such as communication, accountability, and transparency emerged as focal points for targeted measures.

By early May, the preliminary alignment of survey findings with the guiding principles had been completed, providing a clear framework for action. This enabled the formation of dedicated working groups, each tasked with addressing specific thematic clusters and developing actions to enhance risk culture. The project utilized the virtual whiteboard to facilitate collaboration and brainstorming, ensuring that ideas were systematically documented and accessible to all participants. This participatory approach fostered creativity and ensured alignment with the organization's strategic goals.

#### **4.2.4 Action: development of a preliminary catalog of actions through participatory workshops**

With the alignment of survey findings and guiding principles completed, the project team initiated the development of targeted interventions to address the identified gaps and priorities. Dedicated working groups were established to focus on specific clusters of survey items, each led by a designated coordinator to ensure efficient task management. This decentralized approach fostered autonomy among team members while maintaining alignment with the broader project objectives through regular communication and feedback loops.

The working groups utilized the virtual whiteboard to brainstorm potential initiatives, integrating insights from the survey results and existing organizational initiatives. For example, to address gaps in employee awareness, enhanced communication plans were proposed to increase the visibility of existing initiatives, such as board interviews, and to make them more accessible. Similarly, to improve the perceived transparency of misconduct-related interventions, the groups suggested clarifying the processes while safeguarding privacy considerations.

By May 22, 2024, the working groups had developed a preliminary catalog of interventions, which was presented and discussed during a project meeting. Feedback from this session was instrumental in refining the actions, ensuring they were actionable, contextually relevant, and aligned with the strategic goals of the organization. This iterative process provided a strong foundation for the subsequent phases of the project, emphasizing the collaborative and evidence-based approach to fostering a robust risk culture.

#### **4.2.5 Reflection: validating measures and ensuring alignment**

The reflection step in Phase 2 focused on validating the draft initiatives developed by the working groups to ensure their coherence, practicality, and alignment with the organization's strategic goals.

#### 4.2.6 Outcome and transition to Phase 3: targeted measures and a roadmap for implementation

Phase 2 marked significant progress in the development of actionable interventions to strengthen the organization's risk culture. Building on the foundational work of Phase 1, the project team successfully translated survey findings and guiding principles into targeted initiatives. These efforts were characterized by a systematic approach that ensured alignment with organizational objectives and employee feedback, resulting in a tailored catalog of actions designed to meet the specific needs of the organization.

The Catalog of Proposed Actions is a comprehensive set of 12 targeted actions to address identified gaps and promote a sustainable risk culture throughout the organization. These interventions were designed to align with the guiding principles and survey findings, providing actionable steps to improve communication, training, governance, and monitoring practices. Additionally, the project planned to formalize a BPMN-modeled Adonis process for risk culture, ensuring structural rigor through a comprehensive framework. BPMN (Business Process Model and Notation) is a standardized graphical representation used to design and document business processes, providing a clear and consistent framework for process analysis and communication. Adonis, a specialized business process management tool, leverages BPMN to create detailed process models that support workflow optimization and decision-making.

The transition between Phase 2 and Phase 3 represented a critical preparatory period, during which the project team established the structural and organizational foundations for the decentralized work that would characterize the next phase. Spanning approximately one month, this phase involved intensive collaboration among team members, with weekly meetings dedicated to organizing and streamlining the next steps.

During this period, the project team finalized the clustering of interventions derived from the survey. This process involved a detailed review of survey findings to identify thematic connections and ensure that the proposed initiatives addressed the identified gaps in the organization's risk culture. Each measure was documented in a collaborative Excel tool, which was enhanced to include unique identifiers for each measure, linking them directly to specific survey items. This systematic approach ensured traceability and clarity, facilitating alignment between the survey insights and the planned initiatives.

One outcome of the transition phase was the establishment of dedicated working groups. Using tools such as the virtual whiteboard, the project team mapped actions to thematic clusters and assigned them to specific working groups. Each group was tasked with a preliminary description of their assigned measures, including objectives, resource requirements, and potential implementation challenges. This collaborative effort also included defining the status of each measure within the working groups' plans, ensuring transparency and a clear understanding of progress. The project group's focus on organization and structure during this phase culminated in the development of a comprehensive roadmap for Phase 3. This roadmap outlined specific timelines, responsibilities, and deliverables for each working group, setting the stage for the decentralized and iterative work to follow.

### 4.3 Phase 3: designing and finalizing risk culture measures

#### 4.3.1 Diagnosis: focusing on specific measures

Phase 3 began with a deeper evaluation of preliminary initiatives assigned to working groups in the previous phase. This diagnostic phase helped to identify practical challenges, resource requirements, and areas needing clarification or adjustment. Each working group revisited thematic clusters derived from the survey findings, analyzing their translation into actionable actions. Informal departmental discussions provided additional insights, revealing gaps in understanding, barriers to implementation, and areas requiring further refinement.

The decentralized working group structure allowed for a targeted approach, with groups independently assessing their assigned interventions. Monthly project meetings ensured alignment across all groups and facilitated cross-group learning.

Phase 3 reflects the transformation of cultural insights into organizational practice. From a theoretical perspective, this phase can be understood as a process of organizational learning (Argyris and Schön, 1978), in which feedback loops, cross-functional reflection, and iterative adaptation enabled the organization to develop and refine practical responses to cultural challenges. The working groups functioned as learning units that explored, tested, and revised actions in response to practical constraints, promoting continuous improvement and shared understanding.

Over time, the project contributed to the institutionalization of risk culture, as key practices became increasingly embedded in formal routines and organizational structures. This development is evident in the integration of cultural measures into governance instruments such as newly developed risk culture, BPMN-modeled processes, and performance evaluation frameworks. These mechanisms helped translate cultural principles into stable components of the organization's steering architecture.

The role of leadership was particularly significant in this phase. Following Schein's (2010) concept of cultural embedding mechanisms, visible and consistent leadership behavior served to legitimize the change initiative and reinforce the declared values. The alignment between leadership conduct and the project's guiding principles were perceived as essential for credibility and internal trust.

Moreover, the decentralized setup of thematic working groups reflected elements of shared leadership. While not fully aligning with the formal theory of distributed leadership (Spillane 2006), the structure enabled localized ownership, flexible adaptation, and strong engagement at multiple levels of the organization—key conditions for sustained cultural transformation.

Taken together, these theoretical perspectives help to explain how cultural intentions were translated into routinized and formalized organizational practices—through learning, leadership, and institutional reinforcement.

#### 4.3.2 Planning: detailed roadmaps for implementation

Building on diagnostic insights, working groups refined roadmaps outlining specific activities, timelines, resource needs, and responsibilities. These roadmaps provided clear pathways for translating conceptual interventions into practical initiatives.

Planning processes varied across groups, reflecting the diversity of initiatives. For example, groups focusing on communication plan prioritized stakeholder engagement and usability, while those addressing performance evaluations aligned measures with existing frameworks. By the end of this phase, groups had developed actionable plans, ready for the next phase. The planned actions were regularly coordinated with the project management team to ensure their meaningful integration into the overall project and effective implementation.

#### **4.3.3 Action: development of measures**

In the action phase, working groups refined and developed their initiatives using roadmaps from the planning phase. Autonomous group operations, combined with iterative feedback loops, ensured interventions evolved to meet organizational needs. Regular departmental feedback and monthly project meetings facilitated alignment and progress tracking.

For example, one group expanded the existing learning program to include risk culture topics, ensuring accessibility and relevance for all employees. Another group enhanced communication channels by creating materials to clarify guiding principles and key risk culture concepts.

Collaboration tools such as virtual whiteboards and shared repositories were extensively used to document progress, share ideas, and coordinate tasks. Regular feedback loops within the groups allowed members to identify challenges early and adjust their approaches accordingly. Monthly project meetings continued to play a pivotal role in this phase, providing a platform for the groups to present their progress, exchange ideas, and receive feedback from the broader project team. This iterative process ensured that the actions evolved to meet the organization's needs effectively.

#### **4.3.4 Reflection: evaluating progress and cross-group collaboration**

Reflection during this phase occurred at both the group level and the project-wide level. Within each group, members evaluated the feasibility, relevance, and alignment of their measures with organizational objectives. These evaluations were informed by both the group's internal discussions and feedback from the monthly project meetings. This reflective process ensured that the interventions remained adaptable to emerging challenges and opportunities while maintaining their focus on addressing the gaps identified earlier. These sessions fostered a culture of learning and innovation, as groups shared best practices and identified synergies between their initiatives.

#### **4.3.5 Outcome: finalized risk culture measures and implementation readiness**

By the end of Phase 3, the working groups had finalized a comprehensive set of risk culture actions, each supported by an implementation roadmap. This marked the culmination of an iterative development process grounded in the principles of Action Research, combining structured project management with participatory engagement, feedback loops, and collaborative problem-solving.

A central achievement was the formal integration of risk culture into the organization's governance framework, ensuring its long-term institutionalization. The newly developed policy document was embedded in the SfO, establishing risk culture as a strategic priority. To safeguard ongoing relevance, a BPMN-modeled risk culture process was introduced, mandating an annual review of the risk culture policy and associated measures, including an evaluation of whether an employee survey is required. While the next survey is firmly scheduled for 2026, subsequent surveys are planned on a biennial basis as the default. Only in exceptional cases—such as when no significant organizational changes have occurred—may this schedule be adjusted. The process culminates in formal approval by the executive board, thereby reinforcing risk culture as a core governance element. This governance mechanism ensures that the policy document remains up to date and aligned with both regulatory requirements and the organization's evolving needs, thereby embedding a culture of continuous improvement into organizational practice. It also resonates with findings by Einhorn et al. (2024), who show that organizational culture and management control systems can mutually reinforce each other, particularly when shared values are operationalized through formal mechanisms such as cultural or personnel controls.

The project also established a dual monitoring framework to assess progress over time. Key performance indicators (KPIs), developed in line with recommendations from external auditors and based on FSB dimensions, enable systematic tracking of cultural change and alignment with strategic objectives. These KPIs were developed by a dedicated working group that included representatives from the risk control function, thereby ensuring alignment with the Three Lines of Defence model and regulatory expectations. The group systematically reviewed existing organizational KPIs to assess whether they already captured aspects of risk culture as defined by the FSB framework. Gaps were identified and addressed through the design of new indicators, such as the participation rate in the newly introduced risk culture training, which was itself one of the implemented initiatives. This approach ensured that the performance measures were both operationally relevant and methodologically robust, facilitating their use in internal monitoring and external compliance reporting. These initiatives will be complemented by follow-up surveys, with the next assessment scheduled for 2026, allowing sufficient time for the initiatives implemented in 2025 to generate meaningful results. The combination of these repeat surveys and the introduction of KPIs based on FSB dimensions creates a dual monitoring framework that supports both accountability and learning. While such performance measures cannot fully capture deeper cultural shifts, they provide essential compliance evidence, reinforce strategic priorities, and help sustain management attention over time. This systematic evaluation approach addresses the need for assessing cultural transformation over time and provides transparency to internal and external stakeholders.

A communication plan was developed to raise awareness and foster a shared understanding of risk culture across all organizational levels. Central elements included a video campaign featuring executive board members, designed to underscore the strategic importance of risk culture, and the creation of a centralized information hub where employees can access guiding principles, survey results, and explanatory materials. As part of this broader transparency and alignment effort, key risk-related discussions from leadership meetings—most notably the Management Roundtable,

a recurring forum for addressing issues such as compliance reports and risk matters—are now systematically documented in annotated briefing notes. They are disseminated through targeted communication channels, including team meetings, intranet updates, and newsletters, ensuring that strategic risk-related decisions are consistently communicated and that the connection between leadership deliberations, organizational values, and everyday practices is reinforced.

To enhance employee understanding, a dedicated learning program was developed to expand existing training on risk management to include risk culture topics, supplemented by explanatory materials and visual aids to clarify key principles and terminology. Actions to improve communication were also in place, including mechanisms to ensure that risk culture topics discussed in leadership meetings are transparently shared with employees. The development of anonymized case studies and practical examples was also created, illustrating the principles of risk culture in action and enhancing onboarding sessions and employee training.

Furthermore, the project refined the performance evaluation process to clarify the connection between individual risk-aware behavior and appraisal outcomes. While the compensation framework, bound by collective agreements, remained unchanged, employees now receive explicit guidance on how their interventions influence evaluations, strengthening alignment between personal conduct and organizational culture objectives.

Taken together, these interventions reflect a holistic approach to embedding risk culture by addressing governance structures, communication channels, training initiatives, and performance management. Through the combination of formal policy integration into the SfO, structured annual review mechanisms, KPI-based monitoring, and comprehensive communication and training strategies, the project established a robust and sustainable foundation for cultural change. This approach ensures that risk culture remains both a living component of organizational governance and a driver of continuous improvement.

## 5 Discussion

### 5.1 Contribution to theory

This study contributes to the growing literature on interdisciplinary management research by demonstrating how AR, a participatory methodology rooted in social psychology and educational research, can be translated into the field of organizational governance—specifically risk culture in regulated financial institutions. By embedding cultural change into formal governance structures, AR bridges epistemic and practical domains, offering a methodological pathway for addressing complex, multi-level organizational phenomena (Jarzabkowski et al. 2025; Zahra and Newey 2009; Bakker et al. 2019).

As Aversa et al. (2024) and Miller et al. (2008) argue, interdisciplinary approaches can enhance the explanatory power and practical relevance of management research—particularly when disciplinary boundaries are consciously crossed to address dynamic, systemic challenges. This study responds to such calls by showing

how reflexive, iterative processes can help align regulatory compliance with organizational learning and participatory sensemaking, thereby extending and operationalizing institutional and governance theories in practice.

In doing so, the paper contributes to the growing discourse on methodologically grounded interdisciplinarity in management research. It exemplifies how alternative methodological traditions—here, from social psychology—can enrich theoretical development in core areas of management by facilitating cultural transformation in tightly regulated environments.

The theoretical lens clarifies that Phase 1 was not merely preparatory groundwork, but a transformative learning process in itself—one that enabled cross-functional sensemaking, legitimized divergent logics, and created the socio-cognitive infrastructure needed for sustained cultural change.

One recurring pattern identified through the Action Research process concerned the misalignment between formal structures and cultural perception. Despite the presence of technically sound governance mechanisms—such as control systems, reporting channels, and strategic documents—employees often did not interpret these elements as part of the organization’s risk culture. This disconnect became evident through the group discussions of selected survey items, as documented in the vignettes in Sect. 4.2.

Table 1 summarizes the overarching theoretical mechanisms that recur across all five vignettes. While each case had its unique contextual features, the central pattern remained consistent: perceived misalignments between formal systems and their cultural meaning were addressed through symbolic, communicative, and participatory interventions.

Recent research highlights the fragmented nature of risk research and calls for a more integrated understanding of risk as both a quantifiable metric and a value-based construct (Jarzabkowski et al. 2025). Our findings demonstrate how financial institutions navigate this epistemic duality by embedding risk culture within governance structures while simultaneously fostering participatory mechanisms that enable a more nuanced, value-driven understanding of risk. Rather than treating regulatory compliance as a static framework, this study illustrates how risk culture initiatives evolve dynamically, reflecting the interplay between formalized risk metrics such as key performance indicators (e.g., completion rates of mandatory trainings, number of incident reports, implementation progress of agreed actions) and the results of the recurring risk culture survey and underlying organizational values. This finding resonates with Sinha and Arena’s (2020) observation that compliance functions can play an enabling role by developing and calibrating performance measures that operationalize abstract regulatory principles. In our case, the involvement of the risk control function in KPI development exemplifies how compliance actors act not merely as enforcers, but as co-designers of metrics that translate governance ideals into measurable organizational practices. This aligns with Jarzabkowski et al. (2025), who emphasize the dual role of metrics in both reinforcing compliance and mediating value-based interpretations of risk. By embedding such co-designed performance measures within participatory governance processes, organizations can reconcile the tension between formalized risk metrics and the more interpretive, value-laden aspects of risk culture.

This study advances the theoretical discourse on risk culture transformation and AR by bridging the gap between abstract concepts of risk culture and their practical implementation in regulated environments. While existing theories on organizational culture development (Schein 1990) and change management (Kotter 1996; Buick 2024), as well as regulatory frameworks such as the FSB guidelines (2014), provide valuable insights, they do not fully capture the complex interplay between regulatory constraints, institutional adaptation, and participatory change mechanisms. By integrating these perspectives with insights from our Action Research case study, this study contributes to literature in several areas.

Our findings indicate that regulatory frameworks can help employees interpret risk culture initiatives as a logical extension of existing governance structures. This finding also reflects the dual nature of cultural stability as both an enabler and a constraint for organizational change. As Janka et al. (2020) argue, stable cultural values can support managerial innovation when effectively embedded in management control systems. In our case, the formal integration of risk culture into existing governance frameworks—such as the Schriftlich fixierte Ordnung (SfO)—appears to activate this enabling function by aligning cultural expectations with operational routines. In particular, resistance appeared minimal when these initiatives were embedded within familiar regulatory frameworks such as MaRisk and the FSB guidelines, which likely facilitated acceptance. This interpretation aligns with Weick's (1995) concept of sensemaking, which describes how individuals construct meaning in response to ambiguity and uncertainty, integrating new practices into their existing cognitive and organizational frameworks. Furthermore, recent research highlights that regulatory structures play a crucial role in shaping organizational risk perceptions by providing established mechanisms for interpreting uncertainty and guiding decision-making (Taarup-Esbensen 2023).

From an Institutional Theory perspective (Greenwood and Hinings 1996; Zietsma and Lawrence 2010), our findings demonstrate that compliance and cultural adaptation are not inherently conflicting, but can reinforce each other when governance frameworks incorporate participatory mechanisms. Rather than representing radical change, which entails a fundamental shift in institutional logics, this study aligns with the concept of institutional adaptation (Battilana et al. 2009; Zietsma and Lawrence 2010), where organizations evolve by embedding cultural shifts within existing governance structures.

From a Corporate Governance perspective, governance structures establish formal expectations for risk-related behaviors and decision-making processes (Cohen 2015). While regulatory frameworks provide essential structural guidance, recent research suggests that enforcement-based approaches alone are insufficient for fostering sustainable cultural change (Hodges 2020). Instead, risk culture transformation depends on an organization's ability to embed cultural adaptation within governance structures and decision-making practices, rather than relying solely on compliance-driven mechanisms—formal structures such as reporting obligations, policy integration, and monitoring controls—risk culture adaptation is more effective when these mechanisms are complemented by communicative practices and participatory dialogue. Our findings highlight that governance structures alone risk being perceived as formalistic exercises. Cultural transformation occurred when these structures were reframed

through leadership communication, narrative alignment, and participatory processes that enabled employees to interpret them as meaningful rather than as externally imposed requirements.

While change management literature often assumes that organizational transformation is met with resistance due to uncertainty and perceived threats (Kotter 1996; Lewin 1946; Buick 2024), our findings indicate that this was not the case here. Rather than perceiving regulation as a constraint, employees appeared more receptive to the institutionalization of risk culture when initiatives aligned with familiar governance principles. This extends existing theories by demonstrating that regulatory frameworks can act as catalysts for structured cultural adaptation rather than merely enforcing compliance.

Furthermore, this research highlights the potential role of psychological safety in risk culture adaptation. While psychological safety theory (Edmondson 1999; Edmondson and McManus 2007; Sadek 2024) suggests that individuals are more likely to engage in learning-oriented behaviors when they perceive a low risk of negative repercussions, our findings suggest that participatory risk culture initiatives may benefit from an environment that fosters open discussion, as they encourage employees to contribute actively to cultural adaptation. Although the study does not explicitly measure psychological safety, the absence of strong resistance and the willingness of employees to engage in open discussions indicate that participatory mechanisms can help reduce perceived risks associated with cultural initiatives. Unlike command-and-control approaches to risk governance, which often prioritize enforcement and sanctions, our results suggest that risk culture adaptation is more effective when framed as a collective learning process rather than a regulatory burden. This aligns with Sinha and Arena's (2020) distinction between "normalizers", who combine control with empowerment, and approaches that risk an excessive extension of control functions into employees' behavioral and emotional domains. The latter may result in a "colonization of employees' emotional self", undermining intrinsic motivation and psychological safety. Our findings indicate that balancing formal oversight with participatory elements can mitigate such risks, sustaining both compliance and open dialogue. These findings contribute to discussions on regulatory policy and risk governance by suggesting that fostering a participatory risk culture could complement traditional enforcement mechanisms in achieving long-term compliance and resilience.

Finally, this study contributes to the ongoing discourse on risk culture measurement by demonstrating how cultural adaptation can be systematically assessed. While existing research on risk culture measurement remains fragmented (Ghafoori et al. 2023; Bockius and Gatzert 2023), this study integrates qualitative and quantitative methodologies—such as employee feedback, governance KPIs, and participatory workshops—to provide a structured approach for assessing the impact of cultural interventions in regulated institutions. By linking subjective cultural perceptions (e.g., employee surveys) with objective governance mechanisms (e.g., policy integration, monitoring KPIs), this study applies a multi-dimensional approach to evaluating risk culture adaptation.

## 5.2 Contribution to practice

This study offers practical contributions by translating abstract concepts of risk culture into a coherent set of structured, actionable strategies for organizational implementation. The initiatives outlined in *Outcome finalized risk culture measures and implementation readiness* demonstrate how risk culture principles can be embedded into both governance structures and day-to-day practices, thereby fostering sustainable cultural change. These outcomes highlight that lasting impact depends on the interplay of structural integration, visible leadership commitment, participatory communication, and systematic monitoring.

Rather than prescribing a rigid, one-size-fits-all framework, the study identifies structured approaches that can be adapted to the specific governance and cultural context of an organization. Key transferable elements include governance integration mechanisms such as structured review processes, participatory communication methods including leadership-led awareness campaigns and transparency initiatives, systematic cultural assessment through KPIs and surveys, and the integration of risk culture principles into training and performance evaluation systems.

While these approaches were developed within a financial institution, they offer valuable insights for other regulated industries—such as healthcare, technology, or manufacturing—where alignment between organizational culture, regulatory expectations, and strategic objectives is equally critical. In doing so, the study helps bridge the gap between theoretical conceptions of risk culture and their operationalization in practice, supporting a more sustainable and embedded approach to cultural transformation.

While many institutions have implemented risk culture initiatives, the systematic combination of measurement, participatory design, governance integration, and long-term monitoring distinguishes this approach and enhances its potential for sustained impact.

## 5.3 Limitations and future research

While this study provides valuable insights into the operationalization of risk culture, it also highlights several opportunities for future research. Longitudinal studies could expand on this work by monitoring the evolution of risk culture before, during, and after the implementation of AR-driven interventions. Such studies would help identify long-term trends in employee behavior and assess the sustainability of cultural changes, addressing the limitations of this research's retrospective approach. This question could be addressed through a dedicated reflection phase, situated beyond the three Action Research phases, which should be conducted on a regular basis after project completion. Such a phase would combine semi-annual KPIs—aligned with the dimensions of the FSB framework—with periodic employee surveys to assess both quantitative indicators and qualitative perceptions. This dual approach would provide a more comprehensive understanding of whether the changes observed are sustained, embedded over time, and reflective of a deeper transformation in organizational mindset.

Another limitation is the context-specific nature of the findings. Conducted within a single financial institution, the research reflects the unique dynamics of this regulatory and organizational environment. While the tools and methodologies are broadly applicable, their generalizability to other sectors or cultural settings may be limited. Future research could also explore the applicability of the tools and methodologies developed in this study across different industries, such as healthcare, technology, or manufacturing, to better understand sector-specific challenges in fostering cultural change. Additionally, country-specific influences, including cultural, regulatory, and economic conditions, may further affect the applicability of the findings to other contexts.

The study's focus on internal stakeholders, such as employees and leadership, is another limitation. External perspectives were not incorporated. The results are shaped not only by the specific characteristics of the sector but also by the unique attributes of the analyzed organization, making them company-specific. The integration of external stakeholder perspectives represents another promising avenue for research. Regulators, auditors, and clients play a significant role in shaping organizational culture, and their inclusion in future studies could provide additional insights into how external forces influence internal cultural dynamics.

Moreover, innovation in the measurement of cultural change remains an open question. Advanced methods such as sentiment analysis, social network analysis, and predictive modeling could offer new ways to evaluate cultural transformation systematically.

Additionally, while this study has identified theoretical connections to several areas like Institutional Theory, Sensemaking Theory, Change Management, and Psychological Safety, these perspectives were not explicitly operationalized within the research design. Future studies could build on these insights by systematically examining how these theoretical frameworks interact with risk culture transformation in regulated environments. For example, longitudinal case studies or qualitative methods such as interviews and ethnographic observations could provide a deeper understanding of how employees construct meaning around risk culture initiatives (Sensemaking Theory) or how regulatory frameworks shape institutional adaptation (Institutional Theory). Further research could also explore the role of Psychological Safety in fostering participatory engagement with risk culture measures.

Finally, the application of AR in other high-stakes environments, such as national security or public health, could further demonstrate its versatility and effectiveness in addressing complex organizational challenges.

This study demonstrates the potential of Action Research as a methodology for fostering risk culture in a financial institution. By combining theoretical insights with practical tools, it provides a replicable framework for embedding risk culture into organizational practices. The limitations and future research directions outlined here offer a roadmap for advancing the field, ensuring that AR continues to evolve as a powerful approach for addressing complex organizational challenges.

## Appendix A: Development and validation of the risk culture survey

The survey was developed by the authors (Dürst and Kunz 2025) based on the Financial Stability Board (FSB) framework. Item generation followed a deductive process, mapping each FSB indicator to dimensions, sub-dimensions, and aspects.

An initial pool of 179 items was refined through 21 expert interviews (33.5 h in total) with practitioners and academics experienced in risk management and risk culture. Feedback led to substantial revisions, deletions, and additions, resulting in a 133-item pre-test version.

### Sample and administration

The survey was conducted in a German Bausparkasse with approximately 400 employees. Participation was voluntary, supported by a communication campaign from the executive committee. The survey ran for two months and achieved a 60% response rate ( $n=233$  valid cases after screening for careless responses).

### Psychometric validation

The validation followed a two-step process:

- Exploratory Factor Analysis (EFA) with maximum likelihood extraction and varimax rotation. Items were retained based on factor loadings  $\geq 0.4$ , absence of cross-loadings, and content considerations. Reliability thresholds: Cronbach's  $\alpha \geq 0.7$  or Spearman-Brown  $\geq 0.7$  (for two-item factors).
- Confirmatory Factor Analysis (CFA) to verify the factor structure and test convergent and discriminant validity. Fit indices indicated a good model fit (e.g., CFI  $> 0.90$ ; RMSEA  $< 0.06$ ; SRMR  $< 0.08$ ).

### Final instrument

The final validated scale contains 78 items across 25 factors and four FSB dimensions:

1. Tone from the top (e.g., Raise Awareness, Healthy Scepticism)
2. Accountability (e.g., Held Accountable, Escalation Processes)
3. Effective Communication and Challenge (e.g., Open to Alternate Views, Stature of Control Functions)
4. Incentives (e.g., Remuneration and Performance, Risk Knowledge Building)

All FSB indicators are addressed, except for the job rotation indicator (FSB 3.4.7), which was excluded due to content and measurement considerations. The modular design enables both comprehensive and targeted assessments, depending on organizational needs.

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**Data availability** The data gathered and analysed during the current study are not publicly available because of confidentiality reasons.

## Declarations

**Conflict of interest** One author received financial compensation for their contribution to the project. This compensation does not affect the objectivity or independence of the research and its findings. The authors declare no further conflicts of interest.

**Ethical approval and consent to participate** Not applicable. The study was conducted as part of a standard organizational project within a financial institution, with the approval of relevant internal stakeholders. All data were collected anonymously, and no personal or sensitive information was recorded.

**Generative AI and AI-assisted technologies in the writing process** During the preparation of this manuscript, the authors utilized OpenAI's ChatGPT (version GPT-4) and DeepL to assist with improving the readability and language quality. OpenAI's ChatGPT was employed to refine language, suggest alternative phrasings, and provide perspectives that helped enhance the clarity and coherence of the manuscript. DeepL facilitated translation and further language enhancement. The authors maintained full control over the use of these tools, carefully reviewing, critically assessing, and significantly editing all AI-generated content. The core scientific ideas, research, and data presented in this manuscript are the sole contributions of the authors. The authors take full responsibility for the content of this publication, ensuring that it accurately represents their original research and findings.

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