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Ingvaldsen, J.A. and Benders, J. (2020), "Back through the back door? On removing supervisors to reduce hierarchy", *Baltic Journal of Management*, Vol. 15 No. 3, pp. 473-491. Doi: https://doi.org/10.1108/BJM-10-2019-0359

Back through the back door?

On removing supervisors to reduce hierarchy

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Abstract

Purpose: This article addresses why movements toward less-hierarchical organizing may be unsustainable within organizations.

Design/methodology/approach: Eschewing hierarchy may prove sustainable if alternative forms of management are acceptable to both employees and managers accountable for those employees' performance. Developing alternatives means dealing with the fundamentally contradictory functions of coordination and control. Through a qualitative case study of a manufacturing company that removed first-line supervisors, this article analyses how issues of control and coordination were dealt with formally and informally.

Findings: Removal of the formal supervisor was followed by workers' and middle managers' efforts to informally reconstruct hierarchical supervision. Their efforts to deal pragmatically with control and coordination were frustrated by formal prescriptions for less hierarchy, leading to contested outcomes. The article identifies upward and downward pressures for the hierarchy's reconstruction, undermining the sustainability of less-hierarchical organizing.

Research limitations/implications: This study is limited by the use of cross-sectional data and employees' retrospective narratives. Future research on the sustainability of less-hierarchical organizing should preferably be longitudinal to overcome these limitations.

Practical implications: Unless organizational changes towards less hierarchy engage with issues of managerial control and upward accountability, they are likely to induce pressures for hierarchy's reconstruction.

Originality/value: The article offers an original approach to the classical problem of eschewing hierarchy in organizations. The approach allows us to explore the interrelated challenges facing such restructuring, some of which are currently unacknowledged or underestimated within the literature.

Keywords: Contradiction; control; coordination; delayering; hierarchy; self-management

Article type: Research paper

Introduction

Can organizations, which ultimately rely on managerial authority for control and coordination, move past hierarchical organizing? This long-standing question (Hales, 2005; Herbst, 1976; Munro and Hatherly, 1993; Pasmore, 1995; Shaiken *et al.*, 1997) has recently returned to the spotlight (Bernstein *et al.*, 2016; Hodgson and Briand, 2013; Lee and Edmondson, 2017). One frequently used approach to such "less-hierarchical organizing" (Lee and Edmondson, 2017) is to remove lower-level managerial positions and decentralize authority to front-line staff.

So far, research has offered few insights into why some experiments with less-hierarchical organizing are sustained while others are not. Neither universalist explanations attributing to managers or workers some innate preference for either hierarchical or non-hierarchical organizing (e.g. Emery and Thorsrud, 1976; Leavitt, 2003), nor knowledge about the pros and cons of hierarchical organizing (e.g. Adler, 1999; Bunderson and Boumgarden, 2010; Gittell, 2001; Ingvaldsen and Rolfsen, 2012; Jaques, 1990; Lee and Edmondson, 2017), offer a robust foundation for understanding why key actors come to embrace, accept or challenge movements away from hierarchical organizing (McDermott *et al.*, 2013; Vallas, 2006). Understanding the sustainability issue is crucial to both theory and practice. Hierarchical organizing has been stubbornly persistent (Hales, 2005; Höpfl, 2006), yet unless less-hierarchical organizing is sustainable in actual organizations, it remains a utopian prospect and a theoretical chimera.

Hales (2005, p. 497) eloquently formulated the key issue that arises when hierarchy is eschewed: "a world without *managers* is not a world that is not *managed*" (italics in original). That is, employees must perform management functions without relying on the authority vested in managerial positions. Following Adler (2012), this article proposes that the fundamental management functions – those traditionally performed by the managerial hierarchy – are control and coordination, and that these functions form a contradictory unity. Hence, developing less-hierarchical organizing means dealing with the control–coordination contradiction in alternative ways. Guided by Hargrave and Van de Ven's (2017) framework for contradiction management, the article presents a case study of a manufacturing company, in which the formal

removal of hierarchical supervision was followed by its subsequent informal and uneven re-emergence on the shop floor.

The case analysis identifies a set of mechanisms that undermines the sustainability of less-hierarchical organizing. First, the analysis identifies both upward and downward pressures for the reconstruction of hierarchy, and the conditions that make these pressures converge to create informal managerial positions. Second, the analysis highlights how a formal organization design for less hierarchy conditioned the informal emergence of hierarchy, making outcomes unsatisfactory to workers and middle managers. The article's core argument implies that current approaches to less-hierarchical organizing are based on the flawed premise that self-management can substitute for hierarchical management. Thereby crucial issues of managerial control and upward accountability are ignored. Unless these issues are engaged with seriously in organization design, movements away from hierarchical organizing are likely to induce pressures for hierarchy's reconstruction.

Managing in the less-hierarchical organization

To organize less hierarchically means to "adapt the managerial hierarchy so that authority is decentralized relative to classic hierarchical principles of unity of command, supervision of lower offices by higher offices, and obedience to superiors" (Lee and Edmondson, 2017, p. 37). Delayering, which simply leads to broader control spans and increases managers' workloads (McCann *et al.*, 2008), is insufficient unless relations of authority between managerial and non-managerial personnel are also transformed.

As part of a multi-faceted movement in opposition to autocratic managers, efforts to move away from hierarchical organizing have been proposed as means to democratize organizations. Experiments with "alternatives to hierarchies" (Herbst, 1976) have been carried out in Scandinavia, but these failed to diffuse and have for the most part been abandoned, often due to managerial resistance (Pasmore, 1995; Qvale, 1976; Sandberg, 1995). Similar approaches to restructuring, emphasizing the business case for employees' motivation and commitment rather than a commitment to democratization, have been widely discussed in social-psychological and HRM-oriented organizational discourse, and advocated in many management textbooks (Johnson, 2006). Here, participative forms of management are thought to render managerial authority obsolete (Boxall and Macky, 2009; Evans and Davis, 2005; Walton, 1985).

These different approaches to less-hierarchical organizing share crucial assumptions – not only the normative assumption that employees' self-management *should* substitute for hierarchical management, but also, and more fundamentally, that it *could*. Manz and Sims' (1980) classical formulation of this principle has been echoed in more recent publications. For example, Bernstein *et al.* (2016, p. 43) wrote: "Members [of the organization] share accountability for the work, authority over how goals are met, discretion over resource use, and ownership of information and knowledge related to the work."

A closer assessment reveals that the idea of "substitution" is problematic. The concept obscures the contradictory nature of what is supposedly delegated and distributed, and thereby underestimates the obstacles facing efforts to move away from hierarchical organizing.

The principal functions of management are coordination and control (Adler, 2012; Delbridge and Lowe, 1997). Under capitalist relations of production, where employees are hired, coordination and control form a contradictory unity; they are interdependent yet opposing elements (Adler, 2012). On the one hand, management means coordination of an interdependent, collective labour process. This coordination benefits from collaborative relations in which the authority of anyone acting as manager is endorsed and supported from below (Adler, 2015). On the other hand, management also means control, or the exploitation of collective labour-power in the interests of company owners (Smith, 2006). While this control is sometimes exercised in ways that are compatible with employees' interests, such compatibility is at best partial, and employees submit only because they need the job. With respect to control, anyone exercising authority is acting on behalf of higher management and derives his or her authority from above rather than below, even if compliance from below remains necessary (Weber, 1968). Management is a precarious accomplishment: the effective exploitation of collective labour requires a well-coordinated labour process, but managerial control tends to undermine the collaboration needed for this coordination (Adler, 2015).

In light of the control–coordination contradiction, the substitution argument is flawed in that it ignores the antagonistic character of the control function and thus conflates authority "from below" with authority "from above" (see Perrow, 1972, pp. 70–71). Employees may be perfectly able to self-coordinate, possibly by electing leaders or rotating or distributing coordination tasks (Ingvaldsen and Rolfsen, 2012). The authority of these leaders is granted from below, and they remain accountable to their work unit, rather than to higher managers. However, managerial control requires upward accountability, ultimately to company owners (Jaques, 1990). Through hierarchical forms of accountability, individuals' activities are made visible, to be evaluated and corrected by superiors (Roberts, 1991). The substitution argument is mute on how this tension between control and coordination, and relatedly, between different forms of authority and accountability, are to be resolved.

This paper concludes that the control–coordination contradiction is the key issue to be dealt with in movements away from hierarchical organizing. This contradiction cannot be ultimately resolved intra-organizationally; it can only be managed to produce outcomes that are, by and large, acceptable to organizational actors (Adler, 2012; Benson, 1977).

Managing the control–coordination contradiction

To analyse systematically how actors deal with the control–coordination contradiction, the article builds on Hargrave and Van de Ven's (2017) process model for contradiction management. According to this model, contradiction management proceeds in two main steps.

First, when the contradiction becomes salient, the affected actors interpret it. Although Hargrave and Van de Ven (2017) labelled this step "sensemaking", the term "interpretation" is

preferred in this article, since the step emphasizes actors' cognition rather than how action and cognition are recursively linked (see Maitlis and Christianson [2014] on the difference between sensemaking and interpretation). The important distinction in this step is whether actors accept or resist the coexistence of the contradictory elements. For example, a large body of literature within organizational sociology has shown that employees tend to resist managerial control while simultaneously making the necessary adjustments to coordinate work (e.g. Gouldner, 1954; Vallas, 2006).

In the second step, actors take action to address the contradiction. Since the actors may have different interpretations of the contradiction and be pursuing different goals, this is a political process. The key distinction in this step is whether the power relations between proponents of the contradictory elements are symmetrical and stable or unstable and/or asymmetrical. Combining the different interpretations and the different power distributions in a single framework, Hargrave and Van de Ven (2017) proposed a fourfold typology of contradiction-management approaches, as follows:

1. *Synergy* means that the contradictory elements are coordinated in mutually advantageous ways. Synergy is likely when actors accept both contradictory elements, and power relations are stable and symmetrical.
2. *Assimilation* means that one element of the contradiction becomes dominant and the subordinate element is incorporated into it. Assimilation is likely when actors accept both elements, but power relations are unstable and/or asymmetrical.
3. *Mutual adjustment* means that the elements are coordinated in mutually satisfactory, but not necessarily mutually advantageous, ways. Mutual adjustment is likely when actors promote different contradictory elements, and power relations are stable and symmetrical.
4. *Conflict* is more likely when actors promote different contradictory elements, and power relations are unstable and/or asymmetrical.

Different contradiction-management approaches have different organizational outcomes. By shaping relations of power and actors' interpretative frameworks, these outcomes set the stage for subsequent processes of contradiction management. Hence, management of the control–coordination contradiction is path dependent and ongoing.

In most organizations, the control–coordination contradiction is managed at two different levels: (1) formally, in organization design, and (2) informally, in shop-floor practice. In extreme cases the two levels can be decoupled (Kilskar *et al.*, 2018), but in general the formal design constrains and enables shop-floor practice by prescribing an overall division of labour, relations of authority and accountability, and a normative framework for cooperation (Findlay *et al.*, 2000). Importantly, formal organization design and shop-floor practice involve different actors, different interpretive frames and different power relations. While design of the formal organization is typically dominated by higher-level management, and governed by rationalistic norms and fashionable management ideas (Heusinkveld, 2014; Røvik, 2019), informal shop-floor organizing is typically about workers and managers finding practical accommodations while keeping production going (Hales, 2005).

Research design

In 2007, a manufacturer of light-metal products introduced a new production approach, called the "Lean Production System" (LPS), in all its Norwegian plants. This LPS prescribed removal of the formal supervisor. For the current study, the company's three experts on lean production and organization design were the researchers' main contact points in the organization. Together with them, the researchers decided to investigate and evaluate the application of the LPS in three of the company's Norwegian plants.

To prepare for the investigation, the researchers were given copies of company documents used internally to document and teach the content of the LPS. These were primarily PowerPoint presentations (roughly 150 slides) covering lean production techniques and the new organizational blueprint. The documents were prescriptive, essentially telling employees how to organize and work together to control and improve the company's technological processes. Furthermore, through informal discussions the company's experts explained the reasoning behind the system, the company context, as well as how the implementation had proceeded. In total, the researchers spent approximately three full days with the company's lean experts preparing for plant visits. They also talked informally with the top manager who had initiated the changes.

In 2012–2013, the researchers visited three plants to conduct the data collection, spending two full days at each plant. To obtain multiple perspectives on how the LPS was practised, members of the plant-management team, the main union representative, "facilitators" working with LPS implementation, as well as workers and middle managers within the plants' main departments were interviewed (see Table 1 for an overview). Interviews were scheduled based on employees' availability. In total, 59 employees were interviewed. This process introduced an element of convenience sampling, especially regarding operators, who were taken out of production for the interviews. For similar reasons, some operators and lower-level managers were interviewed in groups of 2–4 persons. Each interview lasted between 45 minutes and one hour, and was recorded and transcribed. Employees were asked about what had happened during introduction of the LPS, and about the current situation, with special attention to managerial roles and relations of authority and accountability. Hence, respondents provided both retrospective and current information. On the final day of each visit, the researchers held a one-hour session with key informants to verify and assess preliminary findings.

The data were analysed with the aim of developing a process model (Langley, 1999), in which management of the control–coordination contradiction is the dynamic element that triggers and connects processes at different levels of analysis (Putnam, 2013). Data were clustered into two overall sequential phases, involving different key actors, and presumably different interpretative approaches and different power dynamics: (1) organization design and (2) shop-floor practice. Such "temporal bracketing" facilitates the "explicit examination of how actions of one period lead to changes in the context that will affect action in subsequent periods" (Langley, 1999, p. 703). Following Hargrave and Van de Ven (2017), for both phases key actors, interpretative approaches and the power distribution were identified to explain why the actors managed the control–coordination contradiction in particular ways. Furthermore, the

analysis identified how the different contradiction-management approaches gave rise to supervisory configurations, and which new tensions and inconsistencies these configurations created, setting the stage for further iterations.

In the first phase, employees' retrospective narratives of the restructuring revealed the key dynamics: a powerful coalition of the top manager, the lean experts and the blue-collar labour union had found a common interest in advancing a less-hierarchical structure. Company documents were coded to enable the researchers to understand how this idea was operationalized. Coding was conducted according to the main themes deduced from the literature: control, coordination, authority and accountability. The researchers also analysed how the company documents described the shop-floor roles "area manager" and "first operator" with respect to the nature of their work, authority and accountability (see Table 2).

Analysis in the second phase built on Eisenhardt's (1989) recommendations for theory building from case study research, proceeding from within-case data analysis to searching for cross-case patterns. The unit of analysis was the department, as preliminary findings suggested that intra-plant variations in supervision were as large as inter-plant variations.

The nature of supervision in eight different departments was described (see Table 3). Forms of supervision were analysed as negotiated outcomes of workers' and middle managers' orientations in response to the control–coordination contradiction, the LPS and specific contingencies pertaining to the department in question (technical characteristics and department sizes). Comparison across the departments revealed that there was a universal tendency towards the informal reconstruction of hierarchy, in that workers and middle managers – for different reasons – preferred some kind of supervisory role within each shift. However, not all departments reconstructed hierarchy informally. Two distinct empirical outcomes were discernible, labelled *first operator as supervisor* and *muddling-through supervision*. Workers and middle managers tended to prefer the first outcome, making it the more sustainable, although problematic issues remained. Department-level explanations were sought as to why muddling-through supervision prevailed in some departments, despite discontent among operators and middle managers.

Finally, the researchers theorized as to how the outcomes of the contradiction management in the first phase had conditioned contradiction management in the second phase, in order to offer a full account of how and why hierarchical supervision was unevenly recreated, and why both empirical outcomes were contested.

INSERT TABLE 1 ABOUT HERE

INSERT TABLE 2 ABOUT HERE

INSERT TABLE 3 ABOUT HERE

Case study

The case company has electro-chemical plants located in rural Norway. The main technology is continuous process production, supported by large-batch production of support materials. Plants operate around the clock and are staffed according to a shift system. The operators' main tasks are a combination of repetitive manual tasks and cognitive tasks of process regulation. Extensive technological controls are built into the machinery. As long as processes run smoothly, work is generally of modest intensity (cf. Woodward, 1980, p. 66). However, process deviations may have severe consequences, and employees must be prepared to respond swiftly when such deviations occur.

Phase I: Contradiction management in organization design

Actors and interpretations. The main actors in this phase were the newly appointed top manager, experts on lean production assisting the top manager, the labour union organizing the blue-collar workers, and the union organizing the foremen.

The top manager had built a reputation for working cooperatively with unions and shop-floor employees to improve plant performance. Removing hierarchical levels to unleash the initiative of blue-collar workers had been part of his earlier successes. Eschewing hierarchy was also framed as an application of lean production principles, in which improved standardization of work processes would reduce the need for personal supervision. The lean experts advocated a pronouncedly human-centred interpretation of lean production, with delayering and self-management as core elements (cf. Benders *et al.*, 2019b). Within this frame of reference, hierarchical supervision was seen as antithetical to worker commitment and continuous improvement. For the blue-collar labour union, the idea of devolving authority to operators resonated with their traditional agenda of increasing worker participation. Prior experiments with industrial democracy (Emery and Thorsrud, 1976), which were held in high regard within the labour movement, served as a main frame of reference. The union organizing the foremen, on the contrary, had strong vested interests in opposing the changes. They voiced their opposition by arguing that the proposed delayering would create poor accountability on the shop floor.

The interpretative approaches meant that few relevant actors espoused the control element of the control–coordination contradiction. The foremen union did so, but for self-interest-seeking, "illegitimate" reasons. They would be on the losing side of the subsequent struggle.

Power distribution and contradiction management. A powerful alliance consisting of the top manager, the lean experts and the blue-collar labour union formed to oversee the restructuring. The blue-collar union followed a partnership strategy with management, giving them influence

over some key elements of the restructuring. For the top manager, the alliance was important to manage the large-scale transition induced by the LPS. The union–top management alliance went on to override any overt resistance. The union organizing the foremen lost their main membership base.

As a result, the power distribution was highly asymmetrical in favour of a push to remove hierarchical supervision and increase workers' self-management. Reflecting on what had happened, an operator and former labour union representative explained:

> [The company] put great effort into the sales pitch. Among other things, planning was to be improved, as well as the way we worked. However, most importantly, the organizational issues – getting rid of the foreman [was a priority so that] we [the workers] [would] have more responsibility.

The dominant ideology and asymmetrical power relations explain why organization design managed the control–coordination contradiction through a strategy of *assimilation* (Hargrave and Van de Ven, 2017), in which the control element was not expressed by any significant actors, and the tension between the two elements was not engaged with explicitly.

Outcomes and new issues. After the foremen had been removed, authority and accountability for performance resided with a position called area manager. The area managers' control span was about five times that of the foreman: they usually oversaw around 40 people, but some area managers had as many as 70 direct subordinates. Area managers worked only during the day, spending most of their time planning, reporting and doing other "paperwork". In the evenings, and during nights and weekends, workers ran the plants in the absence of any formal manager.

The new organizational blueprint introduced a new role called "first operator". Despite extensive standardization, organization designers recognized the need for a dedicated coordinating role among operators, as technical deviations and small operational emergencies would inevitably occur, requiring someone to coordinate actions rapidly. Typically, one first operator was assigned to each small work area, where a group of workers worked face to face. Depending on the physical plant layout and the nature of the tasks, the ratio of first operators to regular operators varied between 1:7 and 3:8 in the sample of departments. According to the formal role description, first operators were expected to lead meetings, convey information from management, take special care of apprentices, and generally ensure "the uniform performance of work". Despite these significant responsibilities, it was also stressed that the first operators were not supervisors: they should not be an intermediary between the area manager and the workers; they were not accountable for their fellow workers' performance nor vested with authority over them. First operators were members of the blue-collar union, which demanded only a small wage premium for these workers. Table 2 summarizes and compares the role descriptions for foremen, area managers and first operators.

At the plants, employees generally considered the first operator role to be ill defined. Frequently, first operators were described using wordplays and metaphors of paradox, such as "first among equals", "quasi-foremen", "mini bosses" and "leaders without responsibilities".

The ambiguity of the first-operator role would become a resource when shop-floor employees engaged in reconstructing hierarchy within the anti-hierarchical framework of the restructuring.

Phase II: Contradiction management on the shop floor

Actors and interpretations. On the shop floor, the key actors were the workers and middle managers. Workers' interpretations combined three frames of reference: the official ideology, the nature of their work environment and norms of collegial behaviour. When asked directly, very few workers preferred a return to the supposedly autocratic foreman system. Still, they recognized that the foremen had indeed performed important coordinating functions. Most importantly, the foremen used to have "full overview", preventing inconsistent decision-making across the workstations. In a noisy environment where workers were often physically far away from each other, workers signalled a strong preference for having one person "in charge" to coordinate information flows and discover production deviations. Hence, they were willing to grant decision-making authority to individuals as long as these individuals had the necessary practical experience and technical skills, and, importantly, exercised authority within norms of collegial behaviour. The latter implied that they should not "behave like a foreman"; that is, not take (too much) pride in the status difference and not "point fingers" on behalf of management. As such, workers saw having informal supervisors as beneficial as long as the locus of authority and accountability rested with the work group (see Barker, 1993, p. 428).

While workers' interpretations affirmed only the importance of coordination, middle managers' affirmed the necessity of control as well. The control element showed through their emphasis on (a lack of) accountability. Middle managers were accountable for the self-managing workers' performance, but only had limited opportunities to intervene in these employees' work. Middle managers explained that they had no representatives among the self-managing workers, no one to whom they could "make real demands" or "hold responsible for poor performance". These assertions echoed concerns voiced by the foreman union in the initial phase of the restructuring, but middle managers reasoned that reinstating accountable supervisors was not a feasible option in the company's political and ideological climate.

Power distribution and contradiction management. The restructuring had left a relatively symmetrical power distribution between workers and middle managers. The latter held formal authority and controlled resource allocation, but their power was circumscribed as workers in practice ran the operations, and the official ideology stressed self-management. This led middle managers to adopt a pragmatic strategy in trying to find some mutual accommodation with the workers. Hence, workers and middle managers engaged in what Hargrave and Van de Ven (2017, p. 331) labelled a *mutual adjustment* strategy of contradiction management, "a range of negotiating tactics […] which can produce mutually satisfactory but not necessarily mutually advantageous outcomes".

Mutual adjustment was carried out by exploiting the ambiguous status of the first operator. Selecting a supervisory interpretation of the first-operator role was beneficial to both parties. For workers, it was reasonable to load coordination responsibilities onto a position with (modestly) superior status and pay. For middle managers, the gains were threefold. First, they

would know who the informal shop-floor coordinators were and whom they could use as intermediates. Second, they could exploit the status and pay difference to put additional informal demands on the first operators in an attempt to recreate relations of upward accountability. Third, they controlled who were appointed as first operators, and could choose workers with pro-managerial attitudes. In sum, an informal supervisor of their choosing was preferable to non-transparent, distributed decision making within the work units.

The mutual adjustment strategy was successfully operationalized when there was a single first operator within the shifts who accepted workers' and middle managers' expectations of becoming an informal manager. This outcome is labelled *first operator as supervisor*. When there were several first operators within each shift, the informal reconstruction of hierarchical supervision stalled. This outcome is labelled *muddling-through supervision*.

Outcome 1: Muddling-through supervision. The key problematic issue in departments 1B, 2B and 3A was that each shift had more than one first operator position. All first operators were empowered from below, having the support of the workers within their sub-areas. As a result, coordination suffered when these first operators made inconsistent decisions and fought over resources within the shifts. Control also suffered, as non-transparent decision-making made it difficult for middle managers to hold anyone accountable for performance.

Department 2B exemplifies the discontent. Here, there were three first operators within one eight-person shift. Quotes from two first operators are illustrative:

> A recurrent theme among us is that there are too many roles among few persons. It would have been great if the structure was trimmed down. Then it would have been more stimulating for the person having the [first operator] role… Having more responsibility, feeling that they actually contributed in their role, not just accepting additional money.

> Three people deciding instead of one – I don't like it. We are only seven people, right? […] Three people see three different [sub-] arenas. It would be far easier [to coordinate] if someone could see all areas and organize them properly.

In department 1B restructuring was underway, reducing the number of first operators within a shift to one. Why was this not the case in departments 2B and 3A? Although middle managers – like their peers elsewhere – acknowledged the coordination and control challenges, they considered the departments' performance to be sufficient. Applying the lean production tools had significantly boosted performance. Reducing the number of first operators would imply that some employees had lost their first-operator status and extra pay, potentially leading to conflicts. Hence, middle managers lacked a strong incentive to restructure and to take on potential HRM issues.

Outcome 2: First operator as supervisor. In this pattern, there was only one first operator per shift. Departments 1A and 2A were simply too small to have more than one. 1D had recently reduced the number of first operators, being dissatisfied with the muddled pattern. In 1C and 3B, middle managers had anticipated control and coordination issues, and decided to post only

one first operator position in the initial restructuring, going against the formal organizational blueprint. The area manager in 1C explained the reasoning behind this:

> To me, the first operator is some sort of leader – he has full operational control with support from his area manager. […] If we were to organize according to the LPS, we would have ten [*sic* – an exaggeration] first operators! […] We realized that wouldn't work. […] In my opinion, our model does not fragment responsibilities.

Workers in 1C agreed with their manager quoted above. In a group interview, they mocked how the LPS assigned non-supervisory status to first operators.

> Operator 1: You know; the first operators are not responsible for their [teams' performance].
>
> Operator 2: On paper!
>
> Operator 1: On paper, right, they aren't. That's only because [the company] avoids increasing their wages. Nevertheless, they are responsible […]; they simply can't avoid it.

Finally, the shift's first operator was largely content with his informal responsibilities:

> We have a very nice organization, where I work. Only one first operator among seven men. Over there, we run operations quite independently. […] I think of myself as a working foreman. […] I'm involved in everything. I feel that, when at work, this [department] is my house. […] I [make sure] that people wear protective equipment and follow procedures. I'm responsible for my team, obviously.

The first-operator-as-supervisor outcome largely resolved workers' concerns regarding coordination by making one person "in charge". To middle managers it was an improvement over the muddled pattern. However, to their dissatisfaction, it failed to re-establish stable relations of upward accountability, as the informal arrangements made first operators' authority premised on workers' continued acceptance. If first operators transgressed norms of "not behaving like a foreman", or tried to enforce decisions contrary to workers' interest, their authority would be easily retracted. Hence, they could not be relied on to put pressure on their peers to rationalize production and improve performance. Middle managers informally encouraged first operators to "behave as leaders", but in practice had no sanctions if the first operators did not comply. The following quote from a department manager (level 2), responsible for several areas, is illustrative:

> I think [the first operators] have difficulties thinking of themselves as leaders. Of course, there are important individual variations, but I believe this is one of our main challenges. Perhaps we have been too soft on first operators, who have taken on a role without knowing what is expected from them or [may] not have been capable [of filling their role] properly.

This assessment downright contradicts the first operators' self-description as leaders. The discrepancy indicates an unresolved struggle over the locus of authority and accountability. For middle managers, a leader was someone who was upwardly accountable; first operators remained well aware that their accountability was primarily downward.

How first operators walked the fine line between expectations of "being in charge" and not "behaving like foremen" is illustrated by the practice of "systematic work observation", a lean production tool aimed at improving standard operating procedures. Here, the prescribed practice was that the first operator should observe the task execution of a worker, and write a report stating any deviations and providing improvement suggestions. When performing observations, first operators would indeed correct workers' task execution – and discipline them if mistakes were due to negligence – but they never stated deviations in the formal reports. In this way, first operators contributed to coordination by preventing technical deviations, while protecting the workers from potential disciplinary action. Reporting rather than correcting a deviation would go against collegial norms and undermine the first operators' authority.

A new contested issue was first operators' pay. Wage scales were negotiated centrally, and the blue-collar union was content with only a small premium for first operators. An LPS coordinator and former union representative (plant 3) outlined the union's view:

> So perhaps there could be a somewhat higher [premium], but not [as] much [as area managers would like]. If it's big, then "BANG", and the foremen are back again. We have explicitly said: we don't want foremen, [but rather] self-managing teams.

The quote demonstrates that the question of compensation had great symbolic significance, as it apparently put the whole restructuring at stake. According to this logic, a "high premium" would mean formally recognizing the first operators as managers. They would then no longer be workers, and the teams would no longer be self-managing. Within the same frame of reference, middle managers were calling for the opposite:

> If you ask me, I would love to raise [first operators'] wages substantially. It would pay off immediately. We could have demanded much more of them. […] I would like to emphasize the difference between an operator and a first operator much more strongly – today, we have this quasi-arrangement. […] I would like to see real leaders, because then I could tell them "this is not good enough; you need to take actions". (Area manager, 2A)

First operators themselves stated more mundane reasons why their wage premium was seen as inadequate: they had to endure a tougher workload, longer working hours due to coordination with outgoing and incoming shifts, and the emotional burden of "not being able to leave work behind when you go home". Several first operators also pointed to a lack of fairness because first operators were paid equally across departments and plants, independently of their real (albeit informal) responsibilities. These concerns reflected the discrepancies between first operators' formal and informal status: when the first operators did take care of coordination, the company did not properly acknowledge and reward their efforts.

Discussion

This study advances understanding of the sustainability of less-hierarchical organizing. Since removing lower-level managerial positions and decentralizing authority to front-line staff is widely considered to be a progressive organizational move (Lee and Edmondson, 2017), the findings speak to multiple streams of literature on organization design and change. Examples of such literature are socio-technical design (e.g. Ingvaldsen and Rolfsen, 2012), high-performance work systems (e.g. Boxall and Macky, 2009), employee-driven innovation (e.g. Kesting and Ulhøi, 2010) and post-bureaucratic organizing (e.g. Höpfl, 2006). Despite their differences, these streams of research are all committed to the idea that hierarchical management and employee self-management are substitutes for one another. A key message from this study is that the idea of substitution erroneously frames the problem of eschewing hierarchy, and should be replaced by an appreciation that the control–coordination contradiction is the key issue that must be dealt with in such restructuring. Putting the control–coordination contradiction centre stage, this article highlights mechanisms that have been previously unacknowledged or underestimated in the literature.

Upward and downward pressures for hierarchy

In the case company considered in this study, the informal reconstruction of hierarchical supervision was driven by its appeal to both workers and middle managers. Hence, there were both upward and downward pressures for hierarchy reconstruction. For workers, it was a matter of coordination. The reasons they gave for empowering an informal supervisor resonate with contingency theory: hierarchical decision-making is effective for coordinating operational processes characterized by task uncertainty or tight coupling (Collins and Hull, 1986; Ingvaldsen and Benders, 2016). Corroborating the findings of Barker (1993, pp. 428–429), workers had no issue with hierarchy as such, as long as the locus of authority rested within the group. These findings also support Adler's (2012) argument that although workers often object to hierarchy as an instrument of control, they may embrace hierarchy as an instrument of coordination. In this light, the uncompromising stance against hierarchy adopted by some scholars of work humanization and workplace democracy (see Johnson, 2006) seems unwarranted.

For middle managers, reconstructing hierarchy was a matter of achieving coordination *and* control. They were put in a situation where they were accountable for the performance of a unit that was nominally organized non-hierarchically, but lacked the means to hold individual subordinates accountable for performance. This finding suggests a structural grounding of the conventional argument that middle managers resist movements away from hierarchy because they lose power to workers (e.g. Batt, 2004; Lee and Edmondson, 2017). The loss of power may be psychologically and politically unwanted as such, but more fundamentally, it creates a mismatch between middle managers' own upward accountability and their ability to influence performance.

As Wallace (2008) showed, poor performance is likely to accentuate downward pressures for the reconstruction of hierarchy, as it allows managers to "regain control of

production" (p. 117). Conversely, strong performance makes poor accountability more acceptable, as it is unlikely to capture managers' attention as a problem that needs to be solved immediately (Cyert and March, 1963). Furthermore, the wider system for control and coordination within organizations likely influences how strong these pressures for reconstructing hierarchy are. Although the exact relationships remain to be explored, for instance through the concepts of complementary and substitutive practices (Grabner and Moers, 2013), it is reasonable to expect that downward pressures are moderated by the presence of technical, bureaucratic and normative controls, helping managers to administer a broader span of control (Callaghan and Thompson, 2001). Inducing peer pressure through collective accountability – for instance, by offering and withholding team bonuses – may also mitigate the pressures. Still, these alternative forms of control remain imperfect substitutes for individual relationships of accountability (Jaques, 1990). Collective accountability may be counteracted by collegial norms preventing peer pressure, and impersonal control systems are open to manipulation (Ackroyd and Thompson, 1999).

It is noteworthy that the upward and downward pressures for reconstructing hierarchy make no reference to psychological resistance to change, which has been frequently evoked to explain the perceived failure or unintended consequences of organizational changes (Dent and Goldberg, 1999). Although such mechanisms may have played a part in the case organization as well, the preferences and actions of both workers and managers appear to be rational responses to the issues created by the formal restructuring.

The informal reconstruction of hierarchy came about when upward and downward pressures converged on individuals willing to accept roles as informal managers. In the case, the reconstruction depended on the availability of a formal role to empower that was already endowed with quasi-supervisory status. This raises the interesting question of what would happen if all workers formally had equal status. Would it prevent the reconstruction of hierarchy, or would workers and middle managers exploit sources of informal status (e.g. seniority, skill, personal qualities) to agree on which candidates to empower?

Informal hierarchy in the shadow of less-hierarchical organizing

The anti-hierarchical ideology in the case firm meant that efforts to reconstruct relations of authority and accountability were relegated to the domain of informal organizing. This created tensions between formal and informal organizing, which explains why the outcomes were contested. In the muddling-through-supervision pattern, the formal organization stalled the emergence of desirable informal solutions. Alternatively, in the first-operator-as-supervisor pattern, the formal and informal organization became inconsistent, and the wider organizational system misaligned. First operators' complaints about compensation illustrate a point made by Gulati and Puranam (2009, pp. 430–431): that under conditions of organizational misalignment, "employees miss out on the chance of being rewarded by the formal organization for doing what they would (largely) do anyway in response to the pressures of the informal organization".

Furthermore, in both patterns, the accountability issue remained unresolved. Since the formal organization design shifted the power distribution between managers and workers in

favour of workers, the power to empower informal supervisors rested with the workers, making first operators downwardly accountable. Their authority was retracted if they engaged in managerial control. To middle managers, having informal supervisors was an improvement over having no supervisors. Still, relations of upward accountability became impossible to recreate, which explains these managers' dissatisfaction. In this light, even the first-operator-as-supervisor outcome appears unstable; a shift in company-wide power distribution or poor plant performance would fuel the struggles over first operators' accountability and possibly give middle managers leverage to reinstall formal supervisors.

With respect to generalizability of findings, the conditions creating upward and downward pressures for hierarchy will likely be present in most organizations, albeit to varying intensity. Increasingly interdependent labour processes are characteristic of contemporary work (Delbridge, 2007), creating needs for coordinating roles, wherein employees are willing to delegate authority. Middle managers will also need to hold individual subordinates accountable by virtue of their own accountability to higher managers (Munro and Hatherly, 1993). In addition, there are reasons to believe that efforts to eschew hierarchy will rely on similar strategies to manage the control–coordination contradiction in organization design. Content-wise, the case company's anti-hierarchical ideology was nothing but a strong version of contemporary mainstream arguments in favour of less-hierarchical organizing. Its failure to engage with the necessity of managerial control is shared with most literature on less-hierarchical organizing (e.g. Bernstein *et al.*, 2016; Evans and Davis, 2005; Lüscher and Lewis, 2008; Walton, 1985). Furthermore, organization concepts informing less-hierarchical organizing, such as sociotechnical design (Ingvaldsen and Rolfsen, 2012), agile teamwork (Hodgson and Briand, 2013) and holocracy (Bernstein *et al.*, 2016), are mute on management's need to control labour. It is likely that organization designers will rely on the idea of substituting self-management for hierarchical management, triggering similar dynamics to the ones explored in this study.

It is also noteworthy that the pressures for hierarchy reconstruction were strong even in an industrial relations context, which is highly favourable for less-hierarchical organization (see Rolfsen, 2011). Top management and the blue-collar labour union were both in favour of eschewing hierarchy, and actively collaborated to make the changes happened. Such union–management partnerships are generally seen as conductive to alternative forms of work organization (Ichniowski *et al.*, 2000; Shaiken *et al.*, 1997). In other contexts, where either unions are weak or union–management relations are conflictual, less-hierarchical organizing may be even more fragile, or never put into place.

Limitations and future research directions

The research design in this study is subject to two important limitations. Most of the data are cross-sectional. Future iterations of contradiction management may make the outcomes more acceptable to workers and middle managers. Furthermore, the five-year period covered retrospectively in the empirical material may be insufficient to overcome an organizational form with a centuries-long history. The other main limitation is that the article does not explore how developments on the shop floor feed back to organization design. When that eventually

happens, the key actors from the first phase of the restructuring, and their interpretative frames, again become central. Will the shop-floor outcomes lead them to abandon their enthusiasm for eschewing hierarchy? Will their prior commitments intensify their efforts to make the change work, perhaps leading to organizational innovations?

Future research on the sustainability of less-hierarchical organizing should preferably be longitudinal to overcome these limitations. Management of the control–coordination contradiction is path dependent, and cuts across layers of analysis. Ideally, the research design should cover full cycles of organization design, shop-floor adjustments and organization (re-)design. Organization changes, whether accommodating or undermining movements away from hierarchy, take time. The success or sustainability of such initiatives should not be judged too early (Hughes, 2011). Issues with hierarchy will lead to calls for less hierarchy, and issues with less hierarchy will lead to calls for bringing hierarchy back.

Beyond the topic of less hierarchy, the research approach may also inspire future studies into how fundamental contradictions of the managerial bureaucracy (Adler, 2012) play out in organizations. By making managing the control–coordination contradiction a "motor of change" (Pettigrew, 1987), this article connects Adler's (2012) abstract model with the concrete analysis of how employees' agency produces organizational outcomes (Vallas, 2006). Such an approach explores short- and medium-term outcomes of organization change, and thus complements static organizational typologies (Adler and Borys, 1996) and bolder, long-term predictions about the transformation of workplace relations (Adler, 2015). It shows how different groups of stakeholders (top managers, middle managers, workers, organizational designers and possibly others) experience and approach the basic contradiction differently, making outcomes structurally conditioned yet not structurally determined. In addition to hierarchy, the approach may be applied to several organizational phenomena that reflect the dual nature of control and coordination; for example, formalization/red-tape (Bozeman and Feeny, 2011), teamworking (Procter and Radnor, 2014), continuous improvement (Benders *et al.*, 2019a) or rationalization programmes (Kilskar *et al.*, 2018).

Conclusion

Less-hierarchical organizing is receiving renewed attention from scholars and practitioners alike. One main approach to eschew hierarchy is to remove lower-level managerial positions and decentralize authority to front-line staff. This study has identified mechanisms and conditions that undermine the sustainability of such an approach.

To avoid the problematic issues identified in this article, organizations aiming for less hierarchy may explore other approaches to change. One option is to depart *radically* from hierarchy in organization design, to create what Lee and Edmondson (2017, p. 39) call "self-managing organizations", which altogether "eliminate the hierarchical reporting relationship between manager and subordinate". Such approaches would likely require an equally radical approach to employment – for instance, worker cooperatives or extensive worker co-ownership – to overcome the antagonistic character of the control function. Nevertheless, upward pressures

for hierarchy reconstruction may be salient if employees prefer coordinating roles or someone to discipline individuals who fail to comply with norm and rules (Barker, 1993).

A second, more pragmatic option is to reform relations of authority and accountability within the framework of the Weberian monocratic hierarchy. Removing hierarchical positions is not necessarily the cure for autocratic managers (Adler, 1999). Although the control–coordination contradiction cannot be resolved synergistically, organization design may at least acknowledge the contradiction and reflect on ways of constructing positions of authority and accountability that are endorsed from both above and below (Adler, 2012; Lammers, 1993). This might be supported by extensive direct and indirect employee participation in management and staffing decisions (e.g. Rubinstein, 2000), or through other procedures to systematically balance upward and downward influences in decision making (e.g. Romme and van Witteloostuijn, 1999). As a supplement, employees occupying contradictory positions could be rewarded appropriately, trained as leaders and helped to develop the skills necessary to handle complexities and work through tensions (Hales, 2006; Lüscher and Lewis, 2008). Thereby, supervisors, and other middle managers may learn to perform their roles in enabling rather than coercive ways (Adler and Borys, 1996), which may be more feasible and effective than eliminating their positions.

Acknowledgments

This research was supported by The Research Council of Norway. We are grateful to our colleagues Eivind Falkum, Aina L. Hagen, Halvor Holtskog and Geir Ringen for their contribution to research design, data collection and preliminary data analysis.

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Table 1: Overview of informants

	Plant 1	**Plant 2**	**Plant 3**
Total number of employees (approximations)	550	160	850
Plant top managers*	2	1	3
LPS facilitators	1	1	2
Plant union representatives	1	1	-
Middle managers**	7	6	5
First operators	7	3	5
Operators	7	4	3
Total	25	16	18

* Includes plant manager (level 3), HR manager, and quality manager.
** Includes department managers (level 2), area managers (level 1), and technical managers.

Table 2: Role descriptions for foremen, area managers, and first operators

Role	**Foreman**	**Area manager**	**First operator**
Control span	5–12	30–70	1–7*
Authority	Managerial	Managerial	None
Accountability	Full accountability for performance	Full accountability for performance	None
Nature of work	Direct work and administrative work. Follows shift system.	Administrative work. Does not follow shift system, works daytime.	Direct work and resolution of deviations. Follows shift system.
Unionization	Union for lower functionaries.	None**	Blue collar
Changes following restructuring	Position removed	Control span extended	Position created

* As non-mangers, the first operators formally had no control span.

** Possibly union for engineers if holding a technical degree.

Table 3: Team sizes, technical characteristics, and patterns of supervision

Plant	Department	Team size	Technical characteristics	Pattern of supervision
1	1 A	3	Mechanical and chemical processes. Highly automated. Highly repetitive. Large batches. Low product range.	First operator as supervisor
	1 B	8	Chemical processes. Highly automated. Highly repetitive. Large batches. Low product range.	Muddling-through supervision
	1 C	7	Mechanical. Relatively labour intensive. Highly repetitive. Small batches. Low product range.	First operator as supervisor
	1 D	12	Chemical processes. Highly automated. Highly repetitive. Large batches. Moderate product range.	First operator as supervisor
2	2 A	5	Mechanical. Relatively labour intensive. Highly repetitive. Small batches. Low product range.	First operator as supervisor
	2 B	8	Chemical processes. Highly automated. Highly repetitive. Low product range.	Muddling-through supervision
3	3 A	12	Chemical process. Highly automated. Highly repetitive. Large batches. Moderate product range.	Muddling-through supervision
	3 B	7	Mechanical. Relatively labour intensive. Highly repetitive. Small batches. Low product range.	First operator as supervisor