

Chapter 8

Leadership in Resilient Organizations



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Abstract This chapter focuses on organizations' ability to change between different modes of operation as a key adaptive capacity that fosters resilience. Four modes are described which represent responses to low versus high demands on stability and flexibility respectively. The operational requirements for leaders both in enacting the different modes of operation and in instigating switches between the modes are detailed. Strategic recommendations are outlined that should help organizations to build the needed leadership abilities and to support organizational change towards better handling fundamental tensions and trade-offs embedded in the requirement to stay in control while facing unexpected uncertainties.

Keywords Operational leadership · Strategic leadership · Stability · Flexibility
Team adaptivity · Organizational culture

8.1 Introduction

Resilience has been defined in simple terms as a system's ability to "bounce back" after disturbances, and, through learning from those situations, to "bounce forward" and increase the system's adaptive capacity for handling surprises [1, 2], thus incorporating reactive and proactive responses to uncertainty [3]. Much of what has been written about resilience aims to describe general characteristics of organizations which enable resilience, such as the necessity to continuously monitor, anticipate, respond, and learn [4] or to manage trade-offs in the face of challenged system boundaries, which Woods [2] has termed graceful extensibility. Woods also discusses the need to shift between performance regimes [5], which can be traced back to the early studies on high reliability organizations where these organizations' ability to switch

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between different modes of operation in response to changing demands has been identified as a crucial source of resilience [6, 7].

The necessity to manage trade-offs and tensions stemming from dynamic and possibly conflicting requirements is echoed in organization theory and strategic management. Managing paradox, for instance by enabling simultaneous exploitation and exploration, routine and innovation, or stability and flexibility, is discussed as a core organizational capability [8]. In the following, I propose to conceptualize resilience within such a general organizational framework. Drawing on the rich research traditions in the organization and management sciences permits to anchor our understanding of how organizations manage risk and uncertainty in validated constructs for organizational design and leadership.

After a brief review of research on safety leadership, I will discuss how leaders in high-risk systems have to cope with simultaneous stability and flexibility demands as one of the most fundamental tensions underlying organizational resilience, which stems from the requirement to control systems while staying responsive to uncertainty. I will argue that leaders play a key role in helping individuals and teams to address these complex demands on adaptive behavior, while they themselves have to also build and employ a portfolio of leadership styles matching different situations. Beyond these operational leadership requirements, strategic leadership is needed to establish supporting structures in the design of the organization such as standards and cultural norms and to foster organizational change towards building adaptive capacity at every level of the organization. Finally, some practical recommendations are given for training leaders and for promoting an appreciation for different worldviews which is necessary to increase acceptance of the tensions inherent in the different modes of operation as cornerstones of resilience. Given the scarcity of literature on strategic safety leadership to date, this chapter provides important insights for practitioners who strive to design resilient organizations along with building the necessary leadership capabilities, but it is also a rich source for future research aimed at bridging organization theory and safety science.

8.2 Research on Safety Leadership

As in the leadership literature more generally [9], much of the research on safety leadership has been concerned with identifying effective styles of operational leadership. Especially transformational leadership—that is leadership aimed at motivating employees through inspiration and charisma—has generally been found to be positively related to safety outcomes. However, in a recent meta-analysis, Clarke [10] has shown that transactional leadership—the counterpart of transformational leadership aimed at an exchange of rewards for fulfilling expectations—supports both safety participation and compliance, while transformational leadership supports mainly safety participation. According to the findings by Zohar and Luria [11] transformational leadership is particularly important for promoting safe behavior when the priority of safety is not sufficiently embedded in company values. The requirement to adapt

leadership styles to situational requirements more generally has been demonstrated by Yun, Faraj and Sims [12] who found that directive leadership in medical emergency teams was more successful in complex cases and with less experienced team members, while an empowering style was effective in less complex cases and with more experienced teams.

Another approach to leadership is to define it in functional terms as exerting influence on others in order to determine and achieve objectives. The tasks and processes involved in leadership are emphasized rather than the formal leadership role. This perspective also provides the foundation for the concept of shared leadership, which argues that leadership functions can be fulfilled not only by the formal leader, but possibly by any team member [13]. In high-risk teams shared leadership has been shown to promote safety, for instance in shock trauma teams [14] and anesthesia teams [15]. The situation becomes even more complex, when several teams interact as so-called multi-team systems, as is the case for cockpit crews and cabin crews. Bienefeld and Grote [16] analyzed shared leadership within and across cockpit and cabin crews. Behavior observations of 84 aircrews handling a simulated emergency (smoke of unknown origin in the cabin) showed that overall successful aircrews — which achieved a safe landing with all passengers adequately protected — were characterized by more shared leadership in the cabin, but not in the cockpit. More leadership by the captain was related to team goal attainment, that is a safe landing, independently of whether the aircrew overall achieved its goal. Furthermore, more leadership of pursers, that is, the formal leaders of the cabin crew, towards the cockpit crew was evident in successful aircrews. The authors discuss their findings in view of the pursers' crucial role as boundary spanners for achieving overall success and the support for this role through shared leadership in the cabin crew. More generally, the study indicates that some caution is needed in judging the benefits of shared leadership. It appears that shared leadership needs to be carefully balanced with leadership by the formal leader.

Finally, there may be situations where personal leadership itself becomes less important due to substitutes being in place such as standards that prescribe work processes in great detail or very experienced employees who know what to do without a leader telling them. In cockpit crews, it was indeed found that better performance in a simulated non-routine situation (landing an aircraft without the flaps and slats on the wings working) was linked to coordination patterns with little leadership and much implicit coordination in highly standardized work phases (take-off and landing) and more leadership during the less standardized work phase of preparing for the unusual landing [17]. Moreover, substitution may affect different leadership functions differently. For instance, in anesthesia teams consisting of more experienced nurses and less experienced, but formally responsible residents (i.e. physicians training at a hospital to become a specialist in a particular field of medicine), successful performance was linked to residents being mostly involved with information search and structuring, while nurses took over problem solving [14].

This brief review shows that there are many contingencies at play that will influence whether certain leadership responses will foster safe operations. These contingencies will now be explored further based on a typology of situations crafted around

the fundamental tension between demands for stability and flexibility in organizations. Subsequently, specific requirements for operational and strategic leadership will be distilled from this typology and discussed with respect to building resilient teams and organizations.

8.3 Stability and Flexibility Demands in Organizations

Grote, Kolbe and Waller [18] have proposed to distinguish different situations teams may face in organizations along the two dimensions of stability and flexibility demands. Stability demands arise from organizational requirements for predictability, reliability, and efficiency [19]. These demands are created within organizations to ensure managerial control and maximum productivity, but they may also stem from external sources such as regulatory bodies whose task it is to keep organizational functioning within certain bounds [20]. Perrow [21] has stressed technology as another source of stability demands, specifically tight coupling of work processes with few buffers and little fault tolerance. For teams, these demands entail the need to employ the same work processes, for instance to foster traceability of decisions, and to produce the same outcomes consistently and reliably. Flexibility demands, on the other hand, result from the necessity or desire to widen the scope of action and to innovate [19]. Usually, highly dynamic and uncertain environments are stressed as the main source of flexibility demands. However, flexibility demands also arise from within the organization due to complex production processes or possibly the opposite—highly routinized work processes, where over-routinization and complacency are to be avoided by introducing variation and change [22]. In any of these situations, teams are expected to be responsive to changing demands based on variability of their behavior, possibly even by proactively creating new work processes and outcomes.

Aiming to match stability and flexibility demands with appropriate coordination mechanisms, Grote et al. [18] have relied on substantial organizational research conducted over many decades. Most fundamentally, this research has shown that structural coordination mechanisms are better suited to respond to stability demands, while personal coordination mechanisms help to create flexibility [23]. This led them to hypothesize the following four situations with corresponding coordination patterns.

1. **Experiential situations:** When both stability and flexibility demands are low, as for instance in team debriefings where the focus is on sharing knowledge and learning outside of acute work pressures, coordination mostly happens among team members without much reliance on formal leadership or organizational rules.
2. **Exploitation situations:** When stability demands are high and flexibility demands low, as in many process control tasks, the emphasis is on efficient production, usually enabled by structural coordination mechanisms embedded in technology

and standard operating procedures, leaving little need for leadership or mutual adjustment among team members.

3. Exploration situations: When stability demands are low and flexibility demands high, for instance in teams that have to innovate at all cost, coordination happens by mutual adjustment and shared leadership to bring all team members' competences and resources to bear on idea generation and implementation.
4. Ambidextrous situations: When stability and flexibility demands are high because both highly reliable performance of complex tasks and fast reactions to unpredictable change are required, a broad range of coordination mechanisms has to be employed in parallel, helping teams to maintain control, e.g. through directive leadership and/or strong shared norms, and be adaptive, e.g. through sharing leadership tasks.

Teams may have to move quickly between the four conditions and switch their mode of operation accordingly. A surgical team may perform a routine operation (high stability, low flexibility) followed by a complex emergency operation (high stability, high flexibility). It will also undertake team debriefings (low stability, low flexibility) and may engage in experimenting with a new operating technology (low stability, high flexibility). As a consequence, continuous monitoring of stability and flexibility requirements and of necessary adaptations is crucial. To date research has mostly addressed adaptation in operational teams, however top management teams are also confronted with varying requirements for stability and flexibility, for instance when having to ensure effective production processes during major organizational change or when moving the organization towards abandoning old business models. The leadership requirements for enabling adaptation in any kind of team and for building adaptive capacity and resilience in the organization as a whole are discussed next.

8.4 Leadership for Resilience

From the proposed perspective of enabling resilience through adaptive switches between modes of operation, three fundamental leadership requirements can be derived. The first one is the leaders' ability to be adaptive themselves, that is to transform their own role and behaviors according to the stability and flexibility demands their teams face. Their behavior repertoire has to stretch from fostering stability through rules and personal direction to sharing leadership responsibility and giving up control when high flexibility is required to becoming just another team member during informal learning and knowledge exchange. Furthermore, they have to be capable of sensing changes in demands and to prepare themselves and the team for the appropriate switches between modes of operation. The corresponding competencies and skills leaders should possess have been described in terms of cognitive and behavioral complexity [24] and more recently as paradox-savvy leadership [25]. Core is a leader's ability to perceive, understand, and proactively address tensions

such as maintaining control while letting go of control and maintaining continuity while simultaneously pursuing change [26]. This is not only demanding due to the different behaviors required, but also due to the need to reconcile different world-views embedded in different approaches to stability and flexibility [27, 28].

The second requirement is to design organizational mechanisms that support individual and team adaptivity. Foremost, this concerns structures and standards put in place, which usually are meant to promote stability. Great care has to be taken, though, that the stability created does not lead to rigidity. In the case of rules, for instance, one should also consider to include rules that enable flexibility. These could be goal or process rules, which only specify certain overarching goals or priorities (e.g., “Safety First”) or processes to follow in order to decide on the best course of action [29]. An example of a process rule is the “10 for 10” principle that requires a 10 second time-out to plan the next 10 min of coordination during emergencies [30]. Such rules provide stability for team functioning by ensuring that certain processes are adhered to, but support flexibility as well because reflection and speaking up are promoted. Similarly, mandatory debriefings foster both structure and freedom to challenge and adapt existing procedures [31].

The third requirement relates to leaders’ role in establishing organizational culture. Beyond building the mindful or informed culture that is generally considered a foundation for resilience [32, 33], the fundamental role of culture as a powerful stabilizing force that helps to coordinate action and integrate work processes in decentralized and flexible modes of operations should be taken into account and employed wisely [34]. As Weick [35, p. 124] has described it: “(Culture) creates a homogeneous set of assumptions and decision premises which, when they are invoked on a local and decentralized basis, preserve coordination and centralization. Most important, when centralization occurs via decision premises and assumptions, compliance occurs without surveillance.”

For instance, a shared norm of always speaking up with concerns and ideas will better help mastering unexpected challenges than any attempt to cover all possible turns situations can take by means of standard operation procedures [28]. Regarding the particular nature of cultures that are beneficial for resilience one crucial aspect is respect for the viability of different perspectives on problems and their solutions. Such a culture of interdisciplinary appreciation is at the heart of bringing all knowledge in organizations to bear on finding the most effective ways to promote safety [36, 37] and to adequately address the ensuing paradoxical tensions [26].

8.5 Three Strategic Recommendations

If one accepts my argument that organizational resilience is closely tied to the ability to function in different modes of operation and to successfully manage switches between these modes of operation, three strategic recommendations follow. First, leaders and their teams need to be trained in these abilities. Crew Resource Management training in aviation is a very successful example for such trainings. But

even these trainings still have their challenges, such as extending them from cockpit crews to cabin crews along with the necessary appreciation for adaptive delegation of leadership [16]. Amalberti [27] has also pointed to the difficulty of trainings being attached to a particular mode of operation and underlying assumptions and rules for that mode. Thus, if trainings are to enable leaders and their teams to switch between modes operations, these underlying assumptions need to be addressed as well. An interesting example in this respect is a recent study by Weiss and colleagues [31]. The authors showed that after-event reviews conducted as part of training sessions for anesthesia teams led to more speaking up if assertiveness was emphasized, but also to more hierarchy-attenuating beliefs. Only if leaders share the view that hierarchy can come in the way of safety in certain situations, successful transfer of trained behaviors to the real world will ensue.

This leads to the second recommendation. To truly embrace different modes of operation requires bridging the worldviews embedded in the different approaches to managing stability and flexibility. Resilience depends on a shared understanding across professional boundaries of the legitimacy of different kinds of leadership in response to tensions concerning control and adaptive capacity, which may even entail deliberate promotion of uncertainty in some cases [28, 38]. Perspective taking and cross-learning among the different professions involved in safety are crucial to reflect on and reconcile the diverse belief systems and to create shared views on problems and on ways to solve them. Leaders are called upon to facilitate these processes and to encourage the needed organizational change.

The third recommendation, finally, concerns the relationship between operating organizations and regulatory agencies. Different worldviews do not only exist within organizations but - most likely even more so - between organizations, especially when they have very different tasks and roles such as operating versus regulating and inspecting safety-critical processes. Thus, a shared view of the legitimacy of different modes of operation has to also be established between operating organizations and their regulators and auditors. Depending on the given regulatory regime [20] this is a more or less daunting task. When regulation is prescriptive, a shared perspective on what is adequate behavior is more important, but especially acceptance of empowered modes of operation may be more difficult to achieve due to that same regulatory preference for highly standardized processes. Only if an open dialogue between operator and regulator is established, can the operational flexibility which lies at the heart of resilience be effectively realized.

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