

# The Materiality of Sensemaking

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## Abstract

Two influential perspectives in organizational studies that focus on different aspects of enabling, constraining, and forming organizational action are the notion of sensemaking and the influence of material objects on organizational functioning. This paper explores the coupling of these two perspectives, which often are seen as opposite. Based on evidence from two case studies, we argue that these perspectives, taken together, unlock a deeper understanding of the processes that unfold in organizations and call attention to *the materiality of sensemaking* as important to understanding organizations.

**Key words:** Sensemaking, materiality, technology, architecture, workplace design

If people have multiple identities and deal with multiple realities, why should we expect them to be ontological purists? (Weick 1995: 35)

Weick's theory clearly refers to cognitive processes, a characterization of the theory as 'purely cognitive' calls for a closer reading. If this characterization should prove to be correct, it could marginalize the approach in relation to recent developments in organization studies.

*Sensemaking* is a key word for a perspective that focuses on an important set of activities in organizational settings, by emphasizing the fundamental role of the actions in organizations that construct meaning or make sense of situations (Weick 1995). The perspective is attractive due to its rich set of applications in organizational life, and through links to other key processes in organizations, such as learning and identity construction. Further, as an inherently social and process-oriented approach that gives attention to micro-processes as well as ephemeral phenomena, the sensemaking perspective has obvious affinities with recent interpretive and narrative approaches in organization studies.

In this article, we argue that materiality matters in sensemaking - it is misleading to conceive of the organization in purely cognitive or mentalist terms. Specifically, we contend that:

- o Sensemaking processes are anchored in and engage with material settings.
- o There is ample evidence that Weick's formulation of sensemaking is not purely cognitive
- o The understanding of sensemaking processes gains from an even closer involvement with theories of materiality.
- o The sensemaking perspective gives important insights to design studies

In this article, we explore one critical reflection on the current sensemaking literature: the idea that sensemaking is purely cognitive or mentalist, as expressed by Kornberger and Clegg (2003: 76): 'We challenge the current fashion for the purely cognitive conceptualisation of various processes usually identified as the driving forces behind organizations (of which Weick, 1995 is the most sophisticated).' While

This article contributes to the emergent trend in organization studies that recognizes and emphasizes the materiality and corporeality of organizations and societies, which can be understood as thinking, working, and collaborating bodies within buildings, among technologies and art, together with a myriad of other artefacts, which all are interwoven in an equally complex, material society (cf. Hatch 1997; Becker 2004; Gagliardi 1996; Gieryn 2002; Law 1993; Strati 1999).

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In the following sections, we review perspectives on materiality in the organizational literature, examine sensemaking, and explore tensions in Weick's work that leave open possibilities for including material contexts in sensemaking processes. We use case studies to support our argument for materiality as an important element of sensemaking, and the article concludes with implications for scholarship and practice.

### Immateriality and Organization Studies

In organization studies, materiality has a fairly marginal position, since organization studies - and the very concept of 'organization' - have been developed through an abstraction from the physical. An instructive moment in this process of 'immaterialization' is found in the writing of Chester Barnard. Barnard (1968, originally 1938) acknowledged the importance of materiality, when stating: 'An inspection of the concrete operations of any coöperative shows at once that the physical environment is an inseparable part of it'. In his efforts to develop a theory of 'formal organizations', however, Barnard reserved the term 'organization' for 'that part of the coöperative system from which physical environment has been abstracted' (Barnard 1968: 67). Barnard further argued for the analytic abstraction of organization members from the general approach to organization studies: '[I]f persons are to be included within the concept of 'organization', its general significance will be quite limited' (Barnard 1968: 72).

Organization studies have followed the path that Barnard outlined, and it can be argued that one source of the field's success has been this abstraction and the institutionalisation of the term 'organization' as a broad, general term, abstracted from the specificities of individual organizations (cf. Røvik 1998). Organization studies scholars have aligned their efforts to examine the individual in virtual work settings with a traditional organizational studies gestalt, often foregrounding cognition and largely ignoring the worker's embodied nature and the material aspects of accomplishing work. The

prominence of this dematerialised perspective can be found in any organization studies textbook, especially in the glossary, where such terms as status, power, promotions, and recruitment are defined, and in the organization charts that map authority and formal communications channels. The recent interest in narratives, interpretations, and sensemaking fit well into this broad picture, where materiality is neglected or tacitly implied.

This line of studies is challenged along at least three lines: a) studies of organizational members' corporeality (cf. Shilling 2005); b) studies of organizations as material and spatial systems (cf. Hatch 1997; Gieryn 2002); and c) studies of technologies in organizations (cf. Hatch 1997; Law 1994).

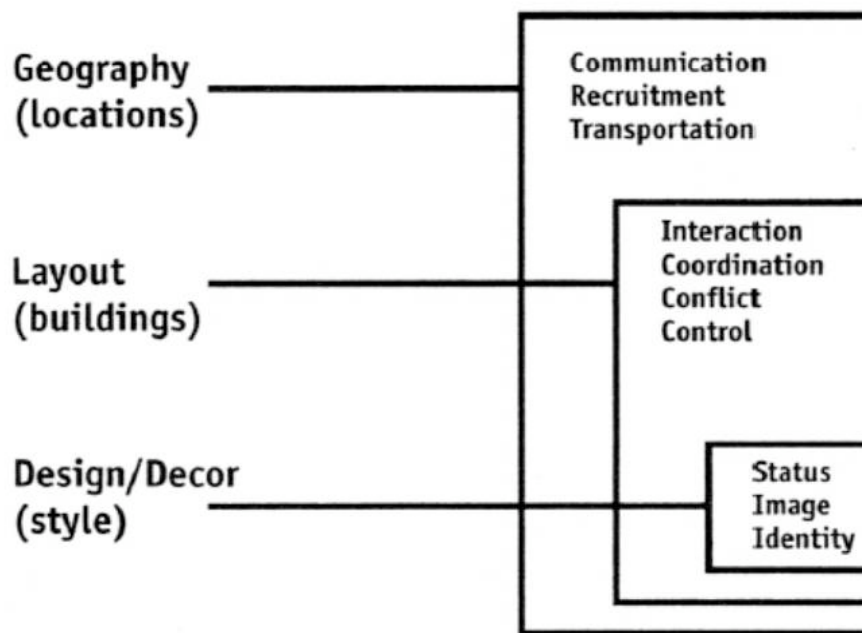
a) Studies of the corporeality of organization members insist on understanding 'human embodiment as a *multidimensional medium for the constitution of society*' (Shilling 2005: 24, italics in original). Several theorists have acknowledged that one 'takes the body to work' (cf. Barry and Hazen, 1996) and studied the embodiment of work practices, thereby criticizing traditional distinctions, such as action-structure and theory-practice (Hassard et al. 2000). Following the inspiration of Mauss (techniques of the body, 1979), Foucault (disciplinary practices, 1979), and Bourdieu (habitus, 1989), one finds studies of the work of the body in the origin of modernity (Rabinbach 1992), and the role of chairs in the techniques of sitting correctly (Tenner 2003).

An influential area of research has focussed on the gendering of organizations, analysing the genesis and functioning of work organizations (cf. Kwolek-Folland 1994; Alvesson and Billing 1997; Webster 1996). Gagliardi (1996) highlighted the influence of physical setting in cultivating human senses, and Fineman (1996) elaborated the role of emotions in organizations, following up on Hochschild's (1983) study of emotion work, and Goffman's (1971) studies of face work and the presentation of self in organizations.

b) The second perspective employed to unlock organizational life focuses on the spatiality and materiality of organizations. This perspective asserts that organizational activities are located in space, aided by buildings and technologies, and engaged in place-making activities. Organizational spaces are not empty containers for work; they influence what is going on inside, although not in a deterministic way. There have been important historical developments (Pelegriin-Genel 1996) and national differences (van Meel 2000) in workplace design, showing how functionality, power, and status have been interpreted and materialized in the last century. In addition,

studies of the personalization of workplaces clearly have demonstrated an urge for making places one's own (Jones 1996). Placemaking is not confined to singular office buildings, however. Organizations are, through their activities and their members, acting and enacting over larger territories - in 'networks of social relations and understandings, [...] where a large proportion of those relations, experiences and understandings are constructed on a far larger scale than what we happen to define for that moment as the place itself' (Massey 1997: 322). This becomes even more obvious in cases of mobile and distributed work, where both the work and workers are literally dispersed over large areas.

**Fig. 1: Physical structure, and links to organizational issues (from Hatch, 1997)**



Mary Jo Hatch (1997) has developed a fairly comprehensive conceptual map that conveys the physical structure's role in organizational functioning, addressing *geography*, *layout*, and *design* as three main aspects (see Fig. 1).

In a similar way, Gagliardi argued that *artefacts* have impact and importance because they make materially possible, help,

hinder, or even prescribe organizational action, and they influence our perception of reality 'to the point of subtly shaping beliefs, norms and cultural values' Gagliardi (1996: 568). Jones (1996) addressed 'material behavior' - such as the personal decoration of work areas, whereas Gieryn (2002) asserted that *buildings* stabilize social life, and that '[th]ey give structure to social institutions, durability to social networks, [and] persistence

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to behavior patterns'. At the same time, he argued that people flexibly interpret and

c) Studies of the role of technologies in organizations have been another important source for understanding organizations as material, although this perspective is more ambiguous than the others. There has been a strong tradition in organization studies to assess the role of production technologies for organizational functions, such as the Tavistock Institute's research on socio-technical systems and analyses of how the complexity of technological systems influence the routine character of work (see the survey in Thompson 1983; Hatch 1997).

Since the 1990s, a counter-trend also has emerged; this trend acknowledges the materiality of work by focusing on (or some would say hype about) the immaterial or the virtual in organizational life. This trend was inspired by a proliferation of information and communication technologies and a series of publications from a diverse strand of futurologists. This trend is embodied in such titles as *The death of distance*, *The weightless economy*, *The immaterial society*, and *The digital nomad* (Cairncross 1997; Coyle 1998; Diani 1992; Makimoto and Manners 1997).

A different line of reasoning has made technologies and other artefacts a core theme in (social) studies, arguing that technologies are socially constructed (Bijker et al. 1987) and that actor networks of humans and non-humans, such as devices, texts, and institutions, together organize activities and enact outcomes (cf. Law 1994), as it is argued that materiality stabilizes activities: 'Technology is society made durable' (Latour 1991: 103). Despite the increased interest in the materiality, spatiality, and corporeality of organizations in the last decade or so, Pfeffer's (1997: 198) comment that '[t]he effects of physical design on social behaviour remain relatively unexplored in the organization literature and in related social sciences' still seems valid.

### Sensemaking Outlined

reinterpret buildings, walls, floors, and furniture.

The concept of *sensemaking* refers to a set of processes in organizational functioning, whereby employees interpret and enact organizational realities (Weick 1995). Sensemaking is 'about such things as placement of items into frameworks, comprehending, redressing surprise, constructing meaning, interacting in pursuit of mutual understanding, and patterning' (Weick 1995: 6); thus sensemaking is closely related to storytelling and the narrative approach in organization studies (Czarniawska 1999).

Weick argued that sensemaking is taking place all the time. A high degree of uncertainty and interruptions, such as 'discrepant events, or surprises', trigger sensemaking processes and bring them to the forefront of organizational behaviour. Material events often anchor these events and surprises (cf. Weick 1991). Weick also emphasised the constructive and enacting aspects of sensemaking; for example, he argued that the related process of *interpretation* is but a part of sensemaking because '[s]ensemaking is about authoring as well as reading' (Weick 1995: 7); when people engage in sensemaking, they are creating the environment as they interpret it. This process is grounded in individual lived experiences and social interactions.

Workers' individual sensemaking activities, including interpretations and enactments, represent either movement towards reifying existing structures and social systems or transforming an organization into something different than what it was (Berger and Luckmann 1966). Weick (2000: 223) suggested that workers' front-line activities are central to organizational change enactment, forming the infrastructure 'that determines whether planned episodic change will succeed or fail'.

Weick (1995) also described the sensemaking process as having seven characteristics. First, he anchors sensemaking in identity

maintenance saying the process is linked to maintaining a self that is learned and formed through social interaction. Sensemaking may evoke interpretations of self or of that one both reacts to and shapes.. Second, Weick notes that sensemaking is retrospective. As such, explanations follow actions. Third, sensemaking in action creates the social reality which subsequently individuals rely upon to make sense of events. Weick's fourth characteristic is the social nature of sensemaking aligned with a symbolic interactionist perspectives of identity (e.g. Mead). In the fifth element of sensemaking - what Weick labels "bracketin" the process of sensemaking is seen to be parsed by individual's who 'chop moments out of continuous flows' (p. 43). In this bracketing, certain cues are noticed that provide cohesion for sensemaking regarding certain events, although the entire process continues to unfold through time. Extracted cues selected and bracketed from the ongoing process focus individual's sensemaking - this is Weick's sixth aspect of sensemaking. Plausibility, rather than accuracy, drives the sensemaking process in the seventh characteristic in Weick's formulation.

Sensemaking may be seen as a sensitizing concept (van den Hoonaard 1997) because Weick identified it as 'a developing set of ideas with explanatory possibilities, rather than as a body of knowledge' (Weick 1995: xi), nevertheless he argued that sensemaking is not to be understood as a metaphor: 'Sensemaking is what it says it is, namely making something sensible. Sensemaking is to be understood literally, not metaphorically' (Weick 1995: 16).

### **Literature about Sensemaking in Organizations**

Much of the literature on sensemaking since Weick's (1979) early work has taken a cognitive, or mentalistic view of the process, focusing on individual thoughts, problem-solving, and equivocality reduction (see, for example, Gioia & Thomas 1996; Ogawa 1991; Louis, 1980). This derives from the notion

proffered by Weick (1979) that organizations are bodies of thought; thinkers and thinking practices are foundational to his proposition in *The Social Psychology of Organizing*. Viewing sensemaking as an individual cognitive achievement, memory, recall, and consciousness are important, along with categorizing patterns of thought through cause maps, scripts, and schemata. The notion of shared experiences as a collective mind, or as reified social structures, also arises from this view.

However, later in in *Sensemaking in Organizations*, Weick (1995) outlined the seven-step process we have outlined as a heuristic, which acknowledged intersubjectivity and language use and left open the possibility for taking perspectives other than the cognitively focused one. We reviewed the relevant literature to highlight three approaches to sensemaking: cognitive, intersubjective, and communicative. We build our arguments upon these emerging approaches to sensemaking. However, it may be useful to retain the strong processual orientation from Weick's earlier work: As Hernes (2004) observed, although Weick (1979) wanted to obliterate the word 'organization' and replace it with the verb 'organize', the title of his major tome on sensemaking is "Sensemaking in *Organizations*" (italics added), thereby ascribing a sense of permanence and finiteness that is somewhat contrary to his earlier work.

### **Sensemaking as an Intersubjective Process**

Examples of the movement away from an individual, cognitive focus of the prevailing stream of sensemaking literature include Drazin, Glynn, and Kazanjian's (1999) analysis of sensemaking and creativity, which focused attention on the usefulness of sensemaking in its capacity to span levels of analysis, and Mills's (2000) study of a frozen food processing plant, which concentrated on the interface between change, sensemaking, and communication. Drazin et

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al. (1999) conceptualized creativity in organizations as a sensemaking process. These authors observed that a multilevel theory can powerfully describe complex organizational processes, saying, 'A process-orientation and sensemaking perspective leads us to contexts that are expansive enough to allow full exploration of multiple and different levels of analysis' (p. 287). Their theoretical argument delineated intrasubjective (individual), intersubjective (between two or more), and collective levels in a process of change that allows for examining creativity as a process. Drazin et al. (1999) described the importance of the interplay between individuals and structure over time and concluded that sensemaking is of the same ilk, saying: 'uncovering such processes and understanding how they shape patterns . is the impetus for our proposing a multi-level sensemaking perspective' (p. 287).

Mills (2000) explicitly noted that communication is constitutive of organizing by demonstrating discourses available to workers in a food processing plant situated individual sensemaking and provided the resources for sensemaking.. In particular, she examined the sensemaking that gives meaning to certain phrases used in the workplace and how those meanings emerge in discourse. Mills research indicated that two factors influence the accessibility of a given discourse for employee sensemaking: the geo-social environment, which provides stability, and the worker's emotional engagement, which provides considerable scope for variability. Her results also showed different patterns in language content which she identified by three elements: labels, anchoring concepts, and themes. In Mill's research labels segmented workplace activities; while anchoring concepts formed the framework for determining the appropriateness of communication in a given situation. Her third concept, themes, conveyed the foundations of accounts through stories and metaphor. Mills positioned her findings, which highlighted the communicative nature of sensemaking, as

a significant departure from prevalent cognitive approaches in the management literature.

## **The Body Absent**

What is notable in both cognitive and communicative (intersubjective) approaches to sensemaking is a lack of attention to the body that houses the thinking mind and interacts with other bodies and material things. Mills (2000) hinted at the influence a material setting has on sensemaking, as it forms boundaries to foster conversations, but did not pursue this line of inquiry. However, Weick (1995) introduced the importance of the body by noting that 'people discover what they think by looking at what they say, how they feel and where they walk' (p. 182) and proffering shared, embodied, experience as important to creating shared meaning, saying, 'if people share anything they share actions, activities, moments of conversation and joint tasks' (p. 188).

Given that the organizations are more than what Weick (1979) described as a body of thinking-thinkers; and are actually a corporeal body of embodied-thinking-thinkers, who are acting and interacting in a spaces that share material artefacts, we point out the lack of attention to materiality in our current understanding of sensemaking. The balance of our paper addresses this missing element in the organizational literature on sensemaking. Transcending cognitive and intersubjective/communicative approaches, we introduce a third way to explore aspects of sensemaking in organizations.

## **Materiality as a Basis for Sensemaking**

Weick's writings on sensemaking can be contrasted with the perspectives on materiality outlined in the previous section. Although there are several instances in Weick's elaboration of the theory that conform to the characterization of the sensemaking perspective as purely cognitive, numerous passages in his work eschew a cognitive framework, as when he acknowledges the

role of 'bricks, mortar, [and] human labour' in the construction of buildings as systems that make these 'fragments sensible' (Weick 1995: 36), and when he, almost programmatically, states 'When people take their interpretations seriously and act on them, the material world may cohere in a different way than before' (Weick 1995: 79).

Weick's description of how interpretations become 'objectified, diffused, and widely internalized into what comes to be called a consensus of what is "out there"' (Weick 1995: 79), and the strong insistence on the social nature of sensemaking activities serves as a counterargument against the characterization of the theory as cognitive in the mentalist sense (although the term 'out there' may be taken to imply a dualistic understanding of world and sensemaking). This is further corroborated in his elaboration of *enactment*, which is based in the theoretical tradition of structuration, where he is acknowledging materiality in a non-dualistic sense (rather, in more of a Hegelian dialectic) as: 'structures are both the medium and the outcome of interaction' (Weick 1990: 18). He also seems to have a relaxed attitude towards ontological purism: 'People who study sensemaking oscillate ontologically because that is what helps them understand the actions of people in everyday life' (Weick 1995: 35).

A recurrent theme in his writings is how material events may *trigger* sensemaking processes. In the oft-cited case study of the Mann Gulch disaster, Weick (1993) reinterpreted a fire disaster as an 'interactive disintegration of role structure and sensemaking' among firemen. Weick cited 'physical evidence of past behaviors', as described in Maclean's original study, as an important source for his reconstruction of the sensemaking processes that took place during the disaster (Weick 1993: 628, 630). In another contribution, Weick addressed sensemaking regarding the role of technologies in production. Here, he argued that new technology, particularly computers, 'create unusual problems in sensemaking' by

functioning 'invisibly' and being difficult to understand. 'Because new technologies are equivocal, they require ongoing structuring and sensemaking if they are to be managed' (Weick 1990: 1,2). This argument relates primarily to the opaqueness of a certain type of technology, an opaqueness that triggers sensemaking processes.

The prospective bringing together of sensemaking and the materiality also finds support in other parts of Weick's writings: Although the material aspects are not brought to the forefront in Weick's studies of sensemaking, his analyses of organizational learning show a more structured approach to the material, for example, when he argued that 'Organizations learn something about their core attributes when they see what they can and what they cannot enact', while addressing the interplay of 'innovation and preservation at the level of the material artifacts themselves' (Weick and Westley 1996: 447).

These examples support the application of the sensemaking perspective for exploring the 'explanatory possibilities' of linking materiality and sensemaking concepts to see whether the material aspects are supported or illuminated. This approach also may be deployed in a more thorough reading of Weick's theory to explore possible tensions between the cognitive perspective and a reading that is more open to exploring the materiality of organizational processes. Nevertheless, the list of fifty-five 'Important resources for organizational sensemaking' (Weick 1995: 65-69) clearly demonstrates that the cognitive aspects are the most elaborated in his writing,

### **Case Studies of Sensemaking in Flexible and Mobile Work**

The argument for coupling the sensemaking and materiality perspectives is substantiated through empirical studies of change and sensemaking processes in organizations. These processes are activated and acutely present with the introduction of flexible

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working practices and where the workplace architecture and information and communications technologies (ICT) support - or even enforce - flexible and mobile ways of working. Flexible and mobile work offers a privileged opportunity to study the interplay between the 'immaterial' or 'virtual' and 'material' aspects of organizations, since mobile and distributed work challenges a common, but usually implied, assumption in organization theory - that of collocation in a common (material) setting, (such as that Mills (2000) found important to bounding sensemaking in her study of frozen food plant workers.)

Flexible and mobile work challenges a number of taken-for-granted assumptions of organization members and organization scholars alike, while highlighting the embodiment of work experiences and the role of the body as both absent and present in flexible and mobile work environments such as designated workplaces, and options for collaborative communication. For example, in a traditional work environment, in order to talk with coworkers, it is customary to physically attempt to find the individual at his/her office. Having no designated individual space, whenever two or more people want to talk, nomadic (mobile or virtual) workers face an array of new choices. First, there is often no designated seating, thus no option to physically go to an individual's place. How people connect when they do wish to physically co-locate may be the a primary challenge virtual or nomadic workers face. Another issue may be when to telephone (e-mail or text) co-workers may be problematic due to a lack of set boundaries regarding expected work hours and the use of mobile telephones for both work and personal calls as well as individual differences in preference and interpretation of various options for communicating.

For examining the link between materiality and sensemaking, technology-enabled flexible work modes (e.g., hot-desking, nomadic work) offer a unique vantage point because workers encounter 'virtual' and traditional

office work options for coordinating activities toward organizational goals: These settings highlight organizational members that are increasingly mobile with organization spaces and material artefacts increasingly loosely defined (favouring open-landscapes and eschewing closed-cell offices). In these settings, sensemaking may be triggered by new options, surprising under traditional (co-located working) rules. Thus, the material nature of organizations, and the individuals' corresponding corporeal, embodied identities, must be reconsidered. The diffusing of organizations also has implications as to whether heretofore fairly clear distinctions (often bounded by physical artefacts and use of space) between 'organizations' and 'society' and between 'work' and 'non-work' can be made.

In research projects on mobile and flexible work, we conducted case studies in two companies, with sensemaking processes emerging as central in both cases. Our ethnographies included on-site observation, along with periodic reflexive interviewing, to elicit participants' experiences and worldviews (Ellis and Berger 2002).

### Case study methodology

The research question we examined was: What is the role of material reality experienced by organizational members in sensemaking processes? In the cases we studied, material changes to the workers' environment were central to how organizational members ascribed meaning to events and processes. Given the importance of uncovering employee interactions and interpretations, qualitative methods were most suitable.

Two organizations in Norway were studied. One of the organizations was experiencing a major transformation in work environment; away from traditional office design and toward open-landscape, "work anywhere, anytime" nomadic work. The other organization was conducting a modest reorganization in a rented space of two floors



in a shared office building, focused on locating functional units in close proximity, but also creating a shared space and linking the two floors. Both authors studied the first organization over an extended period of time during 2002-2004, whereas the second case was studied through the first author's ethnographic work during 2003-2004.

Using classic, in-depth case study methods and multiple sources of data to reach deep insights (Dyer and Gibb 1991; Yin 1994), we examined workplaces and other physical artefacts as evidence and conducted interviews and observation at organizational sites. Data collection consisted of semi-structured interviews, focussing on work activities, what a typical working day looked like, and experiences with the new working environment, as well as surprises and unexpected aspects of the new working day. Notes and transcriptions, along with photographs and field notes to capture the contexts, settings, and physical artefacts that were important to the research questions, supported the interviews and observations.

Of the qualitative methodologies available, ethnographic methods offered the best choice for examining employees' lived experiences during the transitions studied. This is in keeping with Weick's view that sensemaking research requires attention to context, the centrality of participants in generating data, close-in researcher involvement and 'methodologies assembled in the service of gaining access to the situated generation of some kind of explanation of unexpected interruptions' (Weick 1995: 173). The themes that emerged from multiple reviews of the data were the basis for our analysis, following a grounded-theory approach (cf. Bean 2002).

### Case One

The organization examined as Case One had conducted a major reorganization, with the construction of a new corporate headquarters and the reassignment of the different units within the region, concentrating

the operations from more than forty physical addresses to one. Further, there was a radical reorientation in the architecture and the usage of space, expectations of employees to become 'nomads', and predominant usage of open-plan offices, non-territorial working, and a clean-desk policy. This approach was deployed throughout the entire headquarters, and even the CEO had declined to have a 'power office' (to use Pelegrin-Genel's (1996) term), and was located in an open-plan setting. Workplaces that increasingly encourage flexibility in such a manner have been named by Gephart (2002) the brave new workplace. Apgar (1998) described common elements of these brave new workplaces (physical, technical and structural elements), coining the term alternative workplace. Apgar identified alternative workplaces by their prevalent features such as nontraditional work practices, settings and locations -- including open plan use of space designed to foster worker mobility and encourage shared use of facilities.

The establishment of a menu of workplaces in the company transitioning to the brave new alternative workplace format included an explicit policy for internal and external mobility. In addition, this firm supported work in meeting rooms and project rooms, videoconference rooms, and auditoria, as well as ad hoc offices, touchdown places (seating areas expected to be used for short individual or group use for short durations), and semi-public areas such as lounges, restaurants and outdoor seating with wi-fi, in addition to the open-plan offices which were, for the most part, not assigned to individuals. Further, the technology - as well as the corporate philosophy - supported work at home, on travel, and at clients' sites. The organization also established arenas for informal meetings, and sports, and games, and it had an extended arts and design programme to create an aesthetically pleasing and inspiring environment (which in and of itself is worthy of study in relation to the materiality of sensemaking but beyond the scope of this manuscript). There had been an

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extensive employee involvement process before the move to the new headquarters; charting preferences, giving feedback to construction, and preparing the employees to the new working environment and the new ways of working to be enacted.

The reactions to the move were mixed: One respondent said: 'It's cool to work here ... I like the aesthetics and the feel of the place, whereas an other respondent expressed mixed feelings:

I wasn't too enthusiastic in the beginning, you know. It was because I thought it was about giving up the office. I had a large office in ... the large office building in the centre, the big, big one, 17 stories. I had a 20-square meter office or something, very lush. It's easier to work here because the noise was so loud in the hallway there. . . . I had to shut the door often. Here it's much more quiet because everyone is quiet because you have no door. Before when we first started talking in the office then we could talk for a while. Here, ... if we are going to go into here [he indicates a small room for phone calls and uninterrupted work], we talk less.

One major element of the new way of working was to become digital and paperless: I'd been working paperless more or less since I started in the company. And, and the reason is, well, I'm not very good at tidying up my papers. I always had a mess around me. I had to do something to avoid that. I got a laptop computer instead, [in] 1998 [in the move in 2001-2002, everyone got a laptop PC]

The workplace was not fully 'digital', we saw paper commonly during our fieldwork with this firm - documents and printouts were used for structuring thoughts, for annotations, and for meetings. It was reported that paper usually was disposed off after use, whereas some kept paper-based archives. Paper, together with books, cups and pictures were also used to assign territory for oneself, in contrast with the

official clean-desk policy.

Another response we heard was that the open-plan office was described as 'very social - almost too social' since it was so easy to contact others, and to engage in brief exchanges. A number of corporeal reactions were also reported, as when the bodily experience of working in an open environment was felt almost as an invasion: "What might be difficult about this way of working? I think it may be very difficult to get used to being naked. I use this example: If you want to buy an apartment, and you go into the bathroom and you see it's a shower, and it has glass doors. "Oh that's nice, you know, it's nice to have a glass door shower." But if you see the toilet and the toilet also has glass doors you get the feeling, "Oh, this is not convenient. I'm not quite sure that I like this." So . . . people are not used to being as naked as you can be here, where everything is open and with all this glass."

The question raised in the process of making sense of the transition to flexible work mode for many employees was one of embodied presence in a drastically changed material setting. As visible as all of the workers felt, it became clear that the embodied nature of work and the material is integral to sensemaking in this case. This embodiment of knowledge workers seems unexpected because more commonly, people have expressed concern about disembodied virtual workers in high-technology work environments. Embodied presence and the use of material artefacts in work in a brave new alternative workplace configuration appeared in the sensemaking stories of workers in this case.

Often, employees responded to not being able to physically act in taken-for-granted ways to accomplish a task, as in the case of having no wastebaskets in this predominantly paperless operation, or when noting the reliance on mobile telephones to organizing co-location in the absence of offices as anchor points. One employee noted the problem of the workstations provided being

too small and expanded the problem setting with a narrative claiming that the available open-plan desk is too small for professional work. This indicated the emergence his sensemaking story, derived from origins rooted in a physical awkwardness in completing tasks. In fact, it was common for the participants we spoke with to note a physical element as a 'trigger' for sensemaking. Sometimes, sensemaking was linked to felt bodily discomfort or incongruities in physical elements (no place to store athletic clothes used for fitness activities before or after work, no place to have family photos, etc.), exposes breaches with another taken-for-granted material and/or social reality.

The focus on paperless, nomadic and mobile work in this case raises issues around taken-for-granted physical and embodied work needs; thus, physical disconfirmations in sensemaking were prevalent in this case. Issues that people mentioned included: (a) no trash bins; (b) limited room space for large meetings; (c) ambiguity about where to take sensitive or personal phone calls; and (d) being challenged to figure out how to take notes in meetings, or, when making the transition to taking notes digitally, how to organize them sensibly. Several employees also mentioned a lack of training or suggestions regarding how to translate day-to-day, embodied activities like taking meeting notes to the paperless environment. Paper, a taken-for-granted material artifact, has certain properties that are not correspondingly available digitally (Sellen & Harper, 2002) pointing to just one of the influences of material elements usefulness in sensemaking.

### Case Two

The organizational unit studied as Case Two conducted a modest reorganization within the two floors they rent in a shared office building, with the reshuffling of people within an open plan office to obtain proximity within functional units. The new workplace solution included open-plan offices with a high degree

of personalization of desks and workplaces through - as well as the use of nametags on the workstations. There were some instances of teleworking from home and from other locations, but sedentary work characterised the majority of the employees. The major exception was the sales people, who were assigned to a "hot-desking" facility while in the building.

An informal meeting-place with coffee machine, newspapers, and comfortable sitting groups was established to facilitate informal meetings outside the open plan offices. In addition an extra, internal stairway between the two floors was established to facilitate internal movement and communication. Employees reported a multitude of reasons for the transformation process - relating to the process, to ways of working, to workplace culture and symbolism, and to the role of the materiality of the workplace in these processes.

A major argument from the management's perspective was to use the workplace rearrangement to maintain organizational identity in a process where the role of the national operations changed:

'We used to be one department. Now everyone reports to different European managers ... The workplace changes was an reaction to these changes. We want to act as a [unified] team even though we report to different managers...'

Further, it was argued that the open-plan office would facilitate knowledge sharing by the ease of communicating with the nearby colleagues, which also was supported by the informal meeting area: 'There is a natural learning process. You hear what's going on and that is an advantage...I have been sceptical. But you get more engaged in things around you. You get to know more people'. These functional arguments were also challenged, as when one of the employees said: 'Now they try to make the changes more acceptable by introducing coffee-machines, sofas and such things'.

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There were also multiple perspectives on the process, where one of the managers said: 'There has been a broad involvement of the employees in the process where we [all] decided what this workplace should look like. There has been no dictate', whereas one employee said: 'The whole process has been a solo-play by the managers. The groups have only been a "cover up" [for a decision that was already made]'

The corporate building itself was an important locus for identity processes: They rented two floors in an anonymous office building, but expressed the *absence*, or lack of having a flagship building. This feeling of absence was to a large extent linked to a change that happened more than ten years ago, when they moved from a high-profiled, owned building - a building that still is referred to by this previous owner's name.

### Discussion

In the change processes in the case companies, corporate location, organizational architecture and layout, and art, as well as information and communications technologies proved to be at the heart both of corporate strategies, and in the employees' sensemaking processes. In both cases, the physical workplace was seen as an important locus for organizational identification and organizational storytelling.

The organizations' materiality and spatiality, particularly the open-plan offices, were inscribed in a strategy for knowledge sharing and organizational learning, as well as for more efficient use of the facilities, since the solutions implied fewer square meters per employee. Representatives from management, also argued strongly that the non-territorial, open-plan solution was important to creating a *mindset for change*, which would enable organizations to move from one location to another in matter of hours or days, instead of weeks or months.

For those who never had had a cellular office in their career, open-plan solutions were

taken for granted, although some considered a private office as a part of what it means to have a position in a company. Among those coming from cellular offices, several welcomed this change, whereas others longed for the day when they could close the door and be private.

The workplace was seen as giving guidelines for norms and action: Normative guidelines through the establishment of practices and 'house rules' for issues such as cell phone usage (low ring volume; only short conversations within the open areas); and material, through the support the material environment gave for certain types of activities and processes, such as knowledge sharing through overhearing others' conversations.

The open and flexible offices challenged the established role of visual status markers, such as office size and decoration. In the first company, the managers, all the way to the CEO, were located in open-plan solutions. In a supplementary interview, one senior manager explained that status markers did remain, although in a different form, and - in addition to access to the limited number of parking lots - power and status was expressed through performance (cf. McKenzie 2001) by making decisions; not through the formal structure of having a position with an assigned power to make decisions.

The physical environment triggered profound sensemaking enactments, such as the personalization of workplaces. Personalization also took place in the company where the non-territorial philosophy had its strongest standing and where personalization was seen as somewhat subversive vis à vis the official policy. Personalization took place both on an individual basis, through books and piles of paper, favourite coffee mugs, or pictures of family members, and on a group level, through group-based artefacts, such as pictures and posters from previous projects. All of these activities may be understood as attempts to

make the workplace one's own, at an individual or a group level.

In both case-companies, distributed and mobile work was an integral part of working life. Both companies had a telework policy, had several locations within the country, and were parts of international operations. This meant that place and organizational boundaries were experienced and enacted in different ways, with the distinction between 'us' and 'them' as one of the indicators. Case Company One was the headquarters of a national and international operation, and its members showed some complacency regarding 'the others' in terms of their working conditions - especially because the regime of new ways of working was expected to be disseminated to the other branches of the organization.

Case Company Two was a unit within an international company. Previously, the company was organized in national units with a degree of self-determination, whereas in the current solution, the units were seen as dispersed nodes, where the line of command and reporting could go to a node in another country. The workplace design was seen as a way of upholding the organization's national operations and identity, as a supplement to the new organizational form - demonstrating both how placemaking is enacted in networks on a far larger scale than the singular building, and how placemaking can be used as a strategic instrument.

In the presentation, we have seen that workplaces have been central to a large number of processes: As loci for identification, as expressions of (explicit) norms and values, as normative and material guidelines for action, and as settings for individual and communal behaviour.

The multitude of examples also demonstrates how sensemaking is triggered by changes in the environment and in ways of working. According to Weick, it is disconfirmation, or problem setting that comes in the form of a surprise or discrepancy that initiates

sensemaking. He said that sensemaking can be recognized as instances when, 'someone notices something, in an ongoing flow of events, something in the form of a surprise, a discrepant set of cues, something that does not fit' (Weick 1995: 2). This was confirmed as methodological finding: People related easily to instances when the physical environment was seen as discrepant with their expectations; references to the material environment acted as a good conversation starter.

### **Sensemaking and Materiality**

The case studies were conducted to explore the reactions of organization members to changes in their work environment, where questions about the applicability of the sensemaking approach for the material realm proved to be important. The analysis demonstrated that the sensemaking perspective has a great affinity with the corporeal and material aspects, although sensemaking often is interpreted in cognitive or mentalist terms. This affinity is, however, not a surprising one, since Weick himself recurrently viewed material events as triggers for sensemaking. However, the analysis of the case studies addresses a rich set of implications for understanding and further developing the sensemaking perspective, thereby identifying and exploring challenges for the current understanding of sensemaking.

The survey of theoretical positions opposing the dominant trend of dematerialised reasoning, identified three broad positions: a) studies of the corporeality of organizational members, b) studies of organizations as material and spatial systems, and c) studies of technologies in organizations. The case study material provides a rich set of examples for elaborating sensemaking activities in relation to these positions. The new workplace design was seen as creating an environment that affected their perception - including to a high degree their aesthetic perception - about the corporeal meaning of what it means in terms of 'going to work'. A

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higher degree of visibility and a greater physical density of colleagues were seen as instances of how changes in the usual taken-for-grantedness of walls, chairs, and the rest of the working environment triggered emotions and affects, including joy and the feeling of belonging, as well as fear and vulnerability.

Some respondents suggested that the new environment might imply a new set of norms for bodily behaviour, as when one of the respondents said: '[P]eople are not used to being as naked as you can be here ... where everything is open and with all this glass'. Some viewed this as an impetus for a more conscious and controlled body language. Although the respondent doubted it would be possible to hide anger or fear, this example shows that the new environment may call for a new set of behavioural norms (corresponding to what Foucault (1989) called 'technologies of the self'): Sensemaking may not only start with corporeal reactions to a change process; it also may address and (attempt) to alter the organization members' corporeality.

The technologies deployed were designed to support mobility, both internally in the open-plan offices, and externally, through remote access to the corporate computer networks. Therefore, the information and communication technologies - together with the range of possible work places - became parts of an extended (hybrid) infrastructure for work activities, where technology, architecture and other artefacts together act as an integral, but dispersed environment for working (Bakke and Yttri 2003). The two case studies demonstrate the usefulness of applying a sensemaking perspective to materially anchored change processes, despite the alleged immaterial or cognitive bias of the sensemaking perspective. Instead, the case studies reveal that situations are open to new interpretations and new material arrangements, enacting, materializing, and symbolizing new ways of working and belonging. In no way did the case studies show an insurmountable tension between

materiality and the narrative character of sensemaking because both narration and sensemaking were anchored in material environments and enacted and changed these environments. Supporting this interplay of narration and sensemaking in material environments, Gieryn argued that buildings stabilize social life - although imperfectly because '[b]uildings don't just sit there imposing themselves. They are forever objects of (re)interpretation, narration and representation - and meanings or stories are sometimes more pliable than the walls and floors they depict. We deconstruct buildings materially and semiotically, all the time' (Gieryn 2002: 35).

### **The Materiality of Sensemaking - Implications for Further Studies**

Two key implications may be drawn from the discussion above:

- o There is a close interaction between sensemaking and materiality, since sensemaking may be triggered by material events, and sensemaking activities may take the form of materialized enactments.
- o The enactments do not only represent passive, retrospective reactions to what happened; the enactments also shape future activities, including sensemaking activities, such as routines and practices, the personalization of the workplace, and changed bodily posture and behaviour.

The first implication is addressed in the arguments above, in the variety of ways that materiality and material actions trigger sensemaking, where events may challenge understandings and practices in a taken-for-granted environment. Disruptions and other changes may initiate the sensemaking processes, and the current status of sensemaking may be found in new perspectives on the world 'out there', and in the enacted changes of the environment. The latter implication challenges the dominant emphasis of sensemaking as retrospective

(cf. Weick 1995: 24-30). Both the 'material' and the 'immaterial' enactments of sensemaking have implications for later activities and later sensemaking, by becoming a part of the established 'taken-for-granted' situation, and through what is called the *affordances*, or the 'strengths and weaknesses of technologies with respect to the possibilities they offer the people that might use them' (Gaver 1991: 79): Artefacts facilitate some activities, while making others more difficult (cf. Norman 1989, Gagliardi 1996). Like communication frames that influence sensemaking (c.f., Mills 2000), physical frames may enable and/or constrain individual and shared sensemaking processes. Therefore, sensemaking is keenly relevant to design studies (and vice versa). Design studies - studies of how the environment may be formed, enacted, or designed to promote certain actions, while other actions are made more difficult - may benefit from incorporating sensemaking ideas. Design may be seen as a way of facilitating certain actions and choices, while hampering or pre-empting others (cf. Laurel 2003). Nevertheless, all design studies have shown that it is impossible to uniquely prescribe action through design - there is a degree of interpretive flexibility for artefacts, both at an individual and a group level (Bijker 1987; Bakke 1996). Street uses of products (Eisenberg, ) are common. Design may influence - enabling some activities while constraining others, however design may influence sensemaking more so than determine meaning or use of material goods. Further, the designed products (in the broad sense of the word) not only provide affordances for use; they also invoke emotions and feelings (Norman 2004).

In keeping with Weick's notion that sensemaking occurs within a continuous flow in time; artefacts are being integrated in the end-users framework of previous experiences, expertise, and usage situations, in what is often referred to as the domestication of technologies - processes in which both the technology and the users may change in the four phases of domestication:

appropriation, objectification, incorporation, and conversion (Silverstone et al. 1992). The concept of domestication was developed in household settings, although it also is deployed in organizational settings.

The two brief examples draw attention to a number of meeting places between design studies and the sensemaking literature, in particular, when the perspective of materiality informs the latter. In sensemaking and design, interpretations, enactments, and affects play important roles; both sensemaking and design influence the range of future actions, through material and normative preliminaries, influencing and shaping future actions, while pre-empting others, or attempting to do so. Sensemaking studies therefore may be enriched with insights from design studies, an area with a greater sensitivity for the affordances of material artefacts. It also may be argued that certain parts of design studies, with an individualistic bias, and domestication studies, with its background in household studies, could benefit from the deeply organizational and social perspective found in sensemaking studies.

Our arguments embrace an emergent perspective of organizations as social, discursive, and material systems. We proffer the notion that individuals' identities are formed as cognitive, emotive, and corporeal entities and that organizations' corporeal and material aspects shape (and are shaped by) individuals, societies, and other organizations. This perspective must address both ethical and aesthetic issues that arise from acknowledging the materiality of artefacts and bodies in collocated, as well as distributed and technology-mediated organizations. It is important to initiate and assess research to understand the empirical richness that transcends programmatic statements of materiality and sensemaking - and of other organizational processes.

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