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VIDEO METHODS IN STRATEGY RESEARCH: FOCUSING ON EMBODIED COGNITION

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Research summary: *Video-based methods can help researchers explore the significance of the human body in the practice of organizational strategy. We present a toolkit for the analysis of video data. The toolkit consists of three techniques: the detailing of significant forms in visual data, the sequencing of movement around such forms, and the patterning of movements across episodes. We employ these techniques on video recordings of middle managers engaged in a large-scale strategic change effort. By revealing and analyzing the practices of "top-down" and "bottom-up bridging," we show how the embodied cognition of middle managers supports strategy implementation by influencing nascent behavioral and cognitive changes among their subordinates. We conclude our account by suggesting a research agenda for video-based work in strategy research.*

Managerial summary*: We explore video-based methods as a means to understand how middle managers incorporate strategic change in their practice. During strategic change efforts, a lot of what is taken to be the buildup of "shared understanding" is more appropriately viewed as emotional contagion. The success of middle management change agency is thus measured, not only by their successful elaboration of strategy content to others, but also whether or not organizational members invest themselves emotionally to the change endeavor. Such contagion is founded on the interaction of human bodies as well as their verbal discourse.*

INTRODUCTION

In one of his now classic explorations of Intel Corporation, Burgelman (1991: 243, added emphasis) noted: "organizational strategy […] is *embodied* in the managers who rose to (or stayed at) the top while pursuing a particular set of strategic initiatives." Burgelman's passing remark reveals a little understood aspect of strategy: What is the nature of such embodiment? How are strategies embodied, and to what consequences? What is the role of the strategist's body in the practice of strategy?

There is a growing discontent toward the dominant Cartesian view that organizational strategies are outcomes of calculated analysis by brilliant people (Chia and Holt, 2006; Clegg, Carter, and Kornberger, 2004; Mantere and Vaara, 2008; Mintzberg, 1994). Evidence is mounting that intended strategy is created through social interaction (e.g., Kaplan, 2008), founded on embodied metaphors

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(Heracleous and Jacobs, 2008, 2011), and interpreted through embodied storytelling (Küpers, Mantere, and Statler, 2013). Significant advances have been made recently in order to broaden understanding of socio-material aspects of strategy, most notably, in understanding the use of strategy tools (Jarzabkowski and Kaplan, 2015), the study of which has bloomed into a vibrant research program (also see, Kaplan, 2011; Spee and Jarzabkowski, 2009; Wright, Paroutis, and Blettner, 2013).

Evidence that embodiment may become a major program of research into socio-materiality of strategy has begun to trickle in. There is, for instance, mounting evidence that the expression of embodied emotions influences social cohesion in a strategy process (Liu and Maitlis, 2014). It has also been suggested that the thinking body plays a role in the cognitive construction of many firms' strategies, as with the vision of "the green platform where animals go," constructed out of LEGO bricks in Heracleous and Jacobs's studies (2008, 2011). The body may also play a role in the discursive framing of strategic decisions, as was the case in the difficult downsizing decision, conceived through the embodied metaphor of "killing a monster that is eating the heart of the company," reported by Küpers *et al.* (2013).

The intelligent and interactive body of the strategist thus provides the context for this methodological article, focused on the introduction of video methods to the palette of methods available to strategy scholars. As human bodies move and interact in time and space, they provide an ideal domain for exploring the potential of video-based methods in strategy research. More broadly, video-based methods are powerful and accessible means of extending knowledge about the practice of strategy in organizations (Balogun *et al.*, 2014; Vaara and Whittington, 2012; Vesa and Vaara, 2014). Yet, strategy scholars do not yet use video-based methods as standard tools of their trade. With a few exceptions (Liu and Maitlis, 2014; Sorsa, Pälli, and Mikkola, 2014), published video-based work is almost nonexistent in our field. Video cameras are cheap and readily available even in cell phones. Why would field researchers limit themselves to asking people about the role of strategy in their work if they can also go and record them doing their work? Why would ethnographers not augment written field notes with audio-visual recordings of events that can be revisited over and over again? While the production, analysis and reporting of video-based research does involve specific ethical issues and practical challenges, we suspect that the scarcity of video-based work is, at least in part, due to a lack of methodological tools that would help scholars approach and utilize the richness of video data. In what follows, we will focus on the analysis of video data, which we regard as the challenge most benefiting from a scholarly discussion. However, readers are invited to consult Appendix S1 for an elaboration of challenges involved in the production and publication of video data.

In this article, we explore the use of video-based methods in strategy research. While our intended primary contribution is methodological, we focus on a range of phenomena pertaining to the practice of strategy as a form of embodied cognition, responding to recent calls for new research in the domain (e.g., Balogun *et al.*, 2014; Vaara and Whittington, 2012). Our methodological contribution can be understood in light of a broader program to develop a "visual agenda" in organization and management science (Bell and Davison, 2013; Meyer *et al.*, 2013; Ray and Smith, 2012; Smets *et al.*, 2014). Visual data sources encompass both static media such as pictures, maps, web pages, as well as dynamic media such as films and video recordings. Visual research can be seen as a logical next step following the "linguistic turn" in management studies, which regards language as constituting meaning and reality, rather than as an independent carrier of objective ideas (see, e.g., Rorty, 1979). Visual research has been conducted on a diverse set of phenomena including leadership (Davison, 2010), gender (Kuasirikun, 2011), institutional work (Zundel, Holt, and Cornelissen, 2013), and embodied emotions (Liu and Maitlis, 2014). Despite this, as Bell and Davison (2013) note, visuality and vision remain underexplored in management studies overall.

We use video data collected from an empirical study examining the strategy work of middle managers at YLE, the Finnish Broadcasting Company. Our illustrative case focuses empirically on Burgelman's question by exploring how strategic change is embodied in the practice of middle managers during episodes of interaction with subordinates. By using video data, we find that strategy is realized through a pattern of reoccurring embodied configurations consisting of specific postures, gestures, gazes, and so on. We extract a practice that we call "embodied bridging" where a middle manager performs a link between the expression

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of organizational strategy and the subordinate. The practice of bridging facilitates strategic change initiation (Gioia and Chittipeddi, 1991) by founding, on the one hand, a sense of inclusion among subordinates and on the other hand, reinforcing compliance behaviors among subordinates. Through our empirical illustration we suggest that middle managers facilitate such initiation in patterned ways across the organization. Our methodological toolkit is tuned to pick up on such unspoken practices of strategy work.

EMBODIED COGNITION AND VIDEO RESEARCH

The growing appreciation of embodiment in strategy practice coincides with the increasing momentum of *embodied cognition* as a field of research (e.g., Shapiro, 2010, 2014). The body matters, not only as a constraint (e.g., our perceptions are limited due to the structure of our sensory organs) and influence on cognition (e.g., a headache influences thinking), but also as a *site* for cognition. The body does not only get in the way of thinking at times; our bodies enable thinking, as individuals and as collectives. Embodied cognition extends the analysis of human cognition beyond the brain to include a world that is both social and material (Streeck, Goodwin, and LeBaron, 2011). Cognition is "embodied insofar as it emerges not from an intricately unfolding cognitive program, but from a dynamic dance in which body, perception, and world guide each other's steps" (Shapiro, 2010: 61). The recent surge in research on multimodality in communication studies (e.g., Jones and LeBaron, 2002; Stivers and Sidnell, 2005) is not just about the coordination of talk, gesture, symbols, and other modes of communication. It extends the reach of embodiment further from individual bodies by acknowledging the intersubjectivity of cognition. Although intersubjectivity is partly a discursive accomplishment, discourse "shares billing with space, with artifacts, with work, and with the visible palpable body" (Moerman, 1990: 182). People make sense of the world by enacting it, by interacting with the material world that includes other thinking bodies and technologies (Varela, Thompson, and Rosch, 1991; also see, Di Paolo and Thompson, 2014).

The techniques for analyzing video data that we present draw from research in the disciplines of anthropology, sociology, and cognitive science, which have contributed to our understanding of embodied cognition. Decades ago, anthropologists began using video technology to study the details of human interaction or "microbehaviors" (i.e., small and often taken-for-granted behaviors) that function as the building blocks of micro-cultures such as classrooms (e.g., Erickson and Mohatt, 1982). At the same time, psychologists used video to analyze "contextual frames" or coherent units of interaction made visible, for example, by participants' sustained postural configurations (e.g., Kendon, 1990; Scheflen, 1973). Eventually, analyses of visible behavior were deliberately combined with rigorous methods for analyzing talk (e.g., Heath, 1986)—especially conversation analysis (Sacks, 1984)—in careful studies of professional and organizational activity (e.g., Goodwin, 1994). Such video-based studies have moved in a variety of directions, including topics traditionally considered to belong to the domain of cognitive psychology: for example, awareness (Heath *et al.*, 2002), perception (Goodwin, 2000, 2005; Koschmann *et al.*, 2011), emotion (Goodwin and Goodwin, 2000), guilt (LeBaron and Streeck, 1997), and aphasia (Goodwin, 2003, 2010).

Video-based studies provide an enriched understanding of the organization studied, often augmenting traditional qualitative methods. In comparison to field notes and interview transcripts, video data allows the researcher to go back and revisit "the field" through repeated viewings of the video. Similarly, with regard to audio recordings and archival data, video data augments the analysis by allowing for an understanding of the socio-material and embodied forms of behavior in organizations. By exposing embodied cognition in human interaction, video-based methods enrich scholarship around phenomena such as decision making, influence and communication, all of which are crucial for understanding how strategies are created and realized. We are thus able to tap into the rich microculture of strategy that is filled with often inaudible imperatives, corrections, hints of what is of strategic relevance to the participants. Our methodological toolkit allows us to profit on the unique features provided by video data, and to engage in a systematic analysis of how organizational strategies are embodied in practice (Vaara and Whittington, 2012).

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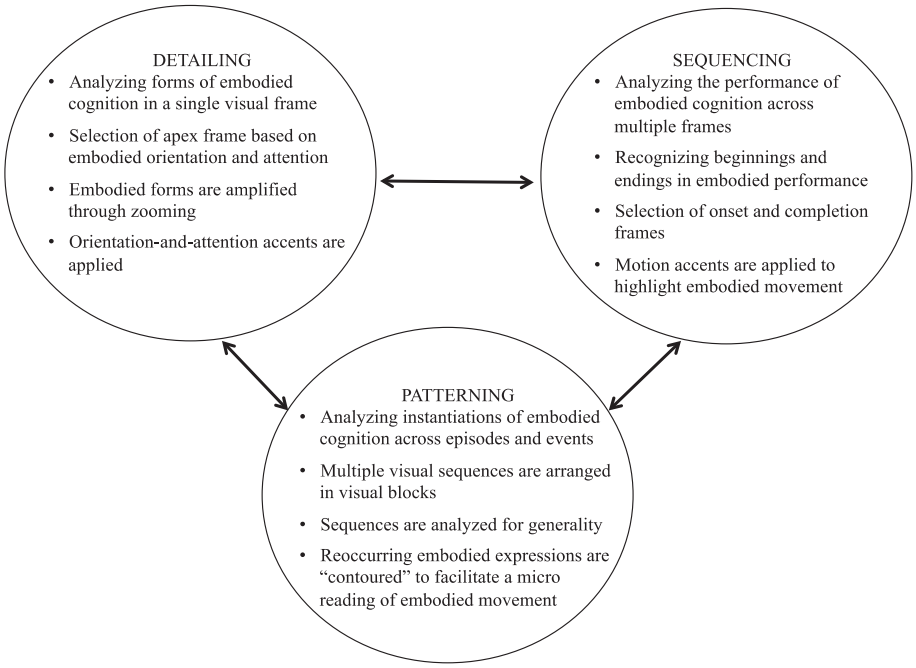

Figure 1. Three techniques for analyzing and presenting video data

TOOLKIT FOR ANALYZING AND PRESENTING VIDEO DATA: THREE TECHNIQUES

Our methodological toolkit consists of three techniques, which we will call "detailing," "sequencing," and "patterning." Scholarship in embodied cognition has engaged the following three questions, and we use these questions as a framework for our toolkit. The first question asks: How do the components and affordances of the human body enable and constitute cognitive work (e.g., Goodwin, 2000 ; Scheflen, 1976)? This question provides the foundation for the technique of *detailing*, which captures features of embodied cognition within a single visual frame. We use the technique of detailing to amplify strategically significant forms of embodiment that may be difficult or impossible to capture through field notes and audio data. The second question is: How do people move their bodies to mark the beginnings and endings of significant activity, making them recognizable as discrete episodes during face to face interaction (e.g., Goffman, 1974; Kendon, 1990)? Our second technique, *sequencing*, captures the movement of bodies and the analysis of embodied performance (including markings of beginnings and endings) in interaction. The third question is: How does the human body act as the locus of shared understanding in multiple episodes separated by time and space (e.g., Haviland, 2000; LeBaron and Streeck, 2000)? Our third and final technique, *patterning,* involves the examination of embodied behavior and interaction across episodes and events to identify significant patterns of repeated behavior that serve as instantiations of embodied cognition.

The three techniques are interconnected. Detailing is concerned with fundamentals of embodied orientation and attention-directing behavior, while sequencing follows unfolding movement as participants point, touch, and manipulate the material environment in ways that are recognizable and meaningful. Patterning allows us to generalize our findings through comparison of several episodes of interaction (Figure 1).

The techniques reflect an ethnomethodological attitude toward research (Garfinkel, 1967), which encourages analysts to locate the interactional mechanisms and social practices whereby people make everyday sense of their experience and constitute social realities (Heritage, 1984). It is relatively easy to collect large amounts of video data (video ethnographies, for instance, easily end up with hundreds of hours video data, e.g., Smets *et al.*, 2015). The difficult task is how to approach the processing, analysis and publication of video

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data (Ray and Smith, 2012) in a methodologically rigorous way. Our three techniques are designed primarily to support the interpretation of moving images (video) and are only to an extent applicable to still images (photography). The elaboration of the three techniques necessitates the use of a number of technical terms such as "orientation-and-attention accents," "apex frames," "onset frame," and so on. To facilitate reader access, we have prepared a glossary of technical terms in the Appendix S2.

Detailing: regarding forms of embodied cognition within a single visual frame

Fundamentals of embodied cognition can be seen and recognized at a glance. The cognitive work of a person extends beyond the individual brain to include surrounding people and things, organized in ways that both enable and signal what is going on. If we were to suddenly open the door and look into a strategy meeting, we would immediately see the location and orientation of people, relative to each other and their material environment, which would altogether divulge—in an instant—information about the participants and their knowledge work. For example, researchers have observed a close connection between orientation (embodied) and attention (cognition). When people turn their attention from one thing to another, they may literally turn parts of their body such as eyes, face, and torso from one thing to another (Scheflen, 1976). Such behavior is both in the service of the work at hand and functions as a signal, visible and recognizable to others, including analysts who may be analyzing frames of video. Especially during knowledge work such as a management meeting, people may turn and orient toward each other, making each other an object of sustained attention (Goodwin, 2000; Kendon, 1990), creating what Goffman (1964: 64) called an "ecological huddle" that publicly demonstrates the nature of their interdependent work.

Features of embodied cognition, such as physical forms of attention, may be captured within a single visible frame of video for the purpose of analyzing its embodied details as features of embodied cognition. The technique of detailing involves careful preparation and editing of video data. A frame is selected because it contains the details of embodied cognition that participants signal to each other in the first place. Such signals are also available to analysts in their role as onlookers.

Through detailing, analysts amplify the embodied forms that the participants themselves have already displayed. That is, as analysts direct the attention of readers, they subsume and go beyond the attention-directing behaviors of the participants themselves. First, directing the attention of readers involves selecting an "apex frame" from the video data based on the cognitive work performed by participants. The apex frame reveals the researcher's interpretation and it allows for the preservation of signals (Mondada, 2006) of how people are oriented toward each other and direct attention through gazing, facial orientation, hand position, and so on (see Figures 2–4 below for illustration). The publicly demonstrated signals are amplified as the researcher edits the apex video frame through appropriate zooming (Boeriis and Holsanova, 2012; Heath, Hindmarsh, and Luff, 2010: 123). Subsequently, the researcher adds transparency to the visual analysis by foregrounding participants' signals through "orientation-and-attention accents" such as arrows, text boxes, clarifying sketches, and so on. (Heath *et al.*, 2010: 125; Tufte, 1990: 63). "Orientation-and-attention accents" denote the direction of attention in the apex frame and enhance the readers understanding of how participants are turned toward each other. Finally, using video editing software, digital searchable tags that allow rapid future access are added to apex frames, and the researcher moves on to the techniques of sequencing and patterning of the features of embodied cognition found through detailing.

Sequencing: recognizing performance of embodied cognition across multiple visual frames

Sequencing introduces the element of movement, shifting the focus of analysis from the details found in a single frame to an analysis of a succession of frames. If we were to attend a strategy meeting, sitting and watching the unfolding conversation, our understanding of any particular instant would be informed by what happened immediately before and after. Consider video itself—a technology that creates the illusion of motion by presenting single frames in quick succession, often with some sort of opening and closing view. Strategists may initiate an episode by pointing at a particular PowerPoint slide or by glancing at balanced score card results; and they may conclude a discussion by closing the

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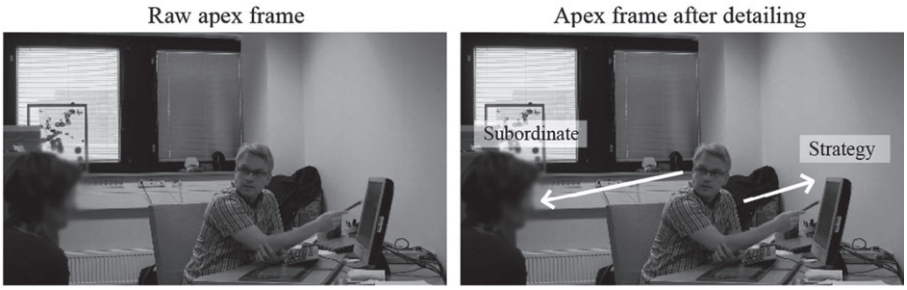

Figure 2. Detailing forms of embodied behavior by adding orientation-and-attention accents

Figure 3. Sequencing: Adam prepares and concludes the delivery of his strategy message. We add motion accents to the onset and completion frames to amplify movement

lid of their laptop or by standing and walking out of the room. Strategists structure episodes with beginnings, developments, and ends. During sequential episodes, strategists weave visual narratives using gaze, posture, hand gesture, stage movement, and so forth.

A classic example of embodied movement is found in the groundbreaking study of Bateson and Mead (1942) that included 749 photographs—single frames and sequences of frames—of Balinese people standing, moving, eating, sleeping, and dancing in ways that constituted their community and culture. Philosophers of a phenomenological persuasion have also long recognized that people appreciate the world through the movement and manipulation of their bodies (e.g., Bergson, 1946; Merleau-Ponty, 1962), and that human understanding is "not in our minds but in our skillful ways of comporting ourselves" (Dreyfus, 1991: 75). The cognitive work of people extends beyond still forms and orientations to include the movement of bodies relative to each other and their material environment. Most obviously, minds and materials change while people reach out to literally mark, manage, or mangle things within reach. More subtly, people do cognitive work as they reach out to point, touch, or lightly trace the shape of something, quickly highlighting its significance, momentarily foregrounding its relevance, temporarily making people more mindful (Goodwin, 1994).

Research on embodied interaction frequently looks at the beginnings and endings, the openings and closings, the onset and completion of human action and activity because recognition and understanding depend on such "boundary moments" (e.g., LeBaron, Glenn, and Thompson, 2009). Strips of behavior become recognizable and meaningful when set apart through bracketing or framing devices (Goffman, 1974), performed by the participants and spotted by analysts. For example, before pointing, touching, or tracing, people may lift their hands into a "gesture space" (Kendon, 1972) where the hands are made visible and ready for action; and afterward, hands may drop to the side, showing a completion of performance. Individual behaviors are made meaningful largely through

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Figure 4. Patterning: bodies facilitating top-down and bottom-up influence

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their relationship to other behaviors occurring temporally and spatially proximate. Sequential organization enables participants and analysts to recognize unfolding action.

When embodied actions associated with cognitive work unfold through movement, they are best seen and recognized across multiple visual frames. Multiple visual frames, such as a sequence of three, are not arbitrarily selected: Analysts deliberately feature the apex of action as recognizable and meaningful through its embodied relationship to what comes before and after. The analytical technique of sequencing resonates with the craft mastered by graphic designers (Tufte, 1990: 114) and cartoon artists of making choices on which movements to capture in conveying embodied movement. We expand on an apex frame that was identified through the technique of detailing: Again using video editing software, we add a visual frame before (onset frame) and after (completion frame) the apex frame (see Figure 3 below for illustration). The additional video frames reveal instances of preparation and retraction during embodied performance, and convey the interpretation made by the researchers.

Researchers select onset and completion video frames based on the participants' embodied markings in the raw video data. When selecting onset and completion frames it is necessary to revisit video snippets before and after the apex frame multiple times (sometimes in slow motion). Participants perform a visual narrative as they stage their message and analysts need to distinguish between marks of beginnings and endings of embodied performance. Once onset and completion frames are selected, analysts may add "motion accents" to enable visual interpretation. Motion accents are graphic annotations, such as an arrow, that emphasize a participant's embodied movement (see Figure 3 below for illustration). Sequencing movement in video data provides a different perspective than what photographic data does (Ray and Smith, 2012), as photographs do not fully capture embodied movement. By arranging onset, apex, and completion frames side by side, we avoid presenting participants as arrested figures, and instead, convey continuous natural movement to the reader.

Patterning: tracking instantiations of embodied cognition across episodes and events

While detailing and sequencing look *inside* a particular meeting to see how ideas extend beyond the individual brain to include other people and things, patterning looks *across* meetings and events to see how ideas may transcend the boundaries of a singular instance or specific moment. If we were to attend a series of meetings about some organization's strategic initiative, we would be able to see consistencies or recurring forms or features that run across those meetings. The performance of a champion embodying a specific strategic initiative (Burgelman, 1991) encodes that initiative as ways of being that include gestures, postures, and facial expressions. These performances are repeated in interaction by that champion and by others who follow in the wake by imitating some aspects of those performances across multiple locations in the organization. Through patterning we are able to analyze a temporal stream of embodied actions that constitutes strategy work. The technique of patterning allows the analyst to capture sets of visual frames (single and multiple) that constitute the widespread patterns of strategy performance.

Pattern recognition is an ongoing concern for social scientists (Haring and Johnson, 1940), but also for research subjects who may perform patterns of behavior as social conventions that transcend time, place, and function. Repositories or residues of past acts of meaning (Bruner, 1990) are recognized as people interact in a material world consisting of artifacts that are charged with historical meaning (Latour, 1987; Star, 1989). Such notions of distributed cognition go hand in hand with theories of embodied cognition because the body is a special object of shared understanding and meaning. Hand gestures, for example, have their origin in the hands' manipulation of the socio-material world:

> Gesture is not a symptom of mental events . . . . Rather, it is an embodied and therefore public symbolic practice, kinesthetically known by its makers, visually known by its beholders, and derived from and embedded in an objective world within which mindful hands operate. (LeBaron and Streeck, 2000: 137)

Patterning involves a broader analysis of the video data collected. After detailing and sequencing, the researcher will have collected apex frames containing embodied orientation and attention behavior as well as onset and completion frames illustrating the participants embodied performance in a specific episode. After careful detailing and

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sequencing of multiple episodes in the video data, researchers are able to discover reoccurring patterns of embodied behavior. Using video editing software, multiple sequences (consisting of onset, completion and apex frames) are analyzed for repetition. In order to amplify reoccurring embodied messages to the reader, researchers use thumbnails of the video frames and rearrange mutually resembling sequences in blocks (see Figure 4 below for illustration) to allow for an easier visual analysis (e.g., O'Halloran *et al.*, 2012: 369). The block arrangement calls for an active eye to look for differences and similarities in the frame grabs and avoids the need to recall images scattered over multiple pages in the research article (Tufte, 1990: 33). Block arrangements are thus crucial in order to visualize the history of embodied messages that participants draw on. Researchers continue by "contouring" areas of interest in the frame grabs to enable a microreading of a particular movement (Tufte, 1990: 37). In practice, this step is done by drawing contrasting lines around a participants' embodied expression through the use of image editing software (see Figure 4). Through the contouring of multiple video frames, researchers are able to visually convey repetitions in embodied messages to the reader at a single glance. In sum, the technique of patterning allows us to track instantiations of recurring embodied messages used by participants across strategy meetings and events, and introduces an efficient way of communicating embodied repetition evident in video data to the academic reader.

ILLUSTRATIVE CASE: STRATEGY IMPLEMENTATION AT THE FINNISH BROADCASTING COMPANY

To demonstrate how the three techniques are used, we employ video data derived from an empirical study focused on the strategy work of middle managers at YLE, the Finnish Broadcasting Company. We explore how strategic change is embodied in the practice of middle managers during episodes of interaction with subordinates. The context of the study is a large-scale strategic change effort that challenges the dominant logic of the company (Prahalad and Bettis, 1986). The funding basis of YLE has recently shifted from license to national tax funding, motivating its top management to maintain legitimacy among taxpayers by trying to shift the Company's raison d'être from didactic journalism (educating the public) to customer service (satisfying the public). The change in strategic direction at YLE has put middle managers in a position where they need to communicate the customer service logic to team members.

During the study so far, we have shadowed middle managers for 230 hours in their daily work activities during successive two-week intense periods, out of which 105 hours were video recorded. We adopted a meticulous field-note-taking routine (with time codes to match the video data), and produced memos after each day of shadowing (Czarniawska, 2007; Jarzabkowski, Bednarek, and Cabantous, 2014). We followed middle managers as they communicated the new customer-oriented strategy across meetings such as weekly team meetings, program development meetings, employee introductions, top management meetings, and so on.

Detailing: Adam's body as a bridge between the expression of strategy and a subordinate

Our video shadowing of middle managers at YLE allowed us to observe and record several instances of strategy implementation. In analyzing the daily work of a middle manager called Adam (name changed), we focused our attention on his practices in a particular employee strategy-briefing in which he described the organization's new "creativity strategy." We applied the technique of detailing and analyzed the single video frame (see Figure 2) depicting Adam's pointing behaviors in the employee strategy-briefing. Our aim in detailing was to capture the first hint at how Adam was "speaking" about the strategic change effort with his body. To start, Adam oriented himself and his audience by pointing with his torso and hand toward the computer screen, yet he turned his head toward the employee, which signaled a divided-attention stance. In this dual-focus on screen and employee, Adam directed joint attention toward the strategy document on the PowerPoint slide and the employee who was the recipient of Adam's strategy communication. He elicited attention from the employee to the strategy document, toward which the employee was looking. We added orientation-and-attention accents to the single video frame to annotate the direction of Adam's pointing (computer screen) and gazing (employee), and to denote how he was using his body to bridge between an expression of strategy on the screen and the employee in the room. Finally, we tagged the

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video frame as an apex frame in our editing software and proceeded to the technique of sequencing that allowed us to analyze how this specific feature of embodied cognition unfolded in motion.

Sequencing: Adam prepares and concludes the delivery of his strategy message

Next we illustrate the technique of sequencing, which allows us to further elaborate embodied cognition as we witnessed Adam creating a visual narrative through a sequence of gestures before and after the embodied bridge that we identified by detailing. Empirically, we were particularly interested in the embodied narrative through which the strategic change effort was communicated to the employee. Through the use of detailing, we identified Adam's dual-focus on computer screen (strategy) and employee (Figure 2). Through sequencing, we conveyed embodied movement to the reader as we analyzed the beginning and ending of the dual-focus move depicted in the apex frame. To achieve this, we played back the video several times around the apex frame and paid special attention to how Adam staged the issue of strategy implementation through the use of preparatory and concluding gestures (Figure 3).

In the apex frame, Adam proposed that his team member should pay more attention to the organization's new strategy. Sequencing captured Adam producing a "pincher" gesture earlier with his thumb and index finger signifying his concern over the lack of strategy implementation across his unit. Furthermore, in the completion analysis, we noticed that Adam waved both of his hands upward in an expression of energetic engagement by his staff to execute the direction written in the strategy document. The team member nodded, sustained her forward leaning body posture, and shifted her gaze interchangeably between Adam and the computer screen; demonstrating her focused attention toward the task of implementing the new strategy. Such attention hints at the building of nascent commitment to change initiation. Adam's embodied performance thus not only rendered his central gesture (the embodied bridge) noticeable, but provided impetus for initiation through a problem formulation (onset frame) and concluded in a call-to-action (completion frame). The sequential strategy performance that was amplified through onset, apex and completion frames allowed us to appreciate the movements through which the middle manager channeled the organizational strategy to the employee.

Patterning: discovering "top-down" and "bottom-up bridging"

Patterning is conducted through comparison between several episodes of interaction. It builds on the orientation and attention behaviors identified through detailing as well as the embodied performances extracted through sequencing. As we patterned our video data from YLE, we built visual blocks of sequences of events to gain a better overview of middle-manager strategy work. Following our research interest, we looked for generalities in how the middle managers used their bodies as they spoke about the strategic change initiative. The visual frames (coded as onset, apex, and completion in the video data) were used to build the frame set blocks that helped us see generalities in embodied movements. We found that middle managers performed similar bridging gestures across different meetings (Figure 4). The orientation-and-attention accents highlight that bridging gestures appeared across different divisions of the organization and were used, not only by Adam, but also by several middle managers studied.

Evidence of bridging gestures appeared across multiple episodes where middle managers spoke about the strategic change initiative, and with the help of patterning, we were able to distinguish between two types of embodied bridging. Comparison of frame set blocks allowed us to separate the sequences into "top-down" and "bottom-up bridging." In "top-down bridging" (rows 1–4 in Figure 4), middle managers pointed toward the material expressions of strategy, directed their gaze toward the audience, and generated nods in the audience; and did so repeatedly as if this was a rehearsed physical exercise. Conversely, in "bottom-up bridging" (rows 5–8 in Figure 4), middle managers integrated team inputs into the expression of strategy through the use of Post-it® notes, writings on the white board, or taking screenshots of co-created material. The middle managers' performance of "bottom-up bridging" provoked energetic engagement with strategy by team members. This is particularly evident in the still video frames of rows 6–8 (Figure 4) depicting team members gesturing enthusiastically, getting up from their chairs, walking to the white board, leaning forward and straightening their backs.

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To convey our finding of the two types of bridging, we contoured the gestures performed by the middle managers in the apex frames and added orientation-and-attention accents to the images to emphasize the repeated direction. The technique of patterning—including the use of visual blocks, contouring, and orientation-and-attention accents—thus allowed us to visually identify instantiations of reoccurring cognitive work across episodes of middle manager strategy implementation.

The pattern of sequences in Figure 4 illustrate how middle managers used their bodies to fulfill their expected role of linking bottom-up and top-down flows in the strategy process (Floyd and Wooldridge, 1992a). They establish this through a practice that we call "top-down" and "bottom-up bridging." Bridging consists of efforts of joining material expressions of organizational strategy (written plans, PowerPoint slides, flip charts, etc.) with the bodies of other organizational members (peers, subordinates, etc.) (Figure 5). In "top-down bridging," middle managers used their bodies as bridges that allowed expressions of company strategy to "get across" to their subordinates. In "bottom-up bridging," middle managers reversed the direction of influence by allowing workers to influence expressions of organizational strategy.

The situated performance of bridging demonstrates the multi-directional capacity of the human body. The body has the ability to orient and point in more than one direction at a time (Scheflen, 1976), which enables and registers a person's multiple involvements during face-to-face interactions and meetings (MacMartin and LeBaron, 2006). In addition to the hands and fingers, which can most explicitly point in a particular direction, a person can point or direct the attention of others through the orientation of body, torso, head, and eyes. Hence, when our middle managers point toward a computer screen and at the same time look toward an employee, they are simultaneously pointing in both directions, which performs a connection, or provides for the inference that the screen and the employee are related.

The metaphor of a "gap" between expressed strategies and work is widely employed in texts about strategy implementation (e.g., Beer and Eisenstat, 2000; Floyd and Wooldridge, 1992b; Noble, 1999), and the notion of doing "gap analysis" to "bridge" between desired performance and current performance is well established in managerial thinking (Grundy and Brown, 2002). The extent of its application in management suggest that the gap may act as an ontological metaphor (Lakoff and Johnson, 1980), that is, managers orient themselves to the challenge of strategy implementation as they would toward a real, physical gap (failing to cross it would cause one to fall; building a bridge allows one to cross the gap). This is consistent with studies on material expressions of strategy such as PowerPoint slides (Kaplan, 2011) and narrative plans (Sorsa *et al.*, 2014; Vaara, Sorsa, and Pälli, 2010), which have shown that material expressions are, on the one hand, malleable as they are edited during the strategy process, and directive, on the other hand, as they do influence action (Jarzabkowski and Kaplan, 2015; Kaplan, 2011; Vaara *et al.*, 2010).

Our findings about bridging elaborate and extend Burgelman's (1991) remark that strategies are embodied in organizational members. "The Bower-Burgelman model" (Jarzabkowski, 2005) presents strategy process as one of internal evolution where ideas, promoted by individuals, are selected and retained. Burgelman's remark on embodiment suggests that individuals retain a particular strategic idea in patterned ways as they encode and enact it in the embodied cognition of organizational members. In contrast to Intel's more bottom-up strategy, emergence during an extended period of observation, at YLE, the strategic change process was top-down and in its initiation stage (Gioia and Chittipeddi, 1991). Middle managers had just recently been tasked with communicating strategy in their teams. Thus, in the YLE case, embodied cognition takes place in the context of strategy *implementation* rather than strategy formation as was the case at Intel. In the context of implementation, middle managers use their bodies as channels between textual expressions of organizational strategy and the attentive bodies of their subordinates. Bridging gives sense to Floyd and Wooldridge's (1992a: 154, our emphasis) notion that "as '*linking pins*', middle managers take actions that have both upward and downward influences."

Beyond Floyd and Wooldridge's evocative metaphor of a "linking pin," we know very little of how middle managers influence microchanges in organizations, which are necessary for strategic change to be initiated and strategy to be implemented. Successful "bridging" implies two sets of outcomes for strategy implementation that can shed light on this issue. The first set of changes is

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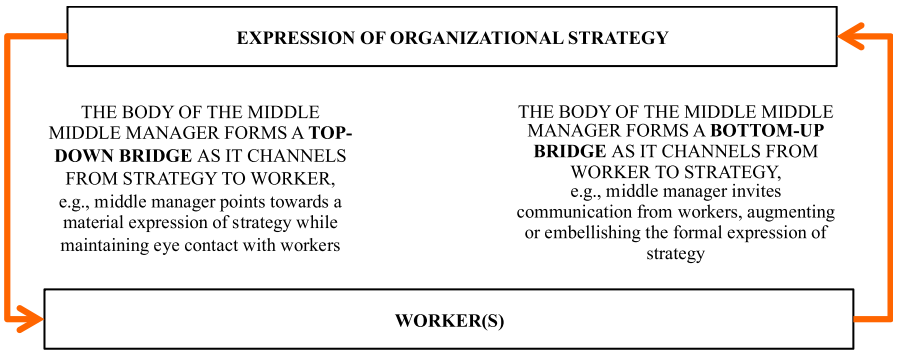

Figure 5. The body of a middle manager performing a bridge between strategy and work

behavioral in nature. "Top-down bridging" elicits expressed agreement from subordinates in relation to a strategic plan. When middle managers lock gazes with their subordinates while using their bodies to close a circuit between a strategy text and a subordinate, nods are elicited as affirmatory gestures. This commits implementers to changes indicated in the strategy texts. Such commitment, while nascent and potentially transient, suggests that bridging is a part of the microfoundation of initiating strategy-aligned (Van Riel, Berens, and Dijkstra, 2009) or conformance (Floyd and Lane, 2000) behaviors.

The second set of changes is cognitive. In "bottom-up bridging," the middle manager physically manipulates a version of a strategy text on the basis of input from subordinates, which establishes a sense of inclusion among participants (Westley, 1990). As the middle manager's attentive body documents modifications in a strategy text, organizational members play the role of co-authors (Balogun *et al.*, 2014) of that text. Such participation provides a nascent foundation of reidentification with the future organization depicted in the strategy text, reinforcing commitment to the implementation of strategic change (Fiol, 2002).

AGENDA FOR FURTHER RESEARCH

The persistence, extent, and influence of such behavioral and cognitive changes remain a venue for future research. We conclude our account by sketching further domains of research where the application of our methodological toolkit could assist in the exploration of unanswered questions about strategy. In our empirical illustration, we have focused on the embodied cognition of middle managers in their activities of implementing strategy with their subordinates. A natural next step is to look at the role of embodied cognition in middle managers' influence toward their superiors who decide on organizational strategy. Upward influence by middle managers, such as issue selling (Dutton *et al.*, 2001) and championing (Floyd and Wooldridge, 1992a; Mantere, 2005), are likely to be influenced by an embodied dimension that remains unexplored.

If such upward influence is related to variation of new strategic ideas, a related issue is the role of middle manager embodied cognition in the retention of such ideas, which was the context of Burgelman's original remark. Can a particular gesture within an interactional episode represent a particular strategy? What explains success and failure in encoding strategies in embodied interaction? These questions require the use of video methods, and our toolkit allows for the extraction of longitudinal evidence of strategic idea retention.

The cognitive work of top management strategists is the next natural domain of research. The accepted wisdom used to be that successful strategies are found in the "mind of the strategist" (Ohmae, 1982). Yet, we know very little of the *body of the strategist*, despite mounting evidence on the embodied nature of cognitive processes and cognitive work (Shapiro, 2014). Even budding "great minds," such as military generals who grow to become great strategists, begin their careers at boot camp; and composers and conductors of classical music are required to learn to play instruments in each of the major categories (strings, wind instruments, percussion, etc.). The highly analytical work that generals and composers do is built on disciplining the body to have a "feel" for the organizational

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practice to be conducted or commanded. The ways in which strategy is founded on an embodied sense of operational practice is an unexplored domain of research, at least partly accessible with video methods. The methodological techniques we have presented can be used, for instance, to further understand how strategists use embodied metaphors when making sense of their environments (Heracleous and Jacobs, 2011) and narrating the future of their organizations (Barry and Elmes, 1997).

A related domain concerns the emotional foundation of strategy and strategizing. Although both strategizing and the management of strategic change are emotional as well as analytical in foundation (see Huy, 2012, for review), we know little about how emotional processes influence strategizing. This is likely due to the scarcity of video-based studies of strategic management, which may well be the only method to facilitate the rigorous examination of emotions as they are expressed in strategizing contexts (Liu and Maitlis, 2014).

Between individual strategists, in the intersubjective domain, the fate of strategies is decided in interpersonal "contests" (Kaplan, 2008). Such contests are by nature cognitive, political, rhetorical, and intellectual, but they may also be embodied contests (like "staring contests") during which bodies, as well as the words they use, determine winners and losers. As convincing words and powerful arguments are ways of influencing strategic decisions, so are steady gazes, powerful postures, and commanding voices. At the intersubjective level, video methods can inform us on how bodies are used in winning or losing framing contests (Kaplan, 2008) with some organizational futures prevailing over others. Discursive (see, e.g., Samra-Fredericks, 2003; Sonenshein, 2010; Vaara and Tienari, 2011) and political (Denis, Lamothe, and Langley, 2001; Kaplan, 2008) accounts of strategy contests have provided powerful explanations of why certain strategies win over others. Video analysis can enhance such accounts by introducing an entirely new dimension through the featuring of the moving, thinking, and feeling body.

Beyond embodied cognition in the strictest sense, the wider domain of socio-materiality yields itself well to video-based work (Balogun *et al.*, 2014; Vaara and Whittington, 2012). Cognitive work is a distributed phenomenon that occurs between the bodies of individuals positioned in constellations of physical objects endowed with meaning, such as technologies and other artifacts (Barley, 1986; Faraj and Xiao, 2006; Hutchins, 1995; Kaplan, 2011). How such socio-material constellations produce strategies opens a set of unanswered questions for strategy research, accessible through video research. For instance, how do artifacts act as carriers of meaning in collective sensemaking in strategy formation and execution (Balogun *et al.*, 2014)? Similarly, do organizational strategies get encoded in particular physical objects and to what outcomes? How does the design of organizational spaces influence strategy (Fahy, Easterby-Smith, and Lervik, 2014; Kornberger and Clegg, 2004; Whittington, 2006)? Detailing, sequencing, and patterning allow scholars to trace the development of strategy in such socio-material settings within and across strategizing episodes (Hendry and Seidl, 2003).

The use of our three techniques gives the researcher access into unexplored aspects of strategy work in organizations with rich detail. The techniques, and video-based methods more broadly, have the potential of illuminating blind spots in our overall conception of how strategy develops in organizations. While a lot of ground has been covered through rigorous tracking of the development of organizational strategy by strategy process researchers in particular (Hutzschenreuter and Kleindienst, 2006), this work has mainly built on textual data (Mintzberg, 2007; Mirabeau and Maguire, 2014). Video methods have the potential of completing the picture by providing researchers with a view on the dynamic, spatio-temporal, and socio-material nature of strategy as it is just taking form.

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SUPPORTING INFORMATION

Additional supporting information may be found in the online version of this article:

Appendix S1. Producing and publishing video data
Appendix S2. Glossary