Making sense in "less-hierarchical" forms of organizing

(article starts on next page)

Making sense in "less-hierarchical" forms of organizing

Constantin Bremer [*], Anna Rylander Eklund, Maria Elmquist

Chalmers University of Technology, Department of Technology Management and Economics, Gothenburg SE-412 96, Sweden

ABSTRACT

Research suggests that, if removed, managerial hierarchy needs to be replaced with "something else". This paper applies a sensemaking perspective to explore how managerial hierarchy can be replaced. Based on a longitudinal case study of an organization designed to avoid managerial hierarchy, we demonstrate how the lack of hierarchy opened up a sensemaking gap around the autonomy–alignment tension which was addressed in different ways over time. Our case shows how the organization gradually reverted to the hierarchical structures it initially intended to oppose. We argue that a sensemaking perspective can explain the rationale to this development and propose that less-hierarchical organizations need a broad range of context-specific, alternative sensemaking devices connecting to local experience to effectively guide action.

1. Introduction

Amidst increasingly uncertain and complex environments, the adequacy of managerial hierarchy as the go-to form of organizing has been put into question. Some organizations opt for new forms of organizing variously characterized as self-managing (Lee & Edmondson, 2017), flat (Baumann & Wu, 2022), boss-less (Ketkar & Workiewicz, 2022), or less-hierarchical (Billinger & Workiewicz, 2019). The central tenet of these new forms, as described in academic literature, is their decentralization of decision-making authority and related increase in autonomy among individuals and teams, allowing organizations to more flexibly navigate uncertainties and complexities (Lee & Edmondson, 2017; Schreyögg & Sydow, 2010).

To make "less-hierarchical" forms of organizing work long-term, simply reducing managerial hierarchy is not enough. It needs to be replaced by "something else" (Foss & Klein, 2022, p. 177). While well-known cases like Buurtzorg or Morning Star illustrate that successful alternatives to managerial hierarchy as a mechanism for coordination and control exist (Cäker & Siverbo, 2014; Fjeldstad et al., 2012; Laloux, 2014; Lee & Edmondson, 2017; Okhuysen & Bechky, 2009), how these alternatives can replace managerial hierarchy remains practically and theoretically underexplored (Child, 2019; Lee & Edmondson, 2017; Luhmann, 2000).

The purpose of this paper is to explore how managerial hierarchy can be replaced, adopting a sensemaking perspective. Accordingly, we interpret managerial hierarchy, as well as its possible alternatives, as

sensemaking devices. Following previous research, such sensemaking devices help organizational actors understand and handle the uncertainties and complexities that they encounter in everyday organizational life (Lund, 2019; Maitlis & Christianson, 2014; Weick, 2012). For instance, managerial hierarchy and its pyramid-shaped organization chart reduce uncertainties and complexities by outlining clear and consistent communication and decision-making paths (Child, 2019; Kühl, 2017).

To show the implications of our sensemaking perspective, we draw on insights from a longitudinal case study of Zenseact – a Swedish software company created with the intent of being less-hierarchical and agile. As individuals and teams struggled to understand and act upon the extreme "autonomy" granted to them in the company's initial organization design, specifically avoiding hierarchical layers, Zenseact drew on the "autonomy–alignment" tension as popularly discussed in the agile software community (see e.g., Bick et al., 2018; Khanagha et al., 2022; Ravn et al., 2022) to clarify and resolve organizational challenges. Over time, a number of sensemaking devices were put into place at Zenseact. With the "Organization 2.0" initiative, an image of the "autonomy–alignment" tension as a balancing tool was later strategically used to justify an organizational change initiative which resulted in an increased emphasis on hierarchical structures and controls, contrary to the initial intentions of the organization.

Our study suggests that organizations embarking on the journey towards less-hierarchical organizing risk reverting to hierarchical structures if they do not put alternative coordination and control mechanisms

---

in place. Understanding managerial hierarchy and its alternatives as sensemaking devices shifts the focus of the discussion away from solely structures, instead highlighting that narratives, metaphors, practices, or artifacts could also constitute effective alternative mechanisms when connecting to experience and guiding action in the local setting. We also contribute to paradox theory by putting forward sensemaking devices as practical tools for turning paradoxical cognition and strategy into action.

2. Theoretical framework

2.1. New forms of organizing: reducing hierarchy

Managerial hierarchy is widely regarded as the dominant mechanism for creating order and enabling coordination in social systems facing complex and uncertain situations (Child, 2019; Fjeldstad et al., 2012; Luhmann, 2000). Recently, the dominance/inevitability of managerial hierarchy has been challenged by new forms of organizing (see e.g., Daft & Lewin, 1993; Lee & Edmondson, 2017; Puranam et al., 2014).

While earlier contributions, relatedly, positioned these new forms as "post-bureaucratic" (e.g., Child & McGrath, 2001; Heydebrand, 1989), more recent conversations rather characterize them as "less-hierarchical" (e.g., Billinger & Workiewicz, 2019; Lee & Edmondson, 2017). Connected to the discussion on "less-hierarchical" organizations, a variety of related labels has emerged, including "flat", "boss-less", "self-managing", and "non-hierarchical" (Lee et al., 2023). In essence, these labels represent variations of the broader "less-hierarchical" theme, each focusing on a specific aspect of "less-hierarchical" organizations. "Flat" signifies a limited or reduced amount of managerial layers (Baumann & Wu, 2022). "Boss-less" emphasizes the absence of formal managers with resource allocation power (Ketkar & Workiewicz, 2022). "Self-managing" refers to the most "radical" cases of decentralized decision-making authority, i.e., organizations in which reporting relationships between managers and subordinates are completely removed and individuals and teams are granted full autonomy over their work (Lee & Edmondson, 2017). Similarly, "non-hierarchical" points at a removal rather than reduction of managerial hierarchy (Puranam & Håkonsson, 2015).

While possible implications and contingencies of less-hierarchical setups remain under-researched (Baumann & Wu, 2023; Foss & Klein, 2022), they seem particularly favorable for organizations operating in low predictability environments and employing highly skilled workers which work in teams with few interdependencies (Martela, 2019, 2023). That said, success stories of less-hierarchical organizing have been reported across a wide range of geographies, organizational sizes, and domains (see e.g., Hamel & Zanini, 2020; Laloux, 2014; Minnaar & de Morree, 2019).

2.2. Less-hierarchical forms of organizing: the need for alternatives

While success stories of less-hierarchical forms of organizing exemplify the possibilities of a new organizing paradigm (Daft & Lewin, 1993; Hatchuel et al., 2002; Walsh et al., 2006), several scholars point towards possible "tensions" (Annosi & Brunetta, 2017) or "limits" (Lee & Edmondson, 2017). For instance, the strive of individuals and teams for autonomy and flexibility is often portrayed as being at odds with organizational needs for coordination and control (Barker, 1993; Langfred & Rockmann, 2016; Rennstam & Kärreman, 2020; van Baarle et al., 2021). The juxtaposition between autonomy and control is often characterized as paradoxical, with scholars advocating organizations to *both* encourage its members to make decisions on their own locally *and* ensure things are moving into a desired common direction (Berti et al., 2021; Lewis, 2000; Rosales et al., 2022; Smith & Lewis, 2011; Sundaramurthy & Lewis, 2003). While the autonomy–control tension has been a long-standing discussion in broader organization and management studies and may be regarded as inherent in any organizing (Lewis, 2000;

Weick, 1995), it gets particularly accentuated in the context of less-hierarchical organizations (Adler & Borys, 1996; Feldman, 1989; Raelin, 1985). These organizations seem to principally prioritize the autonomy pole of the tension over the control pole – a strategy for navigating paradoxical tensions which, at least in the long term, may lead to dysfunctional outcomes (cf. Cunha et al., 2022; Jay, 2013; Smith & Lewis, 2011; Sundaramurthy & Lewis, 2003).

In the absence of hierarchical structures and controls, organizational actors often experience "ambiguity" or "lack of clarity" (Bernstein et al., 2016) around, for instance, decision-making, conflict management, and organizational direction setting. When formal hierarchical structures and controls are being reduced or even fully removed, informal hierarchies (Diefenbach & Sillince, 2011; Foss & Dobrajska, 2015; Laloux, 2014) and normative control (Barker, 1993; Kärreman & Alvesson, 2004) may take their place, and organizational actors may discard less-hierarchical organizing as a "naive social experiment" (Bernstein et al., 2016, p. 40). Oticon (Foss, 2003), Zappos (Romme, 2015), and GitHub (Burton et al., 2017), some of the "poster children" of less-hierarchical organizing, have even reverted back to more hierarchical setups (Foss & Klein, 2022).

Some scholars uphold the continued relevance of managerial hierarchy, viewing it as an enabler (rather than inhibitor) of organizational success in today's complex and uncertain environments (Alexy, 2022; Child, 2019; Foss & Klein, 2022; Jaques, 1990; Luhmann, 2000; Zhou, 2013). Managerial hierarchy remains remarkably prominent in contemporary organizations (Diefenbach & Sillince, 2011; Lee & Edmondson, 2017; Littler & Innes, 2004). Some authors argue that simply *reducing* or *removing* managerial hierarchy is a recipe for chaos rather than success (Felin & Powell, 2016). However, as even its strongest proponents admit, managerial hierarchy can be successfully *replaced* with "something else", at least to some extent (Foss & Klein, 2022, p. 177).

Extant literature has identified several alternatives to managerial hierarchy, with alternative structures, practices, and mechanisms often being used in combination (see also Martela, 2023). For instance, less-hierarchical organizations typically rely on *self-managing teams* as the nucleus of decision-making, substituting the need for hierarchical coordination and managerial supervision with peer control (Barker, 1993; Child, 2019; Lee & Edmondson, 2017). In addition, Foss and Klein (2022, p. 177, emphases added) highlighted the following about the Oticon case: "With most of middle management eliminated, Oticon's structure needed *something else* to keep things together. A *new culture*, a *new reward system*, and a *detailed performance management system* worked together with the *decentralized structure* to handle interdependencies". Martela (2023, p. 24, emphases added), then, argues that clear responsibilities (such as those defined by a managerial hierarchy) can be substituted by "certain *structures*, *practices*, or *ICT systems*" (see also e.g., Cäker & Siverbo, 2014; Child, 2019; Okhuysen & Bechky, 2009). Overall though, our practical and theoretical understanding of alternatives to managerial hierarchy still remains underdeveloped (Child, 2019; Lee & Edmondson, 2017; Luhmann, 2000; Okhuysen & Bechky, 2009).

2.3. Making sense in organizations: sensemaking devices

In our paper, we propose approaching managerial hierarchy and its alternatives from a sensemaking perspective. This approach entails a stark shift regarding how to interpret (forms of) organizing. Rather than focusing on the formal structural features of organizations and accordingly viewing them as being more or less hierarchical, we foreground an understanding of organizations as arenas in which actions and meanings are constitutive of each other, constantly being co-created and negotiated (Alvesson et al., 2017; Burrell & Morgan, 1979; Morgan, 2007; Pettigrew, 1979). A critical element of organizational life, then, is sensemaking, i.e., a process through which organizational actors ascribe meaning to their shared organizational experience in an attempt of reducing uncertainties and complexities (Weick, 1995; Weick et al.,

2005). In this view, sensemaking is not just a reflection of the organization – rather, "organization emerges through sensemaking" (Weick et al., 2005, p. 410).

Uncertainties and complexities encountered by organizational actors often stem from seemingly contradictory demands – such as individual autonomy and organizational control – and constitute related tensions, i. e., the experience of discomforting emotions in the face of uncertain and complex situations (Farjoun et al., 2018; Putnam et al., 2016; see also Lund, 2019). In other words, sensemaking may be seen as departing from the experience of tension – something which does not "make sense" – interpreting said experience to facilitate organizational action (see also Lüscher & Lewis, 2008). A prototypical episode of a sensemaking process may then be described as follows: Organizational actors experience unrest about an uncertain and/or complex situation (i.e., a tension) for which they struggle to find a common understanding, making it unclear how best to act upon the situation. This absence of "a shared definition of organizational reality" constitutes the perception of a "sensemaking gap" (Maitlis & Lawrence, 2007, p. 78). To fill said sensemaking gap and develop a common understanding, organizational actors may employ "sensemaking devices" (Bochantin, 2017; Hekkala et al., 2018; Hultin & Mähring, 2017; Ivanova-Gongne & Törnroos, 2017; Maitlis & Christianson, 2014; Oborn et al., 2013), i.e., mechanisms and tools which are "helping to shape meaning around complex issues" (Oborn et al., 2013, p. 264). Once a common, "purified" (Berglund et al., 2004) understanding is developed, the uncertainty and/or complexity of the situation at hand (i.e., the tension) is perceived as reduced or even resolved (Berglund et al., 2004; Maitlis & Christianson, 2014; Smith & Lewis, 2011).

Generally, sensemaking is inherent in our use of language and how it makes uncertain and complex situations explainable (Weick et al., 2005). As outlined by Maitlis and Christianson (2014), sensemaking devices can take at least five different forms. Sensemaking can be facilitated by *metaphors* as rhetorical devices that help interpret organizational life. The most obvious examples describe organizations like machines, organisms, brains, or cultures (see Morgan, 2007). Similarly, organizational actors may construct and/or draw upon specific *narratives* – stories which can both describe and inscribe their experience, such as that of an organizational change project and its perceived (in) significance (Sonenshein, 2010). Beyond language, organizational *structures* and associated rules and procedures can facilitate sensemaking and coordination through clarifying roles and responsibilities (e.g., Bigley & Roberts, 2001). Similar effects can be achieved through social *practices* – what people do and how they do it – as Bechky's (2006) observations of thanking, admonishing, and joking at film sets illustrate. Finally, *artifacts* – from post-it notes and sketches over PowerPoint presentations and frameworks to physical objects – can provide "fragments of interpretation", readily available in the surrounding material world for individual and collective sensemaking (see also Stigliani & Ravasi, 2012).

Importantly, sensemaking is a locally situated process (Maitlis & Lawrence, 2007) – the same sensemaking device may hold very different meanings in different local contexts and may shape the attitudes and behaviors of organizational actors in different ways. Also, a sensemaking device can take several of the five forms, e.g., an artifact may be metaphorical in character and embedded in organizational stories and practices (Maitlis & Christianson, 2014).

2.4. Towards a sensemaking perspective on "less-hierarchical" forms of organizing

Against this theoretical backdrop on sensemaking and sensemaking devices, let us reconsider our interpretation of forms of organizing, first looking at managerial hierarchy. With its clear structures as illustrated in the pyramid-shaped organization chart, managerial hierarchy "reduces uncertainty in organizations and aims to create clarity and consistency" (Kühl, 2017, p. 83) around communication and

decision-making paths. Through that, managerial hierarchy helps organizational actors understand and act upon uncertain and complex situations, enabling efficient coordination and control (Bigley & Roberts, 2001; Child, 2019; Kühl, 2017; Luhmann, 2000). In other words, managerial hierarchy serves as a structural sensemaking device – perhaps the most common and culturally engrained one informing our understanding of organizations and other social systems (Child, 2019).

From this vantage point, a reduction or removal of managerial hierarchy, as common to less-hierarchical forms of organizing, means a reduction or removal of the standard sensemaking device. As mentioned before, changes towards a less-hierarchical form of organizing can create "ambiguity" or "lack of clarity" among organizational actors (Bernstein et al., 2016) and resultingly trigger a need for sensemaking as actors struggle to understand how they should act upon these changes in their daily work (see also Balogun & Johnson, 2004; Lüscher & Lewis, 2008). Accordingly, organizational actors can be expected to experience a sensemaking gap which they try to fill with a new shared understanding drawing upon alternative sensemaking devices.

A reversion to managerial hierarchy may be explained by a lack of effective alternative sensemaking devices – metaphors, narratives, structures, practices, artifacts, and possibly others – as well as the comparative strength and appeal of managerial hierarchy as a sensemaking device (Child, 2019; Foss & Klein, 2022; Martela, 2023). Managerial hierarchy is clearly connected to both human *experience* and *action*. Regarding connection to human experience, managerial hierarchy builds on a web of powerful primary metaphors, i.e., the most basic metaphorical building blocks of more complex metaphors like the "organization as a machine" (Cornelissen & Kafouros, 2008), which are deeply grounded in our embodied experiences as human beings. For instance, consider here primary metaphors such as "control is up" (grounded in our vertical orientation and experience that it is easier to exert force on an object from above because of gravity, reflected in the expression "I'm on top of the situation") or "organization is physical structure" (based on the experience of interacting with physical objects and attending to their structure/interrelations, reflected in the expression "How do the pieces of this theory fit together?") (Lakoff & Johnson, 1999, pp. 51–53). Regarding connection to action, managerial hierarchy and its structural differentiation of organizational layers provide clear and consistent guidelines for *action* (Child, 2019; Fjeldstad et al., 2012; Kühl, 2017) – for instance on how to communicate (e.g., "from the top down"), how to make decisions (e.g., "high-level decisions"), and how to handle conflict (e.g., "escalate it upwards").

In summary, new forms of organizing have recently risen in popularity, commonly characterized as "less-hierarchical" based on their decentralization of decision-making authority to increasingly autonomous individuals and teams. Though success stories point at the possibilities of these new forms, extant research indicates that initiatives aimed at reducing or removing managerial hierarchy often lead to confusion, chaos, or may even go back to hierarchical structures. Rather than simply reducing or removing managerial hierarchy, it may need to be replaced with alternative coordination and control mechanisms – for instance, as we suggest in this paper, with sensemaking devices.

3. Method

To explore how managerial hierarchy can be replaced, we conducted a longitudinal case study (Yin, 2014) of a less-hierarchical organization. This methodological choice reflects the exploratory nature of the study given the limited existing practical and theoretical knowledge on alternatives to managerial hierarchy. The richness of the case study approach allowed us to capture the lived experience of organizational actors as the organization evolved over time. While the initial focus of our study was more broadly on the experiences and perspectives of people working in an agile organization across its organizational evolution, the autonomy–alignment tension and the related use of sensemaking devices emerged as prominent themes in our analysis.

3.1. Case description

Zenuity was launched in April 2017 as a 50–50 joint venture between Volvo Cars and Autoliv, a provider of car safety and advanced driving assistance systems. Building on the two companies' strong competencies in safety, the ambition was to form a "world leader in autonomous driving safety systems" and be able to introduce autonomous driving technology faster (Volvo Car Corporation, 2017). The independent joint venture started off as a carve-out with around 100 employees from each mother company and grew to a headcount of around 800 in the first three years. Though always thought of as a software company first and foremost, with most employees being software engineers by training, Zenuity's executive leadership and board was dominated by people with long-standing experience in the automotive industry. Since being launched, Zenuity underwent several changes in its organizational setup as well as ownership structure. The most significant change occurred in July 2020, when Zenuity was split between its owners, with Veoneer taking the assistance systems part of the organization and Volvo Cars continuing to work on a software platform for AD technologies, now under the new entity of Zenseact,[1] a fully owned subsidiary.

Zenseact offers an extreme case setting with regards to both (i) the extreme levels of uncertainty and complexity it is facing in its organizational environment, and (ii) the extreme reduction of managerial hierarchy inherent in its agile organization design. Regarding the former, AD technologies are expected to radically transform the automotive industry, both in terms of how people move from A to B and how infrastructure is built (Greenblatt & Saxena, 2015; Lee et al., 2016). Amidst a highly competitive and fast-paced race to market dominance, the technological, legal, and economic uncertainty and complexity associated with the autonomous driving ecosystem are very high (Brodsky, 2017; Macfarlane & Stroila, 2016; Taeihagh & Lim, 2019). In short, developing software for a self-driving car, and how to organize work around that, is far from trivial. In response to this complexity, Zenseact was "born agile": It was conceived by top management to be an agile organization across all dimensions of the organization design. Zenseact was explicitly designed to be a company that appreciates change and uncertainty as fundamental operating principles of the organization. The principles of the Agile Manifesto (Beck et al., 2022) are mirrored in Zenseact's motto of "People at heart" as well as its core values of trust, freedom, and openness. This motto and values have not only been strongly promoted by top management but are also lived and experienced daily by people within the organization. Together, people at Zenseact are driven by the organization's purpose of "Towards zero faster", envisioning a world without fatalities from car accidents.

In appreciation of agile's principles and its human-centered, flexible, and pragmatic ways of working (Boehm & Turner, 2005), Zenseact's organization was designed around self-managing teams. Initially, the teams were offered great autonomy in agreeing on their own ways of working as well as their individual sets of (agile) methods and practices. Teams at Zenseact were tied together in a flat, molecular structure, in lieu of a traditional hierarchical line structure. Accordingly, Zenseact initially relied on a very limited set of managerial and leadership roles across few hierarchical levels. Although the number of formal roles has increased over time, most employees still hold the formal title of "team member". Since the split in July 2020 and particularly since a recent re-organization in March 2021, Zenseact takes increasing inspiration from the Scaled Agile Framework (SAFe) to inform its organization design, tying teams together in teams of teams, or Agile Release Trains (ARTs). However, Zenseact still strives to be a tailor-made agile organization.

3.2. Data collection

For this study, we have followed Zenuity and later Zenseact since it was formed in 2017. Altogether, we have collected qualitative data over a period of more than five years (see Table 1 for an overview). As our understanding of the context and trust within research relationships grew over time, we also expanded our network of informants and explored different avenues of data collection. In addition to interviews, we draw on observations and archival data, allowing for triangulation of our findings (Maxwell, 2005).

3.2.1. Interviews

In total, 134 interviews were conducted with 48 informants.[2] These include 80 interviews which result from two unique longitudinal interview series, one between 2017 and 2020 with the organization's initial CEO and one between 2017 and 2022 with a top-level manager. The rest of the interviews were conducted with people from across the entire organization – from software engineers to HR specialists, from team members to top managers. Overall, these interviews lasted between 30 and 80 minutes, most of which were fully recorded and transcribed.

3.2.2. Observations

To complement our interview data, we observed selected events and meetings. This included meetings of individual teams as well as events open to anyone in the organization. Overall, observations lasted more than 30 hours. Extensive field notes were taken during these observations, with notes reviewed and written up maximum one day after observing.

3.2.3. Archival data

Finally, we included a broad array of archival data in our analysis. While traditional company-internal data sources like PowerPoint presentations, strategy documents, and training materials helped contextualize our understanding, we found it particularly helpful to follow selected conversations on Slack, Zenseact's preferred tool for internal communication. With its topic-focused channels and instant messaging approach, Slack – in its use at Zenseact – presented itself as a rich data source for our study.

3.3. Data analysis

In analyzing the data, we adopted an abductive approach, constantly

Table 1
Data sources.

Source	Amount	Data
Interviews	134 interviews, thereof	100 + hours
Interviews across organization	54 interviews	40 + hours
Longitudinal interview series (CEO)	30 interviews	20 + hours
Longitudinal interview series (top-level manager)	50 interviews	40 + hours
Observations	30 + hours	90 + pages field notes
Archival data	Company-internal documents, Slack messages	30 + pages notes and screenshots

---

[2] In our findings, we relate to informants with fictional names as well as letters indicating their job title at the time of data collection. As the nomenclature for job titles changed throughout the organization's lifetime, we use "T" to refer to anyone working within a team, "C" to refer to anyone holding a coordinating role, and "L" to refer to informants who are part of the organization's executive leadership team.

---

[1] To facilitate reading flow, we will from now on refer to the case organization as "Zenseact".

Table 2
Overview of the main sensemaking devices at Zenseact.

Sensemaking device	Types					Effectiveness	
	Metaphor	Narrative	Structure	Practice	Artifact	Connection to experience	Guidance for action
Zeniverse (software app displaying organization chart)	X		X		X	Medium	Weak
Zenuity way of working (unique culture and practices)		X		[]*		Weak	Weak
People at heart (organizational motto)	X	X				Strong	Strong/Weak**
End-to-end responsibility (Spotify model)	X		X			Weak	Weak
Organization 2.0 (SAFe re-organization initiative)	X	X	X	X	X	Strong	Strong

* Practices were regarded as the foundation of a "Zenuity way of working", to be concretized over time. The concretization of such practices, however, never materialized as intended.

** "People at heart" provides strong guidance for action in terms of individual decisions and actions guided by organizational values, but weak guidance for action in terms of the autonomy–alignment tension (coordination).

moving back and forth between the empirical and theoretical realms. This approach reflects the potential of abductive reasoning for developing new interpretations and explanations of complex social phenomena (Dubois & Gadde, 2002). First, interview data was thematically analyzed through open coding using the NVivo software. Theoretical reflection on the initial list of codes then led us to apply a tensions lens (Putnam et al., 2016; Smith & Lewis, 2011) for a second round of coding on the extended dataset, aiming to identify the (paradoxical) tensions prevalent at Zenseact and how they were experienced by their employees. Reviewing the second-order codes, the juxtaposition of "autonomy" and "alignment" emerged as particularly prevalent in our data. Mapping this empirical observation against insights and discussions from the literature, we interpreted the autonomy–alignment tension as the agile community's variant of the broader autonomy–control debate, popularly featured in both academic literature (Bick et al., 2018; Moe et al., 2019, 2021; Olsson & Bosch, 2018) and influential consulting-based frameworks like the Spotify Model or SAFe (see Alqudah & Razali, 2016 for a review of such frameworks).

Testing different theories on our data (see Langley, 1999; van de Ven & Poole, 1995), we ultimately settled on a sensemaking perspective, helping us illustrate how people at Zenseact encountered and tried to shape meaning (in other words, make sense) around the autonomy–alignment tension over time. With this sensemaking perspective in mind, we went into a third and final round of coding on our autonomy–alignment data, aiming to pinpoint different uses and interpretations of "autonomy", "alignment", and "autonomy–alignment". The resulting data structure (see Fig. 1), which we reflected against theory on sensemaking as well as our broader dataset and understanding from the Zenseact case, formed the basis for our identification of sensemaking devices used at Zenseact to facilitate the sensemaking process around the autonomy–alignment tension.

4. Findings

In this chapter we present the empirical findings from the Zenseact case, following our outline of a prototypical episode of a sensemaking process (as presented in 2.3.). Accordingly, we first look at Zenseact's initial organization design – autonomy-embracing and hierarchy-avoiding in nature – and how it contributed to the experience of uncertain and complex situations in everyday work life, causing unrest among employees (see 4.1.). Then we show how, in the absence of hierarchical structures and controls, the resulting lack of clarity led to a growing sensemaking gap in connection to the autonomy–alignment tension (see 4.2.). Next, we highlight several sensemaking devices (*in italics*) introduced over time at Zenseact as people tried to make sense of the autonomy–alignment tension – i.e., how to uphold the idea of empowered and autonomous teams while ensuring that efforts were efficiently steered into a desired common direction (see 4.3.). Finally, we reflect on Zenseact's updated organization design – and its shared understanding as informed and influenced by the various sensemaking devices – against Zenseact's initial ambition of addressing the

autonomy–alignment tension within an essentially hierarchy-free setup (see 4.4.).

4.1. Zenseact's initial organization design: emphasizing autonomy, avoiding hierarchy

Autonomy was a critical organization design principle in the early days of Zenseact. The CEO was inspired by the principles and values of the Agile Manifesto and embraced the idea of "servant leadership", believing that the growth and well-being of the employees should be the organization's main concern. Convinced that "people in the teams are more competent than I am", he believed in the power of trusting individuals and teams to find their own local solutions. Accordingly, the initial design of the organization centered around self-managing teams equipped with considerable freedom regarding what they did and how they did things. Any resemblances of traditional hierarchical structures – including job titles like "manager" or "vice president" – were explicitly avoided in the initial organization design. Instead, most employees were referred to as "team members".

The expectation was that employees would figure out how to work in a self-managing, agile way through "working together":

> "I would say the clarity of decisions and the firmness of the frames […] has never been so strong […]. I guess that was part of the leadership style that [the CEO] wanted. […] He wanted that to kind of be a result of people working together, and they would find those limits or rules in working together. So, I would say, it's been pretty unclear but that was on purpose to some extent I think." (Kim, L)

This leadership approach allowed teams to develop their own ways of working. This emphasis on autonomy was very much appreciated by the employees and the autonomous teams worked well.

> "There is so much freedom, freedom to explore things yourself, freedom to move things forward yourself, come up with own ideas. Basically, make an impact. At the same time having a lot of responsibility, and at the same time no micro-management at all. I mean this is really giving me the full possibility to fulfill my potential and I really, really love it." (Robin, T)

However, this approach also resulted in different teams using different agile methods, different sprint lengths, different operating systems, and even different programming languages. At first, putting autonomy into practice seemed straightforward. Once multiple teams were involved in an issue though, people struggled to make sense of what working autonomously and taking responsibility meant in practice. While Zenseact's initial organization design enabled well-working teams, the autonomy granted to these teams complicated the coordination and integration of efforts.

> "When you should have a CI machinery and do continuous integration, continuous deployment and these things. If you should support all this variance [in programming languages], it will be a super headache for those responsible for that. […] It was the same when
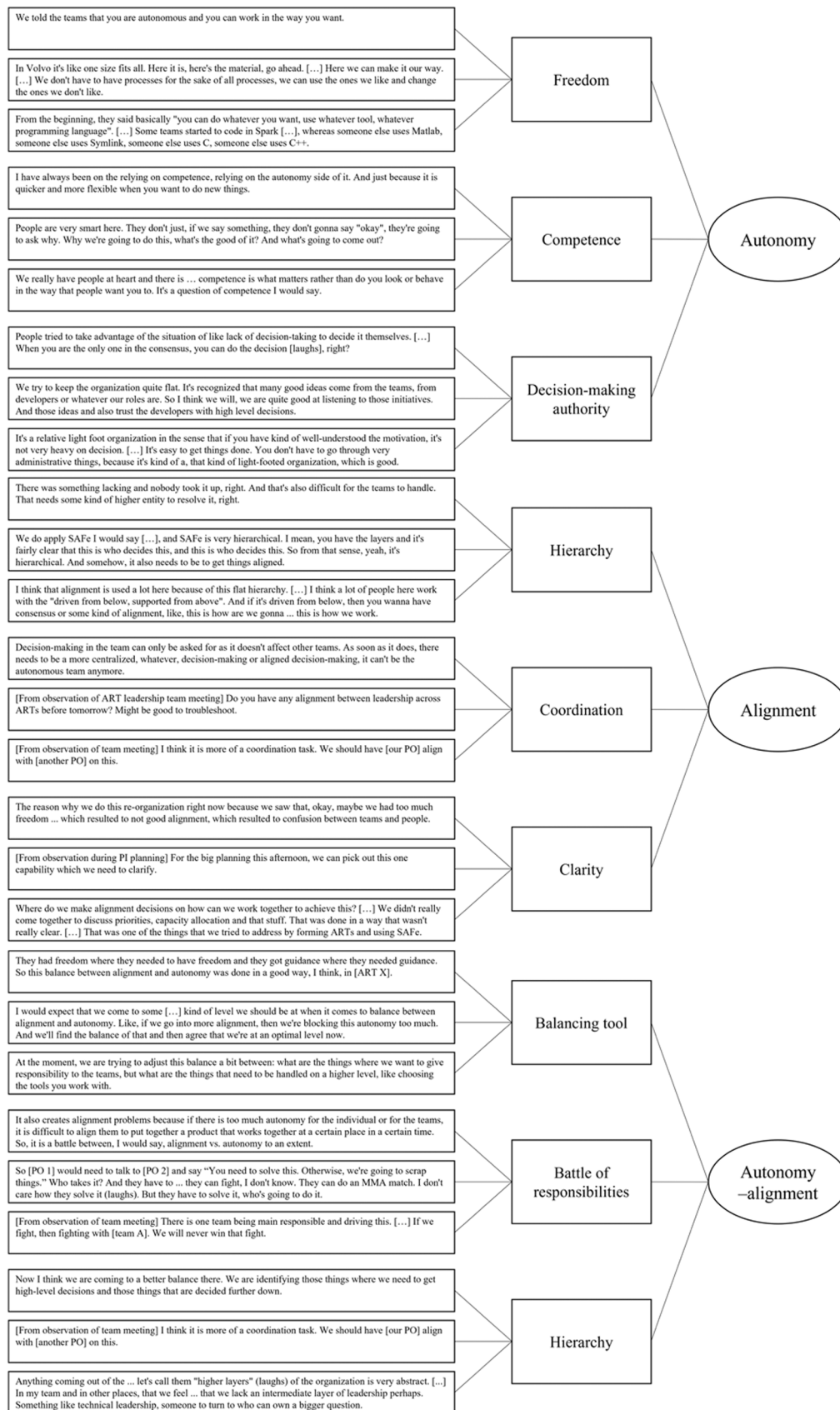
Quote	Concept	Dimension
We told the teams that you are autonomous and you can work in the way you want.		
In Volvo it's like one size fits all. Here it is, here's the material, go ahead. […] Here we can make it our way. […] We don't have to have processes for the sake of all processes, we can use the ones we like and change the ones we don't like.	Freedom	
From the beginning, they said basically "you can do whatever you want, use whatever tool, whatever programming language". […] Some teams started to code in Spark […], whereas someone else uses Matlab, someone else uses Symlink, someone else uses C, someone else uses C++.		
I have always been on the relying on competence, relying on the autonomy side of it. And just because it is quicker and more flexible when you want to do new things.		Autonomy
People are very smart here. They don't just, if we say something, they don't gonna say "okay", they're going to ask why. Why we're going to do this, what's the good of it? And what's going to come out?	Competence	
We really have people at heart and there is … competence is what matters rather than do you look or behave in the way that people want you to. It's a question of competence I would say.		
People tried to take advantage of the situation of like lack of decision-taking to decide it themselves. […] When you are the only one in the consensus, you can do the decision [laughs], right?		
We try to keep the organization quite flat. It's recognized that many good ideas come from the teams, from developers or whatever our roles are. So I think we will, we are quite good at listening to those initiatives. And those ideas and also trust the developers with high level decisions.	Decision-making authority	
It's a relative light foot organization in the sense that if you have kind of well-understood the motivation, it's not very heavy on decision. […] It's easy to get things done. You don't have to go through very administrative things, because it's kind of a, that kind of light-footed organization, which is good.		
There was something lacking and nobody took it up, right. And that's also difficult for the teams to handle. That needs some kind of higher entity to resolve it, right.		
We do apply SAFe I would say […], and SAFe is very hierarchical. I mean, you have the layers and it's fairly clear that this is who decides this, and this is who decides this. So from that sense, yeah, it's hierarchical. And somehow, it also needs to be to get things aligned.	Hierarchy	
I think that alignment is used a lot here because of this flat hierarchy. […] I think a lot of people here work with the "driven from below, supported from above". And if it's driven from below, then you wanna have consensus or some kind of alignment, like, this is how are we gonna … this is how we work.		
Decision-making in the team can only be asked for as it doesn't affect other teams. As soon as it does, there needs to be a more centralized, whatever, decision-making or aligned decision-making, it can't be the autonomous team anymore.		
[From observation of ART leadership team meeting] Do you have any alignment between leadership across ARTs before tomorrow? Might be good to troubleshoot.	Coordination	Alignment
[From observation of team meeting] I think it is more of a coordination task. We should have [our PO] align with [another PO] on this.		
The reason why we do this re-organization right now because we saw that, okay, maybe we had too much freedom … which resulted to not good alignment, which resulted to confusion between teams and people.		
[From observation during PI planning] For the big planning this afternoon, we can pick out this one capability which we need to clarify.	Clarity	
Where do we make alignment decisions on how can we work together to achieve this? […] We didn't really come together to discuss priorities, capacity allocation and that stuff. That was done in a way that wasn't really clear. […] That was one of the things that we tried to address by forming ARTs and using SAFe.		
They had freedom where they needed to have freedom and they got guidance where they needed guidance. So this balance between alignment and autonomy was done in a good way, I think, in [ART X].		
I would expect that we come to some […] kind of level we should be at when it comes to balance between alignment and autonomy. Like, if we go into more alignment, then we're blocking this autonomy too much. And we'll find the balance of that and then agree that we're at an optimal level now.	Balancing tool	
At the moment, we are trying to adjust this balance a bit between: what are the things where we want to give responsibility to the teams, but what are the things that need to be handled on a higher level, like choosing the tools you work with.		
It also creates alignment problems because if there is too much autonomy for the individual or for the teams, it is difficult to align them to put together a product that works together at a certain place in a certain time. So, it is a battle between, I would say, alignment vs. autonomy to an extent.		
So [PO 1] would need to talk to [PO 2] and say "You need to solve this. Otherwise, we're going to scrap things." Who takes it? And they have to … they can fight, I don't know. They can do an MMA match. I don't care how they solve it (laughs). But they have to solve it, who's going to do it.	Battle of responsibilities	Autonomy–alignment
[From observation of team meeting] There is one team being main responsible and driving this. […] If we fight, then fighting with [team A]. We will never win that fight.		
Now I think we are coming to a better balance there. We are identifying those things where we need to get high-level decisions and those things that are decided further down.		
[From observation of team meeting] I think it is more of a coordination task. We should have [our PO] align with [another PO] on this.	Hierarchy	
Anything coming out of the … let's call them "higher layers" (laughs) of the organization is very abstract. […] In my team and in other places, that we feel … that we lack an intermediate layer of leadership perhaps. Something like technical leadership, someone to turn to who can own a bigger question.		

Fig. 1. Data structure: uses and interpretations of "autonomy", "alignment", and "autonomy–alignment" (examples).

we were allowed to select computers from the beginning. […] Many had virtual machines, either running Windows machines within Linux virtual machines or the opposite. Because you need the tools from both sides so to speak, and that's not efficient." (Ali, T)

4.2. Growing sensemaking gap and the autonomy–alignment tension

In the absence of hierarchical structures and controls, employees and teams increasingly struggled to understand and deal with fundamental questions in their everyday work life: Which decisions can we take as a team, and where do we need to involve others? Who do we need to communicate and coordinate with, and how? How does what we are doing tie in with where Zenseact wants to go? For instance, Noah (T) stated:

"The main problem was lack of clarity because there was no strategy at that time. There was not, like … if Zenuity leadership team thought that they had one, they never communicated to the company."

Whether talking about the strategic "intent" of the company or the "direction" towards which they should strive, mechanisms for decision-making or coordination between teams and different parts of the company, employees expressed their frustration about not knowing how to act in terms of lack of "clarity". While some employees had worked in or with agile teams before, most had no experience of working in an agile organization and found it difficult to discover their own ways of working without further "guidance". Overall, the importance of personal experience working in an agile way was underestimated, as Alex (C) told us:

"We have a lot of technical guys and they all would say: You should have worked a few years with these technical things to be good at it. But everybody thought of all this agile stuff, that's just easy, we'll just do it."

Zenseact soon began experiencing problems of how to coordinate and control efforts at an organizational level. Some teams overlapped in their areas of responsibility and essentially did redundant work, while other areas were not being picked up by any team. In a traditional organization design, such struggles would be resolved by managers up in the hierarchy; at Zenseact, such managers did not exist.

To succeed, the teams' efforts needed to be more efficiently steered into a common direction – without compromising on teams' autonomy. Already in 2019, the need for "alignment on a higher level" was expressed, with "alignment" becoming increasingly positioned as an opposite pole to "autonomy", picking up the autonomy–alignment tension as broadly discussed in the large-scale agile discourse.

"There are challenges with the organization: How much autonomy and freedom to the teams versus how much governance to have alignment on a higher level. It's about achieving both." (Luca, L)

Overall, alignment became a popular term inside Zenseact, used to describe almost any communicative act crossing team borders – from making "higher-level" decisions to communicating in large groups at "alignment meetings" to defining a common strategic direction ("overarching goal").

Within the large-scale agile discourse, two of the most prominent consulting frameworks – the Spotify Model and SAFe – feature the autonomy–alignment tension prominently. The Spotify Model depicts the relationship between autonomy and alignment in a traditional 2×2-matrix, arguing that both high autonomy and high alignment can be achieved, explained through the metaphor of a jazz band. Following the Spotify Model, teams ("squads") should have "end-to-end responsibility" for a specific stream of work (Kniberg, 2014). Meanwhile, SAFe lists "alignment" as one of its core values, stating that "While empowered, Agile Teams are good (even great), but the responsibility for strategy and alignment cannot rest with the combined opinions of the

teams, no matter how good they are. Instead, alignment must rely on the Enterprise business objectives". The act of organizing is illustrated by the metaphor of a car, with central steering (coordination and control) being presented as necessary for the well-functioning of any agile organization (Scaled Agile Inc, 2021).

4.3. Introducing sensemaking devices at Zenseact

In trying to address the sensemaking gap and develop a common interpretation of the autonomy–alignment tension, Zenseact over time drew on a variety of sensemaking devices. Zenseact's original organization design centered around empowered and autonomous teams. As this design could not be captured in a traditional, pyramid-shaped organization chart, an alternative visualization of the organization – an alternative sensemaking device – was established. The internal software application called *Zeniverse* portrayed teams (atoms) as free-roaming units floating across the organizational space (universe), with organizational areas and superseding structures only hinted at with different colorings of the atoms and different orbits they were floating around (see Fig. 2).

Initially, the organization wanted to go for the *Zenuity way of working*, and pushes by external consultants and internal leaders for adopting common approaches to large-scale agile like the Spotify Model or SAFe were largely rejected:

"I mean also in the past, we got … we took some small elements from SAFe, but we didn't even dare to say we want to do something like SAFe because that meant like oh, we don't do the Zenuity way anymore, we do something different." (Alex, C)

Though early efforts were targeted at articulating the "Zenuity way of working" and developing a "mutual understanding" around what it entailed – including the definition of company-wide "values, structures, practices, and principles" (internal communications) – many related initiatives have not materialized or lack company-wide implementation. For instance, the articulation of what a "sustainable meeting culture" for Zenseact is, identified as an organizational "to do" in an internal presentation from 2018, remains "under construction" today. Similarly, an "open company handbook", defining clear "rules for collaboration", had been identified as crucial in said presentation but has not been developed to date. A notable exception is *People at heart*, Zenseact's motto, which was established in the company's early days and continues to be frequently invoked by employees, for instance when praising others for their ethical and collegial behavior ("That's people at heart"), when introducing a new parental leave policy ("As a company with people at heart […]"), or when criticizing internal policies ("Is this really people at heart?").

On a team level, individual teams at Zenseact were (and continue to be) expected to regularly discuss and define their own "ways of working" based on the "4 P framework", specifying the team's purpose, procedures, performance indicators, and principles. The up-to-date 4 Ps should be visible to others both in the Zeniverse application and on Confluence (Zenseact's knowledge management software). However, many teams' 4 Ps to this day remain largely "tbd" (to be determined) or even completely empty, with teams struggling to understand both why and how they should use the 4 P framework.

With the "Zenuity way" largely failing to clarify how people should act, people at Zenseact increasingly drew on established concepts and interpretations from the large-scale agile discourse to make sense of the autonomy–alignment tension. Starting in late 2018, the notion of *end-to-end responsibility* was increasingly stressed by company leadership. Inspired by the success of Spotify's "squads", teams at Zenseact should now take full responsibility for specific features – from development over testing to delivery – rather than focusing on a specific aspect of the process. Relatedly, the emphasis in team design was supposed to be shifted from the "competence" of teams and their experts to "flow" in the software development process. The idea of end-to-end responsibility,
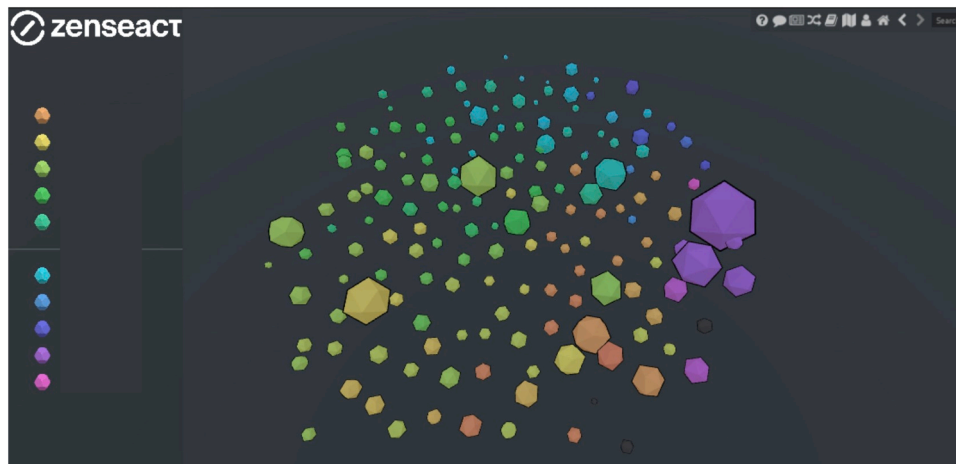
Fig. 2. Zenseact's organization design as portrayed in the Zeniverse.

and relatedly designing the software product to be built into relatively independent features, aims at reducing interdependencies between teams – thereby reducing the need for inter-team alignment and making team autonomy more viable.

Despite the introduction of "end-to-end responsibility" and related organizational changes, struggles of coordination beyond the team level remained prominent at Zenseact. As the organization moved closer to delivering its software to customers, integration of the supposedly independent features proved both more essential and more difficult than anticipated. Smaller organizational changes, mostly of local scope, aimed at the clarification of responsibilities and led to the introduction of new structures, processes, and coordinative roles.

Consolidating these changes on an organizational level, Zenseact introduced a re-organization in March 2021, internally referred to as *Organization 2.0*. The introduction of "Organization 2.0" came with an increasing adoption of SAFe. Accordingly, all software development teams at Zenseact were now grouped together into five distinct Agile Release Trains (ARTs), and new "ART leadership" roles were introduced to manage the different ARTs. Also, a separate "solution team" was introduced, tasked to "collaborate with ARTs to ensure alignment across ARTs and resolve dependencies".

A PowerPoint presentation communicating the intended re-organization clarified the reasons and ambitions for the change: To facilitate the development of an integrated software platform, Zenseact shall become "agile at scale", and therefore needs to "improve [the] balance between alignment and autonomy". Within the re-organization effort, the autonomy–alignment tension was now strategically used and made sense of as an organizational balancing tool which allowed moving the sliders to counteract a perceived previous imbalance favoring autonomy. The metaphor of the balancing tool provided an alternative interpretation of the autonomy–alignment tension, different from an interpretation as a "fight" or "battle" of responsibilities between teams, as several informants referred to it.

4.4. Zenseact's updated organization design: emphasizing alignment, rediscovering hierarchy

Given the organization's original emphasis on autonomy, it was clear that an "improved balance" would mean shifting the balance more towards alignment. Although explicit references to traditional elements of hierarchical structure were still largely avoided, SAFe's interpretation of the term "alignment" influenced how employees made sense of this organizational change.

"In the end, we of course need to coordinate and align on a higher level. And I think, here we have had some … yeah, discussions or maybe … obstacles sometimes. But I do think with this re-org,

introducing the solution team that we will have, they being the high-level coordinators or whatever word you can use, but trying to align all our different areas […] I think and I hope that this will actually facilitate this, having more of the alignment part … and at the same time having the autonomy." (Harper, T)

In the months after the introduction of "Organization 2.0", the idea of the autonomy–alignment tension as a balancing tool continued to be frequently drawn upon. The balance between autonomy and alignment in different organizational contexts was described as being "done in a good way" or having "the wrong balance". Essentially, (lack of) "alignment" became a proxy for (lack of) hierarchy, agreement, and strategic direction – an explanation for everything going well (alignment) or not well (lack of alignment). In a sense, shifting the balance towards "alignment" within the autonomy–alignment tension had filled the "lack of clarity", or sensemaking gap, which arose as employees struggled to make sense of the less-hierarchical organizational space (Zeniverse).

Interestingly, Jo (C), a key initiator of "Organization 2.0", acknowledged that agile at scale will not be achieved through structures, presenting a continuous focus on "ways of working" as the more promising approach. Still, Jo was referring to the autonomy–alignment tension and its inherent structural view of organizing that Zenseact originally wanted to oppose.

"Balance between alignment and autonomy and joint prioritizations I would say is the biggest thing that [we needed to address]. We wanted to create a structure that can give us better possibilities to do that. Because that's not going to be solved by a structure. It needs to be solved by putting the right ways of working in place."

Though efforts regarding "ways of working" continue to take place at Zenseact, and the emphasis on autonomous teams remains prominent, strong focus is placed on structures and "improving the balance between autonomy and alignment" (internal communication). For instance, the "Zeniverse" and its non-hierarchical depiction of the organization's structure is still being upheld, though the organization of teams into ARTs has, in parallel, introduced structures and logics akin of traditional organizational departments. Similarly, the ideal of the autonomous team is still being promoted despite Organization 2.0 having introduced increasingly clear roles, responsibilities, and boundaries. This causes confusion, as the following comment by a manager on a public Slack channel illustrates:

"My observation is that we aspire to multiple paradigms. On one hand we want teams with end 2 end responsibility and very few dependencies on the other hand we precisely define borders for team responsibility. We want people to chip in where it's needed and at

the same time appoint owners for most things. We are a semi-large organization, large enough to have specialized teams for most things and at the same time not large enough to have dedicated teams for everything."

5. Analysis and discussion

5.1. Insights from the Zenseact case

Our aim with this paper is to explore how managerial hierarchy can be replaced. More concretely, we take a sensemaking perspective and interpret managerial hierarchy as well as its possible alternatives as sensemaking devices aiding the meaning-making process as organizational actors navigate uncertain and complex situations. By adopting a sensemaking perspective we shift attention from hierarchical levels to peoples' shared experience, and by focusing on sensemaking devices we widen the perspective from an exclusive focus on structures to also paying attention to metaphors, narratives, practices, and artifacts.

Zenseact's initial organization design deliberately avoided any resemblances of managerial hierarchy. Decision-making authority was largely decentralized to self-managing teams, granting them wide-reaching autonomy (cf. Lee & Edmondson, 2017). While this autonomy-embracing approach worked well within Zenseact's teams, lack of clarity (cf. Bernstein et al., 2016) arose as soon as coordination and integration beyond the team level became necessary. The tension between a desire for autonomy at the individual/team level and a need for coordination and control at the organizational level is not unique to Zenseact (see also Langfred & Rockmann, 2016; Rennstam & Kärreman, 2020; van Baarle et al., 2021). In the agile software community, it is commonly framed as a tension between autonomy and alignment (Bick et al., 2018; Moe et al., 2021). At Zenseact, the autonomy–alignment tension was intentionally not dealt with through hierarchical structures but left to the teams to "work out together".

From a sensemaking perspective, the related lack of clarity of how to address the autonomy–alignment tension led to a perception of a sensemaking gap (Maitlis & Lawrence, 2007). In addressing this gap, different sensemaking devices (Maitlis & Christianson, 2014; Oborn et al., 2013) were drawn upon at Zenseact – from the Zeniverse over the "Zenuity way of working" to the SAFe-inspired "Organization 2.0" initiative – aiming to construct a shared understanding of how to organize and address the autonomy–alignment tension. Epitomized and formalized by the introduction of Organization 2.0, Zenseact over time had "shifted the balance" from emphasizing team autonomy towards emphasizing organizational alignment – a shift accompanied by an increased prevalence of structures and controls typically found in managerial hierarchies (cf. Foss & Klein, 2022). From a paradox perspective, the oscillation from autonomy to alignment at Zenseact did not seem like a "purposeful, cyclical response" (Smith & Lewis, 2011, p. 386), but rather like a reactive shift in response to a perceived over-emphasis on autonomy (cf. Sundaramurthy & Lewis, 2003).

5.2. Sensemaking devices at Zenseact

When managerial hierarchy does not get replaced with "something else" (Foss & Klein, 2022; Minnaar & de Morree, 2019), it may creep its way back into the organization, as several cases have illustrated (cf. Foss, 2003; Foss & Klein, 2022; Romme, 2015). Our investigation of the Zenseact case from a sensemaking perspective reveals a more nuanced understanding of how alternatives to managerial hierarchy can be understood and developed, as well as how and why managerial hierarchy remains appealing – even in an environment seemingly conducive to less-hierarchical organizing.

In less-hierarchical organizations like Zenseact, as the autonomy pole of the tension becomes emphasized more strongly than usual (cf. Sundaramurthy & Lewis, 2003), the autonomy–control tension – largely concealed (or "latent") within managerial hierarchies – becomes "re-opened" (or "salient", see Smith & Lewis, 2011). As people at Zenseact increasingly ran into cross-team coordination challenges, they experienced a sensemaking gap in relation to the autonomy–alignment tension. We identified several sensemaking devices that organizational actors drew upon as they tried to develop a common understanding around how to organize and how to address the autonomy–alignment tension: the Zeniverse; the "Zenuity way of working" (and the related "4 P framework"); the "People at heart" motto; the notion of "end-to-end responsibility" as inherent in the Spotify model; and the SAFe-inspired Organization 2.0 initiative (with the related framing of autonomy–alignment as a balancing tool). These sensemaking devices represent different types (Maitlis & Christianson, 2014) and have been more or less effective at Zenseact based on their connection to both experience and action (see Table 2 for an overview).

For instance, the Zeniverse is an artifactual representation of Zenseact's initial organization design, based on the metaphor of a universe. While we can all relate to the concept of "the universe", it has no connection to our embodied experience and thus offers few implications for our everyday practices. With its space theme, the Zeniverse captures the feeling of excitement and newness surrounding the company's launch, but by portraying the teams as free-floating entities it only hints at relationships between them, offering no concrete guidance on how these relationships may be lived out in practice. Indeed, separate entities in a universe may revolve around each other, but never meet (unless they crash). Established in the company's early days, the Zeniverse remains prominently displayed (e.g., on large monitors near the entrances of its office floors) and is proudly referred to at Zenseact (e.g., during employee onboarding sessions). This is at odds with the Organization 2.0 initiative, adopting an ART-based structure, which had been communicated through traditional organization charts. Both versions of representing the organization design – one non-hierarchical (Zeniverse) and one hierarchical (Organization 2.0's ART structure) – live on, suggesting that both representations (and its associated paradigms) reflect and inform certain aspects of organizational life at Zenseact.

Like the Zeniverse, the narrative of the "Zenuity way of working" was established early on and reflected a desire for being a unique, exciting, and new organization. Though several ideas and initiatives were launched with the intention of developing and defining organization-wide "ways of working" (i.e., practices), these mostly remained unspecified and unarticulated. Relatedly, the "4 P framework" (artifact) is meant to facilitate team-level discussions about ways of working. However, many teams treat the framework like an afterthought (if at all) as they do not understand how and why they should use it in their work.

Another important sensemaking device from the company's early days is the motto of "People at heart". Combining the primary metaphors (Cornelissen & Kafouros, 2008) of the heart as an expression of feelings and emotions and as the central organ of the body, the "People at heart" narrative gives employees a deeper meaning to the rational and abstract nature of software work – making it "human" and emphasizing that people are at the center of the operations. People at Zenseact continuously draw on this sensemaking device to inform and (de)legitimize action – decisions should be made with "People at heart". It can therefore be seen as an effective sensemaking device in that it was adopted throughout the organization, helping people make sense of "who we are" (the organization's values). That said, we have not observed "People at heart" being drawn upon in the context of alignment discussions between teams, probably because it offers no guidance for how to act in specific situations concerning the autonomy–alignment tension (e.g., how to coordinate).

Following Zenseact's early ambitions for figuring out its own way, people increasingly experimented with established approaches, drawing on external models and frameworks to guide sensemaking of the autonomy–alignment tension. The notion of "end-to-end responsibility", inspired by the Spotify Model, metaphorically expresses the possibility and desirability of a structure of largely independent teams, responsible

for separate features from "end-to-end", from development to customer delivery. This relative independence of teams did not reflect experienced reality at Zenseact, rather fostering a false sense of isolation and battles of responsibility as developing a software platform for autonomous driving turned out to entail more interdependencies between features and teams than developing a music streaming platform (Spotify analogy). Teams largely continued working in the same setups and ways as before, displaying "pseudo end-to-end responsibility" (interview quote) as they simply lacked the manpower to cover the full range of responsibilities around a feature.

The introduction of Organization 2.0 significantly changed Zenseact's organization design. Zenseact largely adopted the Scaled Agile Framework (SAFe) as an artifact, with all its associated structures (e.g., Agile Release Trains), roles (e.g., Release Train Engineer), and practices (e.g., program increment planning). With the framing as "Organization 2.0", the narrative of an improved, updated organization design was established. This narrative was built around the metaphor of a software update, which was highly approachable to Zenseact's employees. SAFe as the underlying framework appealed with familiar logics of organizational structure: In explaining the need for an organization-level framework, SAFe employed the metaphor of a car to be steered from the top, implying a traditional hierarchical logic with simple, instrumental relationships between units. Agile Release Trains, put next to each other, looked much like the departments people had experienced at previous employers like Volvo Cars, representing traditional managerial hierarchy. SAFe also largely reflected roles and practices that had emerged locally across smaller organizational changes. With that, Organization 2.0 helped clarifying, formalizing, and synchronizing roles and responsibilities at Zenseact. It became an effective sensemaking device because of the clear connection to peoples' experience, both in terms of their actual work experience (in more hierarchical contexts at previous employers as well as at Zenseact) and experientially (drawing on well-rehearsed primary embodied metaphors), and because of the clear implications for action (clarifying who is responsible for doing what).

Associated with Organization 2.0 was the interpretation of autonomy–alignment as a balancing tool along which one can move and adjust the slider. Based on the primary metaphor of "balance is good", a narrative was established: As Zenseact used to overprioritize autonomy, it now had to move more towards alignment. This narrative helped explain and justify the Organization 2.0 initiative and the associated move towards a more formalized, hierarchical organization design. Much like in paradox theory (cf. Berti et al., 2021; Smith & Lewis, 2011; Sundaramurthy & Lewis, 2003), a balancing approach, aiming for both autonomy and alignment, was promoted.

Reflecting on Zenseact's journey over time, it becomes apparent that moving from an emphasis on autonomy to an emphasis on alignment eventually led to an introduction of structures, roles, and practices akin to traditional managerial hierarchy – a consequence which was not intended in the organization's initial design. Though using different terminology, Zenseact had essentially rediscovered managerial hierarchy through SAFe and Organization 2.0. Managerial hierarchy was essentially replaced by a proxy of managerial hierarchy.

5.3. Sensemaking devices in "less-hierarchical" forms of organizing

Was Zenseact's reversion to managerial hierarchy, as Foss and Klein (2022) would say, inevitable? We are inclined to disagree, and we suggest our sensemaking perspective helps understand why. On the surface, Zenseact had many of the basic conditions for succeeding with their non-hierarchical, agile form of organizing in place. Their autonomy-embracing and hierarchy-avoiding organization design was explicitly supported and embraced by its CEO; they had the resource support of established organizations; they had the time to develop both their software and organization without immediate pressure to be profitable; and their headquarter was in Sweden, a cultural setting

largely regarded as receptive for less-hierarchical forms of organizing.

Beyond that, Zenseact had launched several initiatives early on to establish alternative sensemaking devices – most prominently the Zeniverse and the "Zenuity way of working". In their orientation, both sensemaking devices reveal parallels to other cases of less-hierarchical organizing. The Zeniverse was aimed at providing an alternative representation of Zenseact's organization design, based on an alternative metaphor – comparable to, for instance, the embedded circle structure of Holacracy (see e.g., Bernstein et al., 2016) or the lattice structure of W.L. Gore (see e.g., Manz et al., 2009). The "Zenuity way of working" and its related initiatives of establishing a "meeting culture" or developing an "open company handbook" defining clear "rules for collaboration" resemble what less-hierarchical organizations like Buurtzorg, Morning Star, or Valve have been applauded for (see e.g., Laloux, 2014; Lee & Edmondson, 2017).

However, discovering and developing the "right ways of working", as one of Zenseact's key initiators of Organization 2.0 similarly acknowledged, requires continuous discussion and development of the *practices* which are derived from the organization's purpose and principles (Laloux, 2014). From less formalized sensemaking devices such as W.L. Gore's "waterline" metaphor (Manz et al., 2009) to more formalized ones such as Morning Star's CLOUs as contractual artifacts (Lee & Edmondson, 2017) – in their local context, they provide clear guidance on how to act. At Zenseact however, the sensemaking process was largely left to individual employees and teams, with no shared experience to draw on and little guidance on what the Zeniverse or the "Zenuity way of working" actually meant in practice. More concrete ways of working, even those envisioned early on, have largely remained undefined and unarticulated, therewith failing to connect to action and failing to provide an effective alternative to managerial hierarchy. Devoid of relations to concrete experience and practice at Zenseact, the Zeniverse and the "Zenuity way of working" became "empty" sensemaking devices.

In general, traditional managerial hierarchy appears to be such a strong sensemaking device that it needs to be replaced by multiple sensemaking devices working together to offer a coherent alternative. Managerial hierarchy may in fact be thought of as a web of sensemaking devices, including for instance: Metaphors like the pyramidal organization chart, artifacts like job descriptions, practices like the yearly budgeting process, narratives like "big problems need to be escalated", or structures like the division into functions. These and other sensemaking devices, in their interplay, constitute the strength of managerial hierarchy in both connecting to experience and guiding action (cf. Child, 2019; Fjeldstad et al., 2012; Kühl, 2017). Simply positioning alternatives to managerial hierarchy as "less-hierarchical" lacks such strength. Unlike the "Zenuity way of working", Organization 2.0 was based on an intricate web of sensemaking devices – introduced with a convincing narrative, based on a relatable metaphor and a familiar-looking structure, including well-documented practices and artifacts. In any case, alternative sensemaking devices cannot simply be "implemented" from the top down – meanings are locally developed and contextually embedded.

6. Conclusion and contributions

6.1. Conclusion

This paper aimed at increasing our understanding of how managerial hierarchy can be replaced. We propose that a sensemaking perspective helps us better understand both the role of managerial hierarchy and its alternatives in organizations. Our study of Zenseact confirms that just "removing" hierarchy is not enough (Foss, 2003; Foss & Klein, 2022; Romme, 2015); "something else" needs to be put into place (Foss & Klein, 2022; Minnaar & de Morree, 2019). In that regard, the sensemaking perspective offers an alternative theoretical lens for exploring (the design and implementation of) "less-hierarchical" forms of

organizing. Our analysis of the Zenseact case highlights the strength of managerial hierarchy as a sensemaking device, indicating that an intricate web of alternative sensemaking devices – both connecting to experience and guiding action in the local context – may be required to organize effectively in the absence of managerial hierarchy.

6.2. Contributions to research and limitations

With the current discussion on new forms of organizing largely focusing on the structural possibilities and contingencies of "less-hierarchical" forms (Baumann & Wu, 2023; Billinger & Workiewicz, 2019; Puranam et al., 2014), alternatives to managerial hierarchy remain underexplored (Child, 2019; Luhmann, 2000). As several cases show, there seems to be more to new forms of organizing than their less-hierarchicalness; the reduction or removal of managerial hierarchy needs to be compensated by alternative coordination and control mechanisms. We contribute to research by providing an alternative framework for understanding both managerial hierarchy and new, alternative forms of organizing.

Applying a sensemaking perspective allows to recognize a wide range of alternative sensemaking devices to managerial hierarchy. This range may include alternative structures as well as narratives, metaphors, practices, or artifacts (Maitlis & Christianson, 2014; Weick, 2012). Many examples of alternative sensemaking devices, some more "formalized" (Lee & Edmondson, 2017) and some less, have already been put into practice by organizations such as Buurtzorg, Morning Star, or W.L. Gore (Laloux, 2014; Lee & Edmondson, 2017; Martela, 2023). Overall, a sensemaking perspective points to a different approach to organization design(ing), focusing on how organizational actors, individually and collectively, make sense of complex and uncertain situations (tensions), and how they enact the values and principles inherent in "less-hierarchical" organizing in their local context. More specifically, our analysis of the use of sensemaking devices at Zenseact demonstrates the importance of connecting sensemaking devices to organizational members' experience as well as to a coherent vision of the desired organization for effectively guiding action.

Our investigation of the Zenseact case also contributes to the literature on paradoxical tensions. Our study provides a lively portrayal of how tensions (such as autonomy–alignment) can be navigated in practice through sensemaking, with sensemaking devices serving as actionable and practical tools for successful tension management. Overall, a sensemaking perspective on paradox may enrich ongoing discussions among paradox scholars – moving beyond a focus on cognition and strategy, for instance by advocating a paradox mindset and both/and-thinking (Lewis, 2000; Miron-Spektor et al., 2018; Smith & Lewis, 2011), and towards how to turn them into action.

More specifically, we show that sensemaking in the face of paradox is a process involving not only managers but all organizational members, therewith extending the work of Lüscher and Lewis (2008). With our longitudinal study of Zenseact, we also illustrate how sensemaking devices can impact the power dynamics in the push–pull between the two poles of a paradoxical tension – first favoring autonomy, then gradually shifting towards alignment – therewith addressing related calls for future research (Fairhurst et al., 2016; Schad et al., 2016, 2019). Effective sensemaking devices may help avoid excessive emphasis on one pole or erratic oscillation between poles, typically thought of as dysfunctional strategies for managing paradoxical tensions (cf. Cunha et al., 2022; Jay, 2013; Smith & Lewis, 2011; Sundaramurthy & Lewis, 2003).

Despite these contributions, the methodological and theoretical choices we made entail some limitations. First, insights from our "extreme case" of Zenseact – an organization with a unique ownership structure and history, operating in an unusually uncertain and complex environment, and initially designed to be fully autonomy-embracing and hierarchy-avoiding – may not generalize across all organizations characterized as (or aspiring to become) "less-hierarchical". In

organizations with a less radical approach and setting, the need to replace managerial hierarchy may be less articulated and/or easier to fulfil with more conventional alternative coordination and control mechanisms such as a performance management or ICT system.

Beyond that, our investigation of alternatives to managerial hierarchy is limited by our focus on a specific theoretical perspective. Even within the sensemaking perspective we apply, insights from our single-case study can only hint at the intricacies of sensemaking devices and their effectiveness. More research is necessary to further increase our understanding of how managerial hierarchy can be replaced – from a sensemaking perspective as well as others. From a sensemaking perspective specifically, we encourage scholars to continue exploring how, and under what conditions, sensemaking devices are effective in guiding action in "less-hierarchical" forms of organizing.

6.3. Contributions to practice

Our case study of Zenseact provides three main practical implications:

- When opting for a less-hierarchical form of organizing, strong cultural, managerial, and resource support may not prevent an organization from reverting to a more hierarchical organizational setup. This shift appears challenging in practice, especially when the organization needs to onboard a lot of new talent in a short period of time.
- While "less-hierarchical" or "agile" organizing are attractive concepts, our findings show that they require local understanding and adaptation to be effective. If employees are not able to make sense of complex and uncertain situations, and do not know how to enact the values and principles, the new form of organizing risks remaining an abstract aspiration. "Less-hierarchical" organizing involves more than merely relinquishing authority and informing employees of their "autonomy".
- Sensemaking devices cannot be simply replicated from other organizations or imposed from the top; they are effective only when they resonate with the local experiences and guide daily actions of the organization's members. This underscores the importance of training and facilitation on the journey towards less-hierarchical organizing.

CRediT authorship contribution statement

Anna Rylander Eklund: Writing – original draft, Conceptualization. **Maria Elmquist:** Writing – review & editing, Methodology, Investigation, Conceptualization. **Constantin Bremer:** Writing – original draft, Methodology, Investigation, Conceptualization.

Declaration of Competing Interest

Acknowledgements

Data availability

The data that has been used is confidential.

References

Adler, P. S., & Borys, B. (1996). Two types of bureaucracy: enabling and coercive. *Administrative Science Quarterly, 41*(1), 61–89.

Alexy, O. (2022). How flat can it get? From better at flatter to the promise of the decentralized, boundaryless organization. *Journal of Organization Design, 11*, 31–36. https://doi.org/10.1007/s41469-022-00110-0

Alqudah, M., & Razali, R. (2016). A review of scaling agile methods in large software development. *International Journal on Advanced Science, Engineering and Information Technology, 6*(6), 828–837. https://doi.org/10.18517/ijaseit.6.6.1374

Alvesson, M., Gabriel, Y., & Paulsen, R. (2017). The problem: so much noise, so little to say. *Return to Meaning: A Social Science with Something to Say* (pp. 3–22). Oxford University Press.

Annosi, M. C., & Brunetta, F. (2017). *New organizational forms, controls, and institutions: Understanding the tensions in "post-bureaucratic" organizations*. Cham, Switzerland: Springer International Publishing.

Balogun, J., & Johnson, G. (2004). Organizational restructuring and middle manager sensemaking. *Academy of Management Journal, 47*(4), 523–549.

Barker, J. R. (1993). Tightening the iron cage: concertive control in self-managing teams. *Administrative Science Quarterly, 38*(3), 408–437.

Baumann, O., & Wu, B. (2022). The many dimensions of research on designing flat firms. *Journal of Organization Design, 11*, 1–3. https://doi.org/10.1007/s41469-022-00118-6

Baumann, O., & Wu, B. (2023). Managerial hierarchy in AI-driven organizations. *Journal of Organization Design, 12*, 1–5. https://doi.org/10.1007/s41469-023-00147-9

Bechky, B. A. (2006). Gaffers, gofers, and grips: role-based coordination in temporary organizations. *Organization Science, 17*(1), 3–21. https://doi.org/10.1287/orsc.1050.0149

Beck, K., Grenning, J., Martin, R. C., Beedle, M., Highsmith, J., Mellor, S., van Bennekum, A., Hunt, A., Schwaber, K., Cockburn, A., Jeffries, R., Sutherland, J., Cunningham, W., Kern, J., Thomas, D., Fowler, M., & Marick, B. (2001). *Manifesto for Agile Software Development*. ⟨http://agilemanifesto.org/⟩ Accessed November 28, 2022.

Berglund, J., Strannegård, L., & Tillberg, U. (2004). High-touch and high-tech - Paradoxical narratives in a bank merger. *Scandinavian Journal of Management, 20*(4), 335–355. https://doi.org/10.1016/j.scaman.2004.03.003

Bernstein, E., Bunch, J., Canner, N., & Lee, M. Y. (2016). Beyond the Holacracy Hype. *Harvard Business Review, 94*(7–8), 38–49. https://doi.org/10.1002/qua.560220720

Berti, M., Simpson, A., Cunha, M. P. e, & Clegg, S. R. (2021). *Elgar Introduction to Organizational Paradox Theory*. Cheltenham, UK: Edward Elgar.

Bick, S., Spohrer, K., Hoda, R., Scheerer, A., & Heinzl, A. (2018). Coordination Challenges in Large-Scale Software Development: A Case Study of Planning Misalignment in Hybrid Settings. *IEEE Transactions on Software Engineering, 44*(10), 932–950. https://doi.org/10.1109/TSE.2017.2730870

Bigley, G. A., & Roberts, K. H. (2001). The incident command system: high-reliability organizing for complex and volatile task environments. *Academy of Management Journal, 44*(6), 1281–1299.

Billinger, S., & Workiewicz, M. (2019). Fading hierarchies and the emergence of new forms of organization. *Journal of Organization Design, 8*(17), 1–6. https://doi.org/10.1186/s41469-019-0057-6

Bochantin, J. E. (2017). Ambulance Thieves, Clowns, and Naked Grandfathers": How PSEs and Their Families Use Humorous Communication as a Sensemaking Device. *Management Communication Quarterly, 31*(2), 278–296. https://doi.org/10.1177/0893318916687650

Boehm, B., & Turner, R. (2005). Management challenges to implementing agile processes in traditional development organizations. *IEEE Software, 22*(5), 30–39. https://doi.org/10.1109/MS.2005.129

Brodsky, J. S. (2017). Autonomous Vehicle Regulation: How an Uncertain Legal Landscape May Hit the Brakes On Self-Driving Cars. *Berkeley Technology Law Journal, 31*(2), 851–878.

Burrell, G., & Morgan, G. (1979). *Sociological Paradigms and Organisational Analysis: Elements of the Sociology of Corporate Life*. Routledge. https://doi.org/10.4324/9781315609751

Burton, R. M., Håkonsson, D. D., Nickerson, J., Puranam, P., Workiewicz, M., & Zenger, T. (2017). GitHub: exploring the space between boss-less and hierarchical forms of organizing. *Journal of Organization Design, 6*(10), 1–19. https://doi.org/10.1186/s41469-017-0020-3

Cäker, M., & Siverbo, S. (2014). Strategic alignment in decentralized organizations - The case of Svenska Handelsbanken. *Scandinavian Journal of Management, 30*(2), 149–162. https://doi.org/10.1016/j.scaman.2013.10.005

Child, J. (2019). In S. Clegg (Ed.), *Hierarchy: A Key Idea for Business and Society*. London, UK: Routledge.

Child, J., & McGrath, R. G. (2001). Organizations Unfettered: Organizational Form in an Information-Intensive Economy. *Academy of Management Journal, 44*(6), 1135–1148.

Cornelissen, J. P., & Kafouros, M. (2008). The emergent organization: primary and complex metaphors in theorizing about organizations. *Organization Studies, 29*(7), 957–978. https://doi.org/10.1177/0170840608090533

Cunha, M. P. e, Clegg, S., Gaim, M., & Giustiniano, L. (2022). *Elgar Introduction to Designing Organizations*. Cheltenham, UK: Edward Elgar.

Daft, R. L., & Lewin, A. Y. (1993). Where are the theories for the "new" organizational forms? An editorial essay. *Organization Science, 4*(4), i–vi.

Diefenbach, T., & Sillince, J. A. A. (2011). Formal and Informal Hierarchy in Different Types of Organization. *Organization Studies, 32*(11), 1515–1537. https://doi.org/10.1177/0170840611421254

Dubois, A., & Gadde, L.-E. (2002). Systematic combining: an abductive approach to case research. *Journal of Business Research, 55*(7), 553–560.

Fairhurst, G. T., Smith, W. K., Banghart, S. G., Lewis, M. W., Putnam, L. L., Raisch, S., & Schad, J. (2016). Diverging and Converging: Integrative Insights on a Paradox Meta-perspective. *Academy of Management Annals, 10*(1), 173–182. https://doi.org/10.1080/19416520.2016.1162423

Farjoun, M., Smith, W. K., Langley, A., & Tsoukas, H. (2018). *Dualities, Dialectics, and Paradoxes in Organizational Life*. Oxford, UK: Oxford University Press.

Feldman, S. P. (1989). The broken wheel: The inseparability of autonomy and control in innovation within organizations. *Journal of Management Studies, 26*(2), 83–102.

Felin, T., & Powell, T. C. (2016). Designing organizations for dynamic capabilities. *California Management Review, 58*(4), 78–96. https://doi.org/10.1525/cmr.2016.58.4.78

Fjeldstad, Ø. D., Snow, C. C., Miles, R. E., & Lettl, C. (2012). The architecture of collaboration. *Strategic Management Journal, 33*, 734–750. https://doi.org/10.1002/smj

Foss, N. J. (2003). Selective Intervention and Internal Hybrids: Interpreting and Learning from the Rise and Decline of the Oticon Spaghetti Organization. *Organization Science, 14*(3), 331–349. https://doi.org/10.1287/orsc.14.3.331.15166

Foss, N. J., & Dobrajska, M. (2015). Valve's Way: Vayward, Visionary, or Voguish? *Journal of Organization Design, 4*(2), 12–15. https://doi.org/10.7146/jod.20162

Foss, N. J., & Klein, P. G. (2022). *Why Managers Matter: The Perils of the Bossless Company*. New York, NY: PublicAffairs.

Greenblatt, J. B., & Saxena, S. (2015). Autonomous taxis could greatly reduce greenhouse-gas emissions of US light-duty vehicles. *Nature Climate Change, 5*(9), 860–863. https://doi.org/10.1038/nclimate2685

Hamel, G., & Zanini, M. (2020). *Humanocracy: Creating Organizations as Amazing as the People Inside Them*. Boston, MA: Harvard Business Review Press.

Hatchuel, A., Le Masson, P., & Weil, B. (2002). From knowledge management to design-oriented organisations. *International Social Science Journal, 54*(171), 25–37. https://doi.org/10.1111/1468-2451.00356

Hekkala, R., Stein, M. K., & Rossi, M. (2018). Metaphors in managerial and employee sensemaking in an information systems project. *Information Systems Journal, 28*(1), 142–174. https://doi.org/10.1111/isj.12133

Heydebrand, W. V. (1989). New organizational forms. *Work and Occupations, 16*(3), 323–357.

Hultin, L., & Mähring, M. (2017). How practice makes sense in healthcare operations: Studying sensemaking as performative, material-discursive practice. *Human Relations, 70*(5), 566–593. https://doi.org/10.1177/0018726716661618

Ivanova-Gongne, M., & Törnroos, J.Å. (2017). Understanding cultural sensemaking of business interaction: A research model. *Scandinavian Journal of Management, 33*(2), 102–112. https://doi.org/10.1016/j.scaman.2017.04.001

Jaques, E. (1990). In Praise of Hierarchy. *Harvard Buisness Review, 68*(1), 127–133.

Jay, J. (2013). Navigating paradox as a mechanism of change and innovation in hybrid organizations. *Academy of Management Journal, 56*(1), 137–159.

Kärreman, D., & Alvesson, M. (2004). Cages in tandem: management control, social identity, and identification in a knowledge-intensive firm. *Organization, 11*(1), 149–175. https://doi.org/10.1177/1350508404039662

Ketkar, H., & Workiewicz, M. (2022). Power to the people: the benefits and limits of employee self-selection in organizations. *Strategic Management Journal, 43*(5), 935–963. https://doi.org/10.1002/smj.3349

Khanagha, S., Volberda, H. W., Alexiou, A., & Annosi, M. C. (2022). Mitigating the dark side of agile teams: peer pressure, leaders' control, and the innovative output of agile teams. *Journal of Product Innovation Management, 39*, 334–350. https://doi.org/10.1111/JPIM.12589

Kniberg, H., 2014. Spotify engineering culture (part 1). https://engineering.atspotify.com/2014/03/spotify-engineering-culture-part-1/. Accessed November 25, 2022..

Kühl, S. (2017). *When the Monkeys Run the Zoo: The Pitfalls of Flat Hierarchies*. Princeton, NJ: Organizational Dialogue Press.

Lakoff, G., & Johnson, M. (1999). *Philosophy in the Flesh: The Embodied Mind and Its Challenge to Western Thought*. New York, NY: Basic Books.

Laloux, F. (2014). *Reinventing organizations: a guide to creating organizations inspired by the next stage of human consciousness*. Brussels, Belgium: Nelson Parker.

Langfred, C. W., & Rockmann, K. W. (2016). The push and pull of autonomy: the tension between individual autonomy and organizational control in knowledge work. *Group and Organization Management, 41*(5), 629–657. https://doi.org/10.1177/1059601116668971

Langley, A. (1999). Strategies for theorizing from process data. *Academy of Management Review, 24*(4), 691–710.

Lee, E.-K., Gerla, M., Pau, G., Lee, U., & Lim, J.-H. (2016). Internet of Vehicles: From intelligent grid to autonomous cars and vehicular fogs. *International Journal of Distributed Sensor Networks, 12*(9), 1–14. https://doi.org/10.1177/1550147716665500

Lee, E., Ilseven, E., & Puranam, P. (2023). Scaling nonhierarchically: A theory of conflict-free organizational growth with limited hierarchical growth. *Strategic Management Journal, 44*, 3042–3064. https://doi.org/10.1002/smj.3541

Lee, M. Y., & Edmondson, A. C. (2017). Self-managing organizations: Exploring the limits of less-hierarchical organizing. *Research in Organizational Behavior, 37*, 35–58. https://doi.org/10.1016/j.riob.2017.10.002

Lewis, M. W. (2000). Exploring paradox: toward a more comprehensive guide. *Academy of Management Review, 25*(4), 760–776.

Littler, C. R., & Innes, P. (2004). The paradox of managerial downsizing. *Organization Studies, 25*(7), 1159–1184. https://doi.org/10.1177/0170840604046314

Luhmann, N. (2000). *Organisation und Entscheidung*. Opladen/Wiesbaden, Germany: Westdeutscher Verlag.

Lund, A. K. (2019). Leading knowledge-workers through situated ambiguity. *Scandinavian Journal of Management, 35*(3), Article 101060. https://doi.org/10.1016/j.scaman.2019.101060

Lüscher, L. S., & Lewis, M. W. (2008). Organizational Change and Managerial Sensemaking: Working through Paradox. *Academy of Management Journal, 51*(2), 221–240. https://doi.org/10.5465/AMJ.2008.31767217

Macfarlane, J., & Stroila, M. (2016). Addressing the Uncertainties in Autonomous Driving. *SIGSPATIAL Special, 8*(2), 35–40. https://doi.org/10.1145/3024087.3024092

Maitlis, S., & Christianson, M. (2014). Sensemaking in organizations: taking stock and moving forward. *Academy of Management Annals, 8*(1), 57–125. https://doi.org/10.1080/19416520.2014.873177

Maitlis, S., & Lawrence, T. B. (2007). Triggers and enablers of sensegiving in organizations. *Academy of Management Journal, 50*(1), 57–84. https://doi.org/10.5465/AMJ.2007.24160971

Manz, C. C., Shipper, F., & Stewart, G. L. (2009). Everyone a Team Leader: Shared Influence at W. L. Gore & Associates. *Organizational Dynamics, 38*(3), 239–244. https://doi.org/10.1016/j.orgdyn.2009.04.006

Martela, F. (2019). What makes self-managing organizations novel? Comparing how Weberian bureaucracy, Mintzberg's adhocracy, and self-organizing solve six fundamental problems of organizing. *Journal of Organization Design, 8*(1), 23. https://doi.org/10.1186/s41469-019-0062-9

Martela, F. (2023). Managers matter less than we think: how can organizations function without any middle management? *Journal of Organization Design, 12*, 19–25. https://doi.org/10.1007/s41469-022-00133-7

Maxwell, J. A. (2005). *Qualitative Research Design - An Interactive Approach* (2nd ed.). Thousand Oaks, CA: Sage Publications.

Minnaar, J., & de Morree, P. (2019). *Corporate Rebels: Make Work More Fun.* Amsterdam, Netherlands: Corporate Rebels.

Miron-Spektor, E., Ingram, A., Keller, J., Smith, W. K., & Lewis, M. W. (2018). Microfoundations of Organizational Paradox: The Problem is How We Think About the Problem. *Academy of Management Journal, 61*(1), 26–45. https://doi.org/10.5465/amj.2016.0594

Moe, N. B., Dahl, B., Stray, V., Karlsen, L. S., & Schjødt-Osmo, S. (2019). Team autonomy in large-scale agile. *Proceedings of the 52nd Hawaii International Conference on System Sciences, 6*, 6997–7006. https://doi.org/10.24251/hicss.2019.839

Moe, N. B., Šmite, D., Paasivaara, M., & Lassenius, C. (2021). Finding the sweet spot for organizational control and team autonomy in large-scale agile software development. *Empirical Software Engineering, 26*(5), 1–41. https://doi.org/10.1007/s10664-021-09967-3

Morgan, G. (2007). *Images of Organization.* Thousand Oaks, CA: Sage Publications.

Oborn, E., Barrett, M., & Dawson, S. (2013). Distributed Leadership in Policy Formulation: A Sociomaterial Perspective. *Organization Studies, 34*(2), 253–276. https://doi.org/10.1177/0170840612473552

Okhuysen, G. A., & Bechky, B. A. (2009). Coordination in organizations: an integrative perspective. *Academy of Management Annals, 3*(1), 463–502. https://doi.org/10.1080/19416520903047533

Olsson, H. H., & Bosch, J. (2018). Singing the praise of empowerment: or paying the cost of chaos. *Proceedings - 44th Euromicro Conference on Software Engineering and Advanced Applications, SEAA 2018*, 17–21. https://doi.org/10.1109/SEAA.2018.00012

Pettigrew, A. M. (1979). On studying organizational cultures. *Administrative Science Quarterly, 24*(4), 570–581.

Puranam, P., Alexy, O., & Reitzig, M. (2014). What's "New" about new forms of organizing? *Academy of Management Review, 39*(2), 162–180.

Puranam, P., & Håkonsson, D. D. (2015). Valve's way. *Journal of Organization Design, 4*(2), 2–4. https://doi.org/10.7146/jod.20152

Putnam, L. L., Fairhurst, G. T., & Banghart, S. (2016). Contradictions, dialectics, and paradoxes in organizations: a constitutive approach. *Academy of Management Annals, 10*(1), 65–171. https://doi.org/10.1080/19416520.2016.1162421

Raelin, J. A. (1985). Prologue to special issue on: The dilemma of autonomy vs. control in the management of organizational professionals. *Human Resource Management, 24*(2), 123–127.

Ravn, J. E., Moe, N. B., Stray, V., & Seim, E. A. (2022). Team autonomy and digital transformation: Disruptions and adjustments in a well-established organizational

principle. *AI and Society, 37*(2), 701–710. https://doi.org/10.1007/s00146-022-01406-1

Rennstam, J., & Kärreman, D. (2020). Understanding control in communities of practice: Constructive disobedience in a high-tech firm. *Human Relations, 73*(6), 864–890. https://doi.org/10.1177/0018726719843588

Romme, A. G. L. (2015). *The Big Misconceptions Holding Holacracy Back*. Harvard Business Review. ⟨https://hbr.org/2015/09/the-big-misconceptions-holding-holacracy-back⟩.

Rosales, V., Gaim, M., Berti, M., & Cunha, M. P. e (2022). The rubber band effect: Managing the stability-change paradox in routines. *Scandinavian Journal of Management, 38*(2), Article 101194. https://doi.org/10.1016/j.scaman.2022.101194

Scaled Agile Inc. (2021). *Core Values.* ⟨https://www.scaledagileframework.com/safe-core-values/⟩ Accessed November 22, 2022.

Schad, J., Lewis, M. W., Raisch, S., & Smith, W. K. (2016). Paradox research in management science: looking back to move forward. *Academy of Management Annals, 10*(1), 5–64. https://doi.org/10.1080/19416520.2016.1162422

Schad, J., Lewis, M. W., & Smith, W. K. (2019). Quo vadis, paradox? Centripetal and centrifugal forces in theory development. *Strategic Organization, 17*(1), 107–119. https://doi.org/10.1177/1476127018786218

Schreyögg, G., & Sydow, J. (2010). CROSSROADS - Organizing for Fluidity? Dilemmas of New Organizational Forms. *Organization Science, 21*(6), 1251–1262. https://doi.org/10.1287/orsc.1100.0561

Smith, W. K., & Lewis, M. W. (2011). Toward a theory of paradox: a dynamic equilibrium model of organizing. *Academy of Management Review, 36*(2), 381–403.

Sonenshein, S. (2010). We're changing - or are we? Untangling the role of progressive, regressive, and stability narratives during strategic change implementation. *Academy of Management Journal, 53*(3), 477–512. https://doi.org/10.5465/amj.2010.51467638

Stigliani, I., & Ravasi, D. (2012). Organizing thoughs and connecting brains: material practices and the transition from individual to group-level prospective sensemaking. *Academy of Management Journal, 55*(5), 1232–1259.

Sundaramurthy, C., & Lewis, M. (2003). Control and collaboration: paradoxes of governance. *Academy of Management Review, 28*(3), 397–415.

Taeihagh, A., & Lim, H. S. M. (2019). Governing autonomous vehicles: emerging responses for safety, liability, privacy, cybersecurity, and industry risks. *Transport Reviews, 39*(1), 103–128. https://doi.org/10.1080/01441647.2018.1494640

van Baarle, S., Dolmans, S. A. M., Bobelyn, A. S. A., & Romme, A. G. L. (2021). Beyond command and control: tensions arising from empowerment initiatives. *Organization Studies, 42*(4), 531–553. https://doi.org/10.1177/0170840618818600

van de Ven, A. H., & Poole, M. S. (1995). Explaining development and change in organizations. *The Academy of Management Review, 20*(3), 510–540.

Volvo Car Corporation. (2017). *Volvo Cars and Autoliv autonomous driving joint venture Zenuity starts operations.* ⟨https://www.media.volvocars.com/se/sv-se/media/pressreleases/207309/volvo-cars-and-autoliv-autonomous-driving-joint-venture-zenuity-starts-operations⟩ Accessed November 15, 2022.

Walsh, J. P., Meyer, A. D., & Schoonhoven, C. B. (2006). A future for organization theory: living in and living with changing organizations. *Organization Science, 17*(5), 657–671. https://doi.org/10.1287/orsc.1060.0215

Weick, K. E. (1995). *Sensemaking in Organizations.* Thousand Oaks, CA: Sage Publications.

Weick, K. E. (2012). Organized sensemaking: a commentary on processes of interpretive work. *Human Relations, 65*(1), 141–153. https://doi.org/10.1177/0018726711424235

Weick, K. E., Sutcliffe, K. M., & Obstfeld, D. (2005). Organizing and the Process of Sensemaking. *Organization Science, 16*(4), 409–421. https://doi.org/10.1287/orsc.1050.0133

Yin, R. K. (2014). *Case Study Research: Design and Methods* (5th ed.). Thousand Oaks, CA: Sage Publications.

Zhou, Y. M. (2013). Designing for complexity: using divisions and hierarchy to manage complex tasks. *Organization Science, 24*(2), 339–355.