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CONFIGURING TEAM BOUNDARY SPANNING FOR RESILIENCE¹

Thomas A. de Vries, Gerben S. van der Vegt, and Nevena Ivanovic

Introduction

Companies are inevitably confronted with disruptive events that, if left unattended, may have serious negative implications for their organization-wide performance or personnel wellbeing (van der Vegt et al., 2015). Such events may be large and have an abrupt impact on organizational processes and employees (e.g., pandemics, natural disasters, large strikes; Meyer et al., 1990), or they may start small as anomalies in the production or service process that escalate into larger impact disruptions (e.g., machine breakdowns, delayed deliveries of raw materials; Ivanovic et al., 2021; van den Adel et al., 2022). Whenever disruptions emerge, organizations must analyse the event, identify root causes, determine consequences, and develop countermeasures to minimise the event's negative implications for the company (de Vries et al., 2022a). Resilient organizations are effective in managing disruptions. This is reflected in their ability to maintain or even improve performance levels when facing disruptions to their production or service processes (van den Adel et al., 2022).

Minimizing the adverse consequences of disruptions is typically beyond the capacity of single individuals or teams within the organization (de Vries et al., 2016). Indeed, the teams tasked with managing disruptions on behalf of their organizations inevitably need to span their team boundaries and collaborate with other teams inside and outside their organization to develop effective and well-integrated countermeasures that ensure resilience. Such boundary spanning is vital for resilience because it enables teams to gather information about the nature of and potential solutions for the disruption, getting assistance from other teams inside or outside the organization (suppliers, customer firms, competitor firms), and coordinating responses to disruptions (Fan & Stevenson, 2018; Quick & Feldman, 2014).

Unfortunately, however, teams often struggle to work effectively across boundaries and realise the benefits of boundary spanning for resilience (de Vries et al., 2016; DeChurch & Zaccaro, 2010; Donahue & Tuohy, 2006).

Extant research suggests that teams may circumvent problems in boundary spanning by simply interacting more frequently with other teams (Joshi et al., 2009; Marrone, 2010). This research generally assumes that the higher the frequency of boundary spanning, the better teams will collaborate with each other, and the more successful they will be (Davison & Hollenbeck, 2012; DeChurch & Zaccaro, 2010; Faraj & Yan, 2009; Marks et al., 2005). However, most of this research has examined boundary spanning in ordinary work situations and the findings from this research may not directly translate to teams tasked with ensuring organizational resilience. Indeed, initial research suggest that this “more is better” perspective may become problematic when teams work in demanding situations. Davison et al. (2012), for example, illustrate that a high amount of uncoordinated boundary spanning between members working in so-called “multi-team systems” may decrease system performance. Other research also suggests that teams engaging in frequent boundary spanning may become buried under a storm of requests for support and coordination (de Vries et al., 2022a). Increasing the frequency of boundary spanning may, thus, unwittingly cause “collaborative overload” (Cross et al., 2016) and hinder effective disruption management.

This chapter therefore challenges the traditional “more is better” perspective on boundary spanning. We introduce a conceptual framework that specifies how specific boundary spanning configurations may facilitate inter-team collaboration during disruptions without producing collaborative overload. Drawing from research on boundary spanning and resilience, we also suggest that the effectiveness of different configurations is contingent on the characteristics of the disruption situation that teams face.

Theoretical background

Organizational resilience

In line with Britt (1988) and van den Adel et al. (2022), we define organizational resilience as an organization’s effectiveness in minimizing the magnitude of disruptions’ impact on its performance levels. The magnitude of a disruption’s impact is reflected in (1) the overall reduction in organizational performance that a disruption induces, and (2) the duration of such a performance reduction (see [Figure 3.1](#)). Adopting a temporal perspective, we distinguish between different phases in disruption management during which an organization may reduce the magnitude of a disruption (de Vries et al., 2022a; Lettieri et al., 2009). In the “mitigation phase,” an organization aims to minimise the initial drop in performance as it first encounters the disruption. Mitigation is completed when the immediate performance decline following a disruption is stabilised (“a” in [Figure 3.1](#)). Disruption mitigation

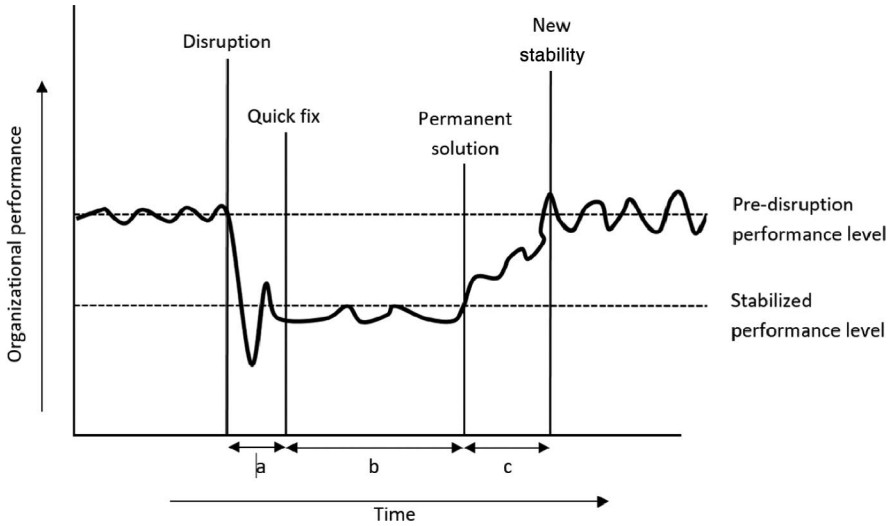


FIGURE 3.1 Organizational resilience

involves devising quick fixes to minimise immediate negative consequences for organizational performance. In the subsequent “response phase,” the organization develops more permanent solutions that minimise the duration of the reduced performance levels (“b” in Figure 3.1), while it restores performance levels to pre-disruption levels or even beyond in the “recovery” phase (“c” in Figure 3.1). The recovery phase ends when organizational performance is restored to a new stable level, following the temporary reduction in performance levels due to the disruption.

Organizational resilience can, therefore, be determined by assessing an organization’s performance over time, prior to, during, and after a disruption. A resilient organization quickly stabilises its performance level after a disruption and minimises the time that its performance level is below the pre-disruption level. A resilient organization may even improve its post-disruptions performance levels beyond the pre-disruption level by implementing permanent improvements in its processes (Britt, 1988; van den Adel et al., 2022). Figure 3.2 depicts the performance trend of a resilient firm. This figure shows a short and minimal decline in performance after a disruption emerges, illustrating the organization’s ability to quickly stabilise the impact of the disruption through quick fixes. Moreover, the duration of the reduced performance period is relatively short, further showing the organization’s resilience. An organization lacking resilience, however, struggles to stabilise performance levels after encountering a disruption, resulting in a steep and enduring drop in its performance. Figure 3.3 depicts the performance trend of an organization with lower resilience. This figure reveals a large, enduring drop in organizational performance after a disruption.

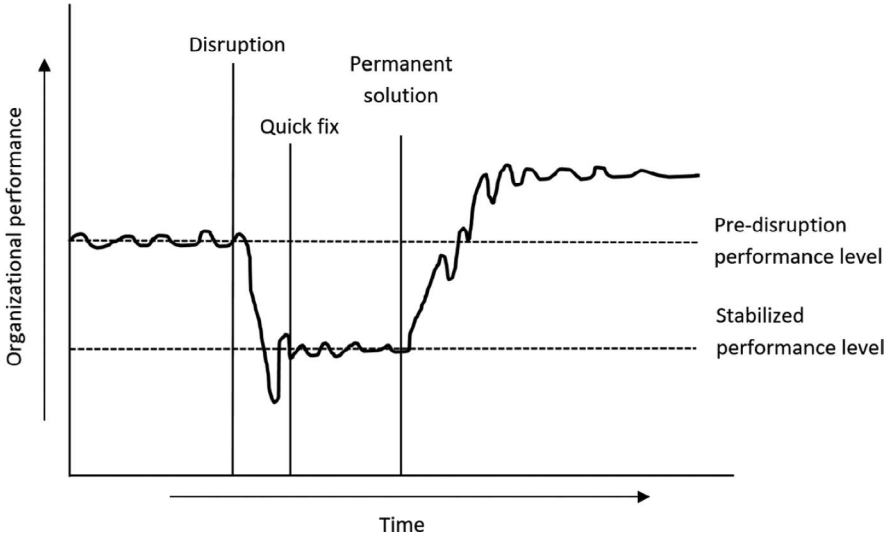


FIGURE 3.2 Performance trend line of a resilient organization

Teams, boundary spanning, and organizational resilience

Organizations often use one or a few designated teams to minimise the disruption’s adverse effects and ensure resilience. Examples include the cross-functional teams studied in van den Adel et al. (2023) and the multiteam system studied in Goodwin et al. (2012) and de Vries et al. (2022a). Such teams receive a mandate to

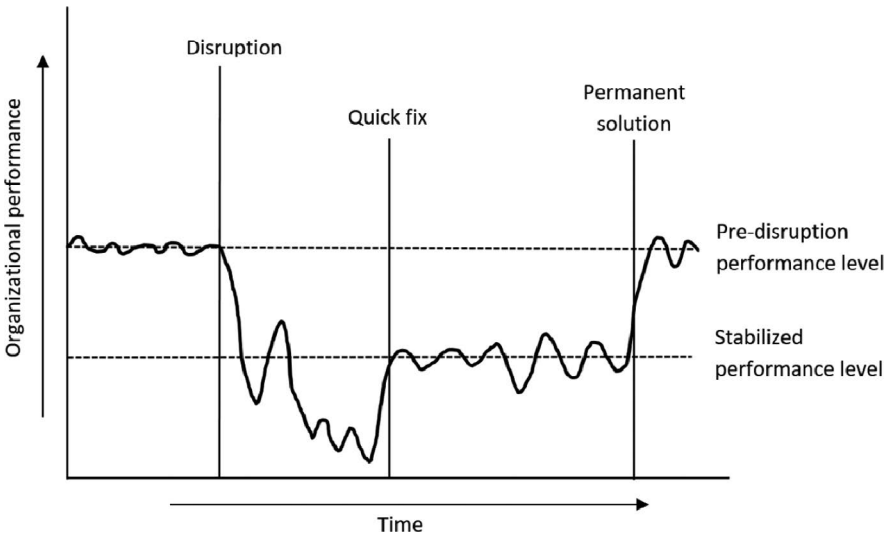


FIGURE 3.3 Performance trend line of an organization with lower resilience

analyse the disruption and develop countermeasures on behalf of the organization as a whole. These designated teams are typically also in charge of overseeing the implementation of countermeasures in the wider organization. Organizations typically rely on such teams for their excellent problem-solving capacities and ability to deal with complex tasks. Indeed, such teams facilitate open discussions between diverse members and enable the exchange of knowledge by allowing members to work alongside each other in an interdependent manner towards joint (team) goals.

Importantly, however, teams' ability to deal with complex problems largely depends on their access to complete information about the problem at hand, as well as the expertise needed to deal with it (de Vries et al., 2022a; van den Adel et al., 2023). Research suggests that without such information and expertise, teams may struggle to deal with disruptions (de Vries et al., 2022a). In almost all cases, not all of the required information and expertise is available within the team, and teams must reach out to other teams both inside and outside their organization (van den Adel et al., 2022). Teams' ability to deal with disruptions therefore greatly depends on their ability to engage in boundary spanning (de Vries et al., 2022a; van den Adel et al., 2023).

Team boundary spanning facilitates organizational resilience in different ways. First, engaging in boundary spanning with a diverse range of outside team members makes it more likely that teams receive early warning signals for upcoming disruptions (de Vries et al., 2022b). Relatedly, teams within an organization could engage in boundary spanning to quickly alert other teams of malfunctioning equipment that may have implications for these teams' functioning. This exchange of information may enable teams to start developing countermeasures for the disruption quicker, thereby potentially reducing the initial drop in performance after the emergence of a disruption. Second, research has shown that boundary spanning is essential for developing joint practices (Levina & Vaast, 2005). Boundary spanning may thus facilitate the access to and distribution of effective countermeasures within the organization, thereby reducing the duration of the reduction in organizational performance. Third, teams' boundary spanning may inspire the development of out-of-the-box solutions for novel and complex problems. Research indicates that interactions between different groups, departments, and expertise fields enables cross-pollination and exchange of ideas, and result in innovation (Chatenier et al., 2009; Laursen & Salter, 2006; West et al., 2014). Coming up with improvements may enable teams to restore the organizational performance level up to or even beyond pre-disruption levels.

Configuring boundary spanning for resilience

Despite boundary spanning's importance for resilience, engaging in such activities is difficult and needs to be carefully managed. Boundary spanning typically involves interactions with unfamiliar outside team members who have different (and sometimes conflicting) goals, interests, and working methods (Ancona &

Caldwell, 1992; de Vries et al., 2014). Thus, teams need to spend considerable time on explaining their actions to other teams' members, as well as on clarifying their requests for information and expertise. Without carefully managing boundary spanning, such activities may consume a disproportionate amount of team members' time and distract them from other important team activities, such as working on their teams' primary tasks (Gibson & Dibble, 2013). Therefore, it is important for teams to find ways to optimise their boundary spanning, such that these activities continue to provide them with the information, expertise, and assistance needed for dealing with disruptions, but also do not overly strain their members.

To realise that goal, we propose a configural approach that considers how team members divide boundary spanning tasks among each other, who they target with such activities, and for what purposes they engage in boundary spanning. Prior research has suggested that any team activity, such as boundary spanning, requires the investment of resources (time, attention) and that such resources are limited (Kudaravalli et al., 2017; Porter et al., 2010). Correspondingly, the key premise of our configural perspective is that boundary spanning is most beneficial when it is designed to require minimal resource investments while yielding maximal returns (Crawford & LePine, 2013; Leicht-Deobald et al., 2020). Specifically, for a more complete understanding of the boundary spanning–resilience link, we propose it is important to consider the investments as well as the potential returns associated with specific configurations of a team's boundary spanning. This is in line with prior research conceptualising boundary spanning as a configural team construct (Marrone, 2010).

Conceptual model

Building on conceptual team research (Crawford & LePine, 2013; Humphrey & Aime, 2014; Leenders et al., 2016) and our own observations (de Vries et al., 2022a; Leicht-Deobald et al., 2020), we focus on the structures and patterns of boundary spanning interactions during disruptions, rather than on the frequency of boundary spanning. To develop this configural approach, we reviewed existing literature and identified potentially important configurations of boundary spanning, characteristics of disruptions, and developed propositions on how such disruption characteristics may affect the effectiveness of different boundary spanning configurations for ensuring resilience. Drawing from boundary spanning literature, we identified the “Distribution of boundary spanning among teams' members,” “Target of boundary spanning efforts,” and “Purpose for which teams engage in boundary spanning” as important dimensions. Moreover, to understand the effectiveness of boundary spanning configurations, we tie together micro-level insights on boundary spanning with those from macro-level organization theory. Organization theory suggests that the design of an organization should match the environmental complexity and novelty it faces (de Vries et al., 2022b). Integrating this macro-level theoretical rationale with our micro-level insights on boundary spanning, we argue

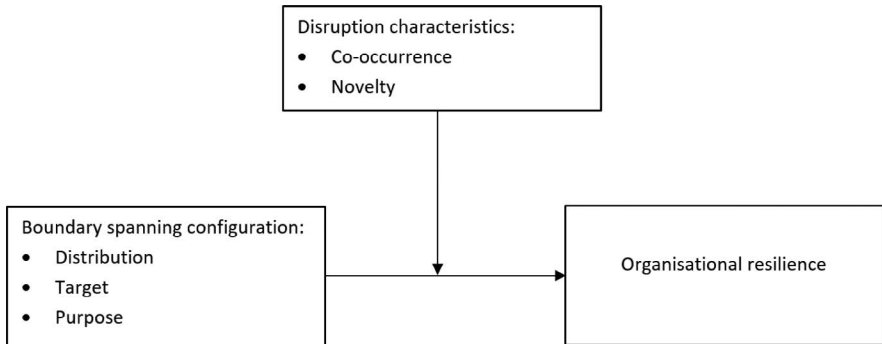


FIGURE 3.4 Conceptual model

that effective teams match how they configure boundary spanning to the novelty and co-occurrence of the disruptions they face (see [Figure 3.4](#)).

Configural dimensions of boundary spanning

Distribution of boundary spanning tasks

We identified three approaches to distribute boundary spanning tasks among teams' members. First, teams may choose to “differentiate” boundary spanning tasks among members by appointing one or a few members to execute the bulk of all boundary spanning activities. In such structures, the one or few members tasked with boundary spanning are called boundary spanners, brokers, liaisons, or coordinators and they are responsible for building and maintaining external relationships with other teams (inside or outside the organization) on behalf of the team as whole (Davison et al., 2012; de Vries et al., 2022a). These boundary spanners thus specialise in representing the team to external members, thereby allowing other team members to focus on internal team tasks. These team members depend on the central boundary spanning member for obtaining insights from external members. Such a differentiated structure creates oversight by limiting the number of members involved in boundary spanning, but it also requires sufficient knowledge exchange between the boundary spanner and the remaining team members (de Vries et al., 2016; van den Adel et al., 2023).

Second, teams may spread boundary spanning tasks thinly among members and involve all or most of their members. In such a “generic” structure, every team member builds and maintains work-related connections with external members without having to check or work with a central intermediary in the team; team members engage in boundary spanning alongside their other internal team activities. The key advantage of such a generic boundary spanning structure is that it can enable open and unmediated collaboration among teams, because there are no central boundary spanners that can distort or delay team members' external

interactions. Research has shown the importance of generic boundary spanning configurations for cross-functional teams in business contexts characterised by risks and disruptions, suggesting that teams utilizing a generic boundary spanning structure can get access to large amounts of relevant information on the causes and consequences of disruptions (van den Adel et al., 2023).

Third, teams may use a “dynamic” configuration that combines differentiated and generic structures. Teams using dynamic configurations typically switch between differentiated and generic structures when demands in the disruption environment change. Only a handful of studies have examined how teams may dynamically combine such different boundary spanning structures (Mathieu et al., 2018). One key example is the study by de Vries et al. (2022a), who introduced the concept “provisional hierarchy” to explain how teams change their boundary spanning configuration as disruption-response efforts evolved. This study illustrates how teams first used differentiated structures to develop a strategic response, after which they shifted to generic boundary spanning structures to allow different teams’ members to work out the details and implement solutions.

Target of boundary spanning

Recent meta-analytical research has identified that teams’ boundary spanning may target external members *inside* or *outside* their organization, labelled “intra-organizational” and “extra-organizational” boundary spanning, respectively (Leicht-Deobald et al., 2020). Intra-organizational boundary spanning may take place either between or within hierarchical layers (e.g., Davison et al., 2012; de Vries et al., 2016; Firth et al., 2015). Boundary spanning between members from different hierarchical layers is called “vertical” boundary spanning (Davison et al., 2012). This type of boundary spanning enables higher-level leaders to assist specialist team members by developing and then providing a big-picture understanding of developments and actions in the organization (Davison et al., 2012; de Vries et al., 2016), which can be vital when dealing with disruption situations.

Boundary spanning *within* a hierarchical layer is called “horizontal” boundary spanning (de Vries et al., 2016) and can take place at the operational level (e.g., between specialists members) or at the managerial level (between leaders). Horizontal boundary spanning facilitates the coordination of detailed operational tasks (de Vries et al., 2022a). Team members may discuss what type of information they need from each other’s teams to be able to contribute to collective efforts. When teams’ leaders engage in horizontal boundary spanning, they exchange information, discuss, and align general countermeasures on a more strategic level.

Besides intra-organizational boundary spanning, teams may also interact with teams outside their organization. Although most prior research has examined intra-organizational boundary spanning, the few studies that have studied extra-organizational boundary spanning hint at its importance for resilience. These studies suggest that extra-organizational boundary spanning may help teams to align

efforts with partner organizations (e.g., suppliers, customers), and obtain insights on disruptions that are unavailable within the organization. For example, research has shown how teams from different organizations may use boundary spanning to deal with disruptions to a shared railway system, such as blockages or delays in the railway infrastructure due to broken-down trains, collisions, or bad weather conditions (de Vries et al., 2022a; van den Adel et al., 2022). These teams used extra-organizational boundary spanning to coordinate how they can combine their resources (towing locomotives, mechanics, and support staff) to resolve disruptions, as well as to discuss how to quickly “bounce back” (restart interdependent train schedules after a disruption). Other research has shown that teams may use extra-organizational boundary spanning to obtain insights from competitors on how to deal with a disruption to their supply chain (van den Adel et al., 2023).

Purpose of boundary spanning

Our final dimension of boundary spanning configurations considers the purpose of teams’ external interactions. Research suggests that boundary spanning can serve the purpose of coordinating work, representing team interests, and scouting external information and knowhow (Ancona & Caldwell, 1992; de Vries et al., 2014). Of these purposes, *coordination activities* represent the most intense form of boundary spanning. It requires members from different teams to discuss and agree on who will do what at what point in time, in order to avoid duplicate, redundant, or conflicting responses to disruptions. Coordination types of boundary spanning are by nature reciprocal. Only when teams’ members engage in active discussions and joint decision-making will they be able to align the content and schedules of their activities when dealing with a disruption. As such, this type of boundary spanning is labour-intensive in terms of required investment of time and effort. Members from different teams will need to be deeply acquainted with each other’s working methods, goals, and activities to engage in meaningful coordinative boundary spanning. At the same time, the intensity and reciprocity of coordinative boundary spanning enables exchange of rich information and it can motivate active support and assistance from outside team members (de Vries et al., 2014, 2016, 2022a).

Teams’ boundary spanning may also serve the purpose of representing and connecting the team to higher-level management (ambassadorial activities). This type of boundary spanning emerges mostly between members of different hierarchical layers within the same organization (e.g., between lower-level team members or leaders and higher-level executives; Ancona & Caldwell, 1992; Marrone, 2010). In the context of resilience, teams may use ambassadorial activities to secure managerial support and financial resources. Although such activities have obvious relevance for resilience, the importance of ambassadorial boundary spanning in disruption contexts remains relatively unexplored in prior empirical research.

Finally, teams’ boundary spanning may serve the purpose of finding information from other teams and stakeholders inside and outside the organization (information

scouting; Ancona & Caldwell, 1992; van den Adel et al., 2023). Scouted information can provide insights on the causes, consequences, and potential solutions of a disruption, but does not include teams discussing how to use such insights for managing the disruption, as in boundary spanning aimed at coordination. As such, this type of boundary spanning requires the least amount of investment of team members' time and attention, but is also the least likely to result in strong external relationships that have been shown to enable the exchange of rich knowledge and active support. As such, information scouting seems particularly useful for teams that can benefit from exchanging information with each other but have little need or incentive to coordinate work, such as between competing teams (Ivanovic et al., 2022; van den Adel et al., 2023).

Disruption characteristics

Macro-level organizational theory highlights the need to look at contextual factors, such as complexity and novelty of the work environment, when considering the effectiveness of organizational collaboration processes (de Vries et al., 2022a; de Vries et al., 2022b; van den Adel et al., 2022, 2023). Against this theoretical backdrop, we consider both the *co-occurrence* and the *novelty* of the disruption as contextual factors that may influence the effectiveness of specific boundary spanning configurations.

Disruption co-occurrence

Research indicates that the complexity of a disruption is primarily determined by the timing of the disruption relative to other disruptions that may affect the organization (de Vries et al., 2022a,b; Rudolph & Repenning, 2002; van den Adel et al., 2023). A disruption is particularly complex when it emerges at a time when many other disruptions are already affecting the organization (Ivanovic et al., 2021). When facing such co-occurring disruptions, team members must focus their attention on resolving the focal disruption without neglecting the other adverse events or tasks unrelated to disruptions that may also affect the organization's performance (Comfort et al., 2012; Roux-Dufort, 2007). Moreover, implications of co-occurring disruptions may interact with the potential consequences of the focal disruption, and teams must thus consider scenarios that are more complex. This means that team members must obtain, share, and process larger amounts of information about the disruption before they can develop effective, well-coordinated responses.

Accordingly, and based on the work of Rudolph and Repenning (2002), de Vries et al. (2022a,b) and van den Adel et al. (2023) argued that situations with larger numbers of co-occurring disruptions are more likely to lead to information overload, which may cause team members to overlook critical information and hinder the development of effective countermeasures. Based on the task-switching literature, other researchers have come to similar conclusions (e.g., Ivanovic et al., 2021).

These scholars note that team members typically go back and forth between different activities when facing co-occurring disruptions, which consumes valuable time and attentional resources. As such, co-occurring disruptions may require different insights and place different demands on a team's boundary spanning.

Disruption novelty

Disruption novelty refers to how familiar a team is with certain disruptions. A disruption is relatively routine when a team has dealt with it before and more novel when it is unprecedented on some important dimension (van den Adel et al., 2022). In their study of the Dutch railway system, for example, van den Adel et al. (2022) considered rail disruptions (e.g., broken-down trains, failed rail infrastructure) more or less novel depending on how often a similar type of disruption had occurred in the same part of the railway system in the past year (see also, de Vries et al., 2022a). The exact location of a rail disruption was important, because it influenced what kind of solutions were possible. Teams that had dealt with a disruption at certain locations before were better aware of possible solutions and could rely on existing knowledge to develop countermeasures.

A configural framework

Combining micro insights on the role of boundary spanning with those from organization theory about the importance of organizations' macro-level environments, we argue that the effectiveness of boundary spanning configurations depends on their alignment with the co-occurrence and novelty of the disruption faced by the team. Co-occurrence and novelty represent orthogonal disruption characteristics, meaning that higher levels of co-occurrence do not necessitate higher levels of novelty, nor vice versa. Correspondingly, we offer propositions regarding how teams might effectively configure boundary spanning while facing disruptions that differ on those dimensions. [Table 3.1](#) summarises our propositions.

Isolated, routine disruptions

Routine disruptions that emerge in isolation represent anomalies that teams may face on a daily basis when organizational processes otherwise run relatively smoothly. Although such situations may not seem severe, they do require immediate attention from teams to ensure that they will not escalate into larger, more complex disruptive situations (Rudolph & Repenning, 2002). Given the limited complexity and novelty of these disruptions, teams usually do not need external insights or assistance for ensuring resilience. Moreover, when such a disruption emerges in isolation (i.e., other processes are running smoothly and are not disrupted), it is relatively easy for a team to keep oversight of the situation and to develop countermeasures that do not duplicate or interfere with other teams' efforts (de Vries et al., 2022a).

TABLE 3.1 Proposed boundary spanning configurations

<i>Disruption characteristics</i>	<i>Effective boundary spanning configuration</i>	<i>Rationale</i>
Isolated, routine disruptions	Differentiated, intra-organizational, and focused on ambassadorial activities	Teams must efficiently inform management of their actions within the organization
Co-occurring, routine disruptions	Differentiated, intra-organizational, focused on coordination	Teams must create oversight and coordinate efforts inside the organization
Isolated, novel disruptions	Generic, extra-organizational, focused on information scouting	Teams must obtain innovative insights from other organizations
Co-occurring, novel disruptions	Dynamically shifting from differentiated, extra- and intra-organizational boundary spanning towards generic, intra-organizational boundary spanning. Focused on coordination and information scouting.	Teams must both create oversight and enable open problem-solving between their members and other organizations.

While teams do not need much support or assistance from external team members in these situations, boundary spanning may still be valuable because it helps the team to inform other important stakeholders inside the organization about the disruption and what was done to manage the situation. It is, however, important that teams do not invest too much of their time and effort in such activities. Teams may benefit the most when only one or a few members target hierarchical leadership inside the organization (differentiated vertical boundary spanning). Such key team members keep hierarchical leadership up-to-date of the disruptive situation, enabling the leadership to step in if needed, while enabling their fellow team members to focus most of their time and attention on within-team tasks. Furthermore, by exclusively focusing on intra-organizational boundary spanning with management (ambassadorial activities), teams ensure that one or a few team members can execute boundary spanning without running risks of becoming overloaded.

Co-occurring, routine disruptions

If several routine disruptions co-occur, teams must figure out how these multiple disruptions may affect the team and organization, and they must manage relationships with all involved stakeholders (de Vries et al., 2022a). To do so, a team may need to engage in substantial boundary spanning and acquire up-to-date information from other teams in the organization on how disruptions may interact with each other (Ivanovic et al., 2021; van den Adel et al., 2023). These insights are

needed to develop effective countermeasures. Moreover, boundary spanning is instrumental for the team in aligning the team's responses with other teams to avoid conflicts or redundancies with responses to co-occurring disruptions (Choi, 2002; Fan & Stevenson, 2018).

We propose that teams will be more effective in ensuring resilience in these situations when they differentiate their boundary spanning. By using a differentiated structure, a central team member can maintain oversight of all between-team interactions, which is important when dealing with multiple co-occurring disruptions. Moreover, the central member can make sure that different team members do not collect redundant information and that important external members are properly involved in the team's response actions. Due to the low novelty of this type of disruption, we further expect that this differentiated boundary spanning is most effective when targeted at other teams and leaders *inside the organization*. Solutions for routine disruptions are often already present inside the organization, and therefore do not require more labour-intensive extra-organizational boundary spanning. Moreover, due to the high complexity resulting from disruption co-occurrence, we expect that intra-organizational boundary spanning is primarily needed for determining how disruptions' consequences may interact. We expect that boundary spanning is most likely to generate such insights when initiated in a vertical manner by higher-level leaders. Higher-level leaders are in a prime position to generate a broad overview of disruptions in the organization, and vertical boundary spanning may enable teams to obtain such insights from leaders in a cost-effective manner (Davison et al., 2012).

We further expect that teams' boundary spanning should focus on coordination. A key challenge for teams facing multiple co-occurring routine disruptions is developing integrated and well-coordinated countermeasures. When boundary spanning focuses on coordination, it allows teams to align and synchronise their disruption responses. Although coordination with other teams typically requires team members to engage in intense discussions, which can consume significant amounts of time, the synchronization and alignment of countermeasures may prevent that different teams develop ineffective, redundant, or conflicting countermeasures to coinciding disruptions.

Isolated, novel disruptions

For isolated but novel disruptions, the need for managing activities with external stakeholders and aligning responses among teams are relatively low. Due to the novelty of these disruptions, however, boundary spanning may be useful for providing team members with novel insights, information, and expertise from other teams that are not available within the team. This boundary spanning will likely be more effective when it is generic. With a generic boundary spanning structure, all team members can directly approach external team members without checking or coordinating with a central boundary spanner. Generic boundary spanning enables

quick and spontaneous linkages between the team and external members, which are more likely to provide access to unfamiliar insights and information, as well as enable open problem solving between the team and external members. Such open problem-solving and access to external resources can help the team to develop innovative solutions for isolated disruptions.

Since isolated and novel disruptions are, by definition, unprecedented for the organization, we further argue that a team may be most effective if it targets its boundary spanning activities at members outside of its organization. Specifically, the team may approach partners within its supply chain (customers, suppliers) or even competitors to gauge whether these entities have dealt with similar disruptions and, if so, to obtain information on effective countermeasures. Although such boundary spanning may require team members to spend significant time in overcoming inter-organizational differences (e.g., working methods, goals, and interests), such efforts may still be worthwhile in terms of the input received in return. Moreover, the team does not have to spend significant time on internally developing creative solutions from scratch. This timesaving will compensate for the time that teams need to invest in extra-organizational boundary spanning.

Boundary spanning's key purpose during isolated and novel disruptions is to enable a team to scout information (from outside organizational members) on how to deal with the situation. Due to the unprecedented nature of the disruption, teams need to reach out beyond their organization to obtain valuable insights on how to minimise the disruptions consequences. Team members engage less in coordinating efforts with other teams, as the disruption represents an isolated event. Correspondingly, we expect boundary spanning to be most cost-effective when it is oriented towards information scouting.

Co-occurring, novel disruptions

For co-occurring and novel disruptions, teams need to generate oversight of the consequences of co-occurring disruptions, as well as external insights to develop creative countermeasures. Generating oversight and enabling creative solutions require dynamic boundary spanning configurations. Differentiated boundary spanning activities are likely most useful during the early phases of the disruption-response effort. The early phases of co-occurring and novel disruptions usually have the potential to lead to collaborative overload because team members receive more external requests for information and support than they can handle efficiently (Cross et al., 2016). This may prevent teams from developing quick fixes that minimise the immediate consequences of disruptions. A differentiated boundary spanning structure avoids such problems in the early mitigation phases of the disruption-response effort. By appointing a few central boundary spanners, the remaining members can focus on tasks related to the disruption-response effort. This ensures that teams exchange information and develop oversight of the situation (through key boundary spanners), while also preserving their team members'

time and capacity for translating such insights in quick fixes during mitigation (de Vries et al., 2022a).

Once the mitigation phase is completed, teams may need to restructure and use more generic boundary spanning in the response and recovery phase to develop and implement countermeasures that are more permanent. After central boundary spanners have helped to develop a common understanding of the situation and put temporary measures in place, there is less need for team members to seek clarification or information from other teams (Davison et al., 2012). The amount of boundary spanning may thus reduce, rendering generic boundary spanning feasible and cost-effective (de Vries et al., 2022a). By engaging in generic boundary spanning, members from different teams can combine ideas into permanent solutions for the disruption.

It further seems important that teams use a combination of extra- and intra-organizational boundary spanning. Extra-organizational boundary spanning allows teams to obtain best practices from other organizations on how to deal with the unprecedented nature of the disruption. Intra-organizational boundary spanning may be vital to integrate (externally acquired) information and coordinate countermeasures. Inside the organization, we suggest that teams should use a combination of horizontal and vertical boundary spanning during mitigation. Through horizontal boundary spanning, central boundary spanners are capable of developing a complete and common understanding of the disruption situation that can facilitate its containment (Davison et al., 2012; Firth et al., 2015). To develop and distribute this oversight, it is important that the central person is well integrated in the team and can go back-and-forth between sharing information between team members and other teams' boundary spanners (de Vries et al., 2016). Vertical boundary spanning is needed for this purpose, as it enables the central boundary spanner to share the insights and information from other boundary spanners within the team, as well as to collect internal insights from the team.

During subsequent response and recovery phases, it is most effective if teams focus on intra-organizational boundary spanning to combine existing expertise and information into permanent solutions for the disruption. Specifically, teams might use horizontal boundary spanning to bring different teams' specialist members together so that they can combine their first-hand insights to refine and implement countermeasures. The common understanding developed and distributed by central boundary spanners during the mitigation phase facilitates team members to engage efficiently in such horizontal boundary spanning (de Vries et al., 2016). When the disruption situation changes and the common understanding becomes outdated, horizontal boundary spanning may become too labour-intensive. It might then be more efficient for team members to use vertical boundary spanning to delegate boundary spanning to teams' central boundary spanners (Davison et al., 2012). Central boundary spanners can update the common understanding through horizontal boundary spanning with other boundary spanners, which can then enable teams to return to horizontal boundary spanning between team members (de Vries et al., 2016).

In terms of configuring boundary spanning purpose, it seems particularly important that teams use boundary spanning for a combination of coordination and information scouting. During mitigation, central boundary spanners benefit from scouting information from other organizations and their home teams when developing a common understanding of the disruption situation. Central boundary spanners may also align their temporary solutions to co-occurring disruptions, thereby ensuring compatibility between teams' separate responses and preventing redundant or even conflicting countermeasures (de Vries et al., 2022a). Coordinating work and scouting external information through boundary spanning is equally important during response and recovery phases of co-occurring and novel disruptions, but serves different goals and transpires mostly between teams' members (through horizontal boundary spanning). During response and recovery, information exchange will help teams' members to obtain additional details on the nature of co-occurring disruptions from peers in other teams. Team members are directly involved in the execution of their team's tasks and therefore well equipped to gauge what additional external information the team needs to finalise countermeasures that can reduce the long-term consequences of novel and co-occurring disruptions. Coordination boundary spanning, on the other hand, is needed between teams' specialist members to align their subsequent implementation actions.

Conclusion

This chapter builds on existing research to conceptualise how teams might configure boundary spanning for resilience. We suggest that teams can “differentiate” boundary spanning tasks among members, use “generic” structures that spread boundary spanning tasks thinly among more members, or dynamically combine both structures. Furthermore, we distinguish between intra-organizational and extra-organizational boundary spanning, as well between boundary spanning aimed at coordinating activities, representing the team, and scouting information. We posit that teams may be most effective at ensuring resilience when they match their boundary spanning configurations with the co-occurrence and novelty of the disruptions they face.

Future research directions

Our configural model is conceptual in nature and therefore awaits empirical validation. Using large data sets detailing how teams have used different boundary spanning approaches to deal with different disruptions may be particularly useful in this respect. Some previous studies on resilience, teams, and boundary spanning, for example, have used a multi-round supply-chain simulation in which cross-functional teams represented different companies that could engage in boundary spanning to deal with varying numbers of supply chain disruptions and warnings (de Vries et al., 2022b; van den Adel et al., 2023). Other research used combinations

of log-files from inter-organizational communication systems, phone records, and archival records on disruptions to examine how and when organizational teams successfully used boundary spanning to deal with disruptions to infrastructure networks (de Vries et al., 2022a; Ivanovic et al., 2021; van den Adel et al., 2022). Future research might use these methods to examine our configural model empirically, preferably within a sample of diverse organizations.

Future research should also investigate the mechanisms behind the emergence of the boundary spanning configurations we introduced, their temporal change, and time-dependent association with resilience. A promising new approach in this regard is the use of so-called relational event models (Klonek et al., 2019; Leenders et al., 2016; Pilny et al., 2016; Schechter et al., 2018). These models allow us to identify behavioural patterns responsible for the emergence of boundary spanning configurations. Relational event approaches avoid aggregation of measurement by capturing team processes in a fine-grained manner through intensive data collection (Klonek et al., 2019). They make it possible to model temporal dependence between team members' behaviour across time. As such, relational event models can unravel how team members actually switch between different boundary spanning configurations (Ivanovic et al., 2022; Quintane et al., 2022).

Additionally, research examining intra- and extra-organizational boundary spanning has developed in isolation from each other. (Davison et al., 2012; de Vries et al., 2014, 2016; van den Adel et al., 2022). As such, it remains unclear when intra-organizational or extra-organizational boundary spanning may be more effective, as well as when teams need to engage in intra-organizational and extra-organizational boundary spanning in parallel. Drawing from our configural model, we predict that extra-organizational boundary spanning will be particularly effective when teams face novel disruptions, while intra-organizational boundary spanning may be uniquely important when teams face co-occurring disruptions. Further research may expand on these ideas and integrate research on intra-organizational and extra-organizational boundary spanning by testing our prediction that disruption characteristics moderate the implications of intra-organizational and extra-organizational boundary spanning for resilience.

Finally, additional research is needed on boundary spanning purposes. Although there is research examining boundary spanning aimed at coordination (de Vries et al., 2022a) and information scouting (van den Adel et al., 2023), we could not find a single study examining how and when ambassadorial boundary spanning may support resilience. This is an importance omission because ambassadorial activities may allow teams to obtain support from management that can provide legitimacy for their countermeasures. Based on our configural model, we expect such benefits of ambassadorial activities to be particularly salient when teams face isolated, routine disruptions. By engaging in ambassadorial activities in such situations, teams can keep management updated on their progress and secure the support for resolving these straightforward disruptions in an efficient and autonomous manner. Subsequent research could test these predictions and examine if disruption

novelty and co-occurrence indeed moderate the relationship between ambassadorial boundary spanning and a team's ability to ensure resilience.

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