The Strategic Role of Power and Materiality in Managing Network Change

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Abstract – In this paper we attempt to shed light on how strategic changes occur in networked settings (i.e., partnerships), where power is decentralized and difficult to wield. We take a practice perspective and account for the role of material objects (including artifacts and concepts) in "making things happen". We acknowledge and build on research, which highlights that material objects can be used as a tool by strategists for promoting changes; however, we also point to the importance of considering the agentic role of material objects – when objects themselves wield influence, independent of the conscious intention of strategists. We support our claims using extensive fieldwork in a healthcare network and conclude the paper with a call for more research that investigates all aspects of materiality involved in strategizing practices to explain how power (to make changes) unfolds in network settings.

Keywords: networked change; power; materiality; strategizing; strategic tools; strategic objects; material agency; boundary objects.

INTRODUCTION

An organization's ability to manage changes rapidly and effectively is considered a strategic asset (Gioia and Thomas 1996; Hendry and Seidl 2003; Johnson 1992; Pettigrew, 1985). Related to this, a number of challenges have been identified. These involve resistance to change (Cameron and Quinn, 2005; Johnson 1992; Lorsch 1986); lack of employee commitment (Martin et al. 2005; Kwahk and Kim 2008), and more generally the ability of executives to communicate/promote change management initiatives (Choi 2011; Shin et al. 2012). Power and politics are clearly associated with strategic change, and most of the mainstream research on this topic has thus far focused on how decision-makers can effectively deploy powerful resources to "make things happen" (e.g., Porter 1985; 1991; Pfeffer and Salancik 1974). Recent literature has, however, pointed to the relevance of everyday strategizing practices (e.g., strategy-as-practice, cf. Jarzabkowski 2005; Spee and Jarzabkowski 2009; 2011; Vaara, 2010; Whittington, 1996;

2006) to fully understand how organizational change occurs. In this paper we examine strategic change by focusing on the practices underpinning such change. Thus far, these practices have been studied mainly at the organizational level, where hierarchical power relationships can make it easy to quickly implement changes – at least in the short term (Markus 1983; Tushman and O'Reilly 2006). Little attention has been given to how changes occur in network settings, where there are no hierarchical power relations that can impose direction (Hislop et al. 2000; Rodriguez et al. 2007; Swan and Scarbrough 2005), and the lack of physical proximity can increase the challenges (Ardichvili et al. 2003). Power associated with changes in networked settings, moreover, is not necessarily led by top-management, as is the case at the organizational level (Dezso and Ross 2012; Menz 2012). Instead, power in networks is more nebulous and ambiguous. Especially in networks of peers, leadership is not only associated with people's ability to "gain" power by accessing resources, but also with creating decision-making situations in order to promote change, or by giving symbolic meanings to particular actions, contexts or outcomes of certain decisions (Hardy 1996; Hardy and Thomas 2014; Lukes 1974; 2005). That said, we wonder, how do changes occur in networked settings, where it may be difficult to exercise power "over" others to make things happen?

The practice perspective that we use in this paper to address this question considers the agency of physical, digital and conceptual objects (for instance a desk, a software package, or a SWOT analysis) whose interwoven relationship with humans contribute to the production of social life (Feldman and Orlikowski 2011). Material actors (as well as human actors) cannot be fully controlled by human intentions and actions, and have emergent properties that cannot be determined in advance (Boczkowski and Orlikowski 2004; Orlikowski 2002). However, recent strategy practice-based literature (described as "strategy-as-practice") has tended to

conceptualize material actors as tools and objects that can be strategically deployed, with intent, by strategy leaders. These tools and objects, often discussed as examples of boundary objects (Star and Griesemer 1989), are created by strategists (senior management) for specific purposes, and used in practice accordingly (Spee and Jarbakowski 2009; Weirle and Seild 2015). We agree that strategic tools cover important aspects of materiality that are helpful for strategizing. However, in this paper, we argue that taking materiality seriously, especially with respect to power considerations, necessarily involves an emphasis on its "active" and emergent role (i.e., its agency). For instance, we should account for materiality that is not (always) "given" by human actors but instead emerges over time as forms of use and social relations sediment into place and become institutionalized (Leonardi and Barley 2010, p. 22), thus echoing concepts such as improvisation (Ciborra 2000; Orlikowski 2000) and "improvised learning" (Bourdieu and Robey 2005). Including this "agentic" view of materiality is important, we argue, to fully understand strategic changes in networked settings, where planned changes cannot (always) be executed straightforwardly, given the loosely hierarchical nature of networks.

We support our claims by analyzing and discussing longitudinal fieldwork that we undertook in Canada during the period 2010-2015. We discuss our findings and provide several implications for current and future theorizing on the role of power and materiality in network change strategizing.

STRATEGIZING AND THE PRACTICE PERSPECTIVE

While mainstream research (e.g., Eden and Ackermann 2013; Porter 1985; 1991; Pfeffer and Salancik 1974) roots its epistemological foundation in cognitions and rationality (Eisenhardt and Zbaracki 1992; Greve and Taylor 2000; Kaplan and Norton 2001; Simon 1991), more recent literature on strate*gizing* emphasizes the emergent and unpredictable unfolding of processes and practices; one example being the strategy-as-practice literature (Jarzabkowski 2005; Mantere and

Vaara 2008; Spee and Jarzabkowski 2009, 2011; Vaara 2010; Whittington 1996, 2006). In this paper we aim to study how changes in network settings can be possible by taking a practice perspective because we would like to emphasize the practices (e.g., human and material actors *doing* things) underpinning such changes. According to the practice perspective, knowledge and meaning are linked tightly to practice (Schatzki et al. 2001).

The practice perspective represents a shift from the traditional representational epistemic model which assumes that individual knowledge is a "mirror of nature" (Rorty 1979), to the non-representational idea that knowing is something that unfolds in and through practice (Nicolini 2011). All (organizational) knowing is viewed as a practical accomplishment, and therefore organizational knowledge is seen as processual, social, situated, and generated through *doing* (Bourdieu 1990; Cook and Brown 1999; Gherardi 2006; Marabelli and Newell 2012; Nicolini 2013). Strategy, seen from a practice perspective, is an emergent process (Galliers 2011) with echoes of Mintzberg (Mintzberg and Waters 1990), where strategy is constantly unfolding in the flow of practices as they are undertaken by practitioners (Jarzabkowski 2004; Whittington 2006). It is thus important to account for the everyday practices of those who enact strategy on a daily basis, and to do so it is important to adopt in-depth qualitative methodologies (including ethnography) with the aim to *zoom-in* (Huang et al. 2014) and unveil rich details on "the internal life of process" (Brown and Duguid 2000). These details focus on "tightly defined sites and episodes" (Whittington 2014, p. 1), revealing the role and contribution of particular practices to an organization's long-term strategy. To this end, strategy is constantly unfolding in the flow of practices as undertaken by practitioners. Nevertheless, while the strategy-as-practice literature (e.g., Jarzabkowski 2005; Whittington 2006) has already provided meaningful research that examines top-management strategy practice, for instance considering discursive power (e.g.,

Hardy and Thomas 2014), this research is focused mainly on the organizational level. Here, we aim to turn attention to networks, where power hierarchies are less defined.

Practice and Power

Taking a practice perspective necessarily involves power considerations. For instance, Nicolini (2013 p. 6) notes that the practice perspective foregrounds "the centrality of interest in all human matters and therefore put[s] emphasis on the importance of power, conflict, and politics as constitutive elements of the social reality we experience." Practices put agents and objects in place, and give or deny them the power to do things (ibid.). Seminal works supporting this view include Foucault (1980, p. 52), who makes the point that, "the exercise of power itself creates and causes to emerge new objects of knowledge and accumulates new bodies of information." Thus, power should be seen as immanent in everyday strategizing, in practice (Vaara and Whittington 2012). Practices unfold along with power dynamics as part of the ongoing fabric of social life (Foucault 1977) and spread within an organization, and across networks. Importantly, these practices include discursive practices that play a significant role in making changes durable, despite resistance (Hardy and Thomas 2014; Mantere and Vaara 2008; McCabe 2010; Spee and Jarzabkowski 2011; Thomas and Hardy 2011; Vaara 2010). For instance, in a healthcare context (the context used in this paper), resistance may come from doctors who are not willing to share their knowledge about patients (Nicolini et al. 2008) even when management promote such sharing processes to improve healthcare delivery (Scarbrough et al. 2014). These power-related practices involve material objects as well as humans, as we explain next.

Strategizing and Materiality

Most of the recent literature that examines strategic changes using a practice perspective conceptualizes materiality as a set of "strategic tools" (Burgi et al. 2005; Molloy and Whittington

2005; Spee and Jarzabkowski 2009). Such tools generally refer to very common office entities (a desk, a computer, post-its, block notes, etc. – see Jarzabkowski et al. 2013) as well as more sophisticated entities such as Powerpoint presentations (Kaplan 2011) or other visual tools (e.g., pictures, videos) that are used to deliver ideas but that can also incorporate a symbolic value (Paroutis et al. 2015). Strategists (generally executives) are often observed during steering committee meetings, workshops and the like, using a variety of tools to facilitate others' understanding of their (strategic) ideas, to promote collaboration and knowledge sharing, or to support their own (strategic) claims, attempting to execute their own agenda – sometimes at the expense of others (Hardy 1996; Pettigrew1979). Examples of tools used in a "constructive" way are considered in Paroutis et al. (2015), who discuss "tools in use" such as strategic maps. Likewise, Belmondo and Sargis-Roussel (2015) show how tools such as a word document become relevant when they are used to promote a shared understanding of strategy.

Strategic tools used in a more subtle way are described, for instance, by Kaplan (2011), who notes that Powerpoint presentations can be used to produce and validate knowledge between managers – in this way bridging different epistemic cultures (Knorr-Cetina 1997); alternatively, the same presentations can be used (subtly) to set boundaries. To this end, prior literature has highlighted the challenges associated with knowledge transfer across boundaries (e.g., Hansen 1999; Kijkuit and van den Ende 2010; Reagans and McEvily 2004; Tortoriello and Krackhardt 2010). This involves considerations associated with the political aspects of such boundary spanning and the role of boundary objects (Carlile 2002). Kimble et al. (2010), for example, highlight the role of boundary objects and their relationship with knowledge brokers – agents who use objects to promote knowledge sharing across professional boundaries, for example. In particular, Kimble et al. (2010, p. 442) point to the political nature of selecting the *right*

boundary object. Similarly, Oswick and Robertson (2009) discuss the political aspects of boundary objects because of their mediating role for contrasting goals and potentially reinforcing power structures and established hierarchies. However, besides a few exceptions (Belmondo and Sargi-Roussel 2015; Jarzabkowski and Kaplan 2015; Spee and Jarzabkowski 2009), boundary objects are treated, like tools, as things that strategists use intentionally to help encourage people with different backgrounds and interests to get behind the change initiative. They are objects that are used to help "change minds", they are not considered as objects that can themselves "change practice". They are objects that are used *intentionally* by strategists, and are not considered to have a "life of their own".

Certain recent literature, however, (Balogun et al. 2013; Dameron et al. 2015; Demir 2015; Jarzabkowski and Kaplan 2015) examines objects using the concept of affordance (Gibson 1977; Leonardi 2011). They acknowledge that materiality is not "just" selected by strategists but can also present itself to strategists in relatively unpredictable ways – consistent with Leonardi's (2011; 2015) idea of emerging imbrications that naturally occur between human and material actors during everyday strategy-making practices. The concept of imbrication involves changes made by human agents, but these practices affect and are affected by the agency of material objects as well. As such, these objects adapt to people and people to objects through ongoing imbrications. By looking into these theoretical facets of materiality, we respond to Le and Spee (2015) who argue that materiality is a relevant topic for practice-based research that focuses on strategy and change but also indicate that this research still needs substantial theoretical and empirical development (see for instance the call for more strategy-as-practice research on materiality in a 2015 Special Issue in the *British Journal of Management*). Studies on strategy and materiality are also relevant to understand communication/collaboration practices

underpinning the creation and sharing of knowledge and information (see for instance the call for more strategy-as-practice research in the IS field, appeared in a 2014 Special Issues in the *Journal of Strategic Information Systems*).

Building on this line of reasoning, we argue that scholars should consider strategic tools intentionally used as boundary objects along with the material agency that emerges as a material object is used in practice, gains power in its own right and helps to make a change durable. Thus, in this paper, we aim to illustrate how power emerges in a variety of material objects, and in some cases has an "active" role, independent of the initial intentions of the human actors and going beyond simply "changing minds". The next section expands on the context of our fieldwork and provides details on the methods and techniques adopted to analyze the data obtained.

RESEARCH SITE AND METHODS

Fieldwork was undertaken at a hospital – 'Canada-care' – longitudinally (September 2010 – April 2015) *in situ* and retrospectively (2008-2010, including the review of documents), adopting an interpretive qualitative approach (Walsham, 1993; 2006). Background information on the context and research setting are provided below.

Healthcare Coordination Challenges

We chose to analyze a strategic initiative in the healthcare domain because of the challenges that this industry poses in terms of changes associated with coordination practices. Working collaboratively to coordinate healthcare processes is key in many healthcare settings. Yet collaboration can be challenging when health workers from various specializations, having different backgrounds, knowledge and approaches to problem solving, are nevertheless required to coordinate their practices in assisting and supporting patients, families, carers, and communities (Gittel et al., 2013, WHO, 2010). A key component of healthcare coordination

involves the ability of those involved to share knowledge (Kimble et al. 2010). Impediments to knowledge sharing can harm patients' health in emergency situations, increase costs, and inhibit diagnoses and the administration of quality care (Shannon 2012). Systems and practices enabling information sharing are seen to be key in helping to manage knowledge in healthcare settings and are aimed at improving quality service delivery (Davidson et al. 2015; Shannon 2012), faster treatment for severely ill patients who need speedy diagnoses such as in life-threatening situations in ER (Kaelber and Bates 2007), and improved coordination when patients present multiple symptoms that require the intervention of different specialists (Abraham and Reddy 2008). As we explain next, our case involves major strategic changes in how a healthcare network manages coordination and the associated knowledge sharing processes that ultimately led to improved healthcare quality.

Case Background

The case focuses on a pilot project that had the aim of improving coordination of interventions at Canada-care, and between the hospital and other (external) healthcare agencies including social services. While the need to improve healthcare coordination at Canada-care emerged in 2008, the project analysis and bidding process (and approval) took two years. The first (pilot) phase – April 1st 2010 to April 1st 2014 – was funded jointly by a Local Health Integration Network (LHIN) and the Province. In April 2014, the pilot was granted a year's extension (second phase) with additional funds from local healthcare networks.

The pilot project focused on children with complex care needs – that is, children with multiple and life-threatening diseases who need to be treated by several specialists. The necessity to improve healthcare coordination emerged in 2008, when a number of the children's parents pointed out that the different healthcare specialists were not exchanging crucial medical knowledge with each other. As a result, the parents were often overwhelmed and emotionally

drained because it fell to them to coordinate the care of their child – even though their lack of knowledge of medical terms might lead to imprecision in reporting their child's circumstances to the doctors. Additionally, external agencies (e.g., social services) were not always aware of each child's most recent health issues, and this too posed health risks. Further, the hospital did not receive the most recent updates – from school or social service agencies – about the children's social/psychological condition.

The project started on April 1st 2010 with 20 children being enrolled in the pilot. A nurse dedicated to the project (nurse coordinator) and a project manager were hired, and one of the hospital doctors, who was already taking care of children with complex needs, undertook the role of full-time coordinating physician. In spring 2014 (second phase), additional funds made it possible to add resources: an additional nurse (full-time) and three physicians (one full-time and two part-time) were hired. This allowed them to enroll 20 additional children into the scheme.

Research Philosophy and Data Collection

Interviews were conducted with clinicians (doctors and nurses), healthcare managers, and "end users" (families of the children). The aim was to have each participant tell her/his "story" (i.e., their version of key events) in the style of a confessional (Schultze 2000) narrative account, allowing for uninterrupted storytelling in line with interpretive qualitative research as outlined by Walsham (1993; 2006). Thereby, the data provided a holistic overview of events, as constructed by the actors involved, who were not conditioned by narrow and/or specific questions. In most cases, we were able to undertake repeat interviews. As interviewees mentioned other key actors, we then arranged interviews with those concerned, thus including a broad range of stakeholders using a snowball sampling method (Rankin and Bhopal 2001).

Data were collected retrospectively (2008-2010), with interviewees being asked to recollect past events and by means of accessing various historical documents, and longitudinally

(2010-2015), through our fieldwork. This approach to data collection (over time, with some retrospective insights) is consistent with research that aims at capturing ongoing practices (e.g., Mazmanian 2013; Nicolini 2011). By collecting longitudinal data, researchers can capture the emergence and evolution of practices involving human and material actors and can be informed on how these actors interact over time (Yates and Orlikowski 1992). Retrospective data facilitate the study of how recurrent practices, or routines (Feldman and Pentland 2003) arise, change and stabilize through time (Boczkowski 1999; Orlikowski et al. 1995).

In terms of the longitudinal aspect of the study (commencing in 2010), after receiving ethical approval from our University's institutional review board, we constructed an informed consent document, which was administered to everyone involved in the study. The informed consent document points out that the data collected (including interview transcripts and audiotapes) would not be shared among participants, helping to ensure honest responses and minimize bias. Forty-seven interviews and fourteen observations were audiotaped, professionally transcribed and analyzed using Nvivo. In addition, one of the authors of this paper travelled on average three times a year to the site to undertake (and audiotape) interviews and observations, making seventeen trips in total. A number of notes recollecting informal observations, occasional conversations, and social lunches/dinners with doctors and managers at Canada-care added to our understanding of the case. Additionally, some 300 emails have been exchanged during the period 2010-2015 where the project leaders provided details/clarifications about their initiative, and monthly conference calls with the coordinating physician and the project manager at Canada-care were also undertaken.

In 2010, after an initial meeting with a hospital manager, we were given access (after signing a non-disclosure agreement to ensure data confidentiality), to several documents related

to the pilot project, including minutes from meetings and steering/advisory committees as well as data contained in a newsletter, various websites, and correspondence (emails) between project coordinators and the main actors. These, along with the transcripts, were all uploaded on Nvivo and analyzed.

Fieldwork was undertaken in four stages to capture the evolution of and changes associated with the initiative. The first stage (face-to-face interviews) started in October 2010 and ended in October 2012 (26 interviews and 8 observations). In 2013 (the second stage), we undertook 11 phone interviews and collected additional documents (minutes of committees and the monthly newsletter). In 2014 (until January 2015 - the third stage), we conducted 10 face-to-face interviews and 6 observations. In spring and summer 2015 (the fourth stage), we collected additional documents and notes from informal phone calls with the project manager and a physician, in order to update our understanding of the evolution of the initiative.

Data analysis

Data analysis commenced in January 2011, shortly after the start of the data collection process (in Summer 2010). Following the interpretive tradition that recommends overlapping data collection with analysis (Yanow and Schwartz-Shea 2006), we continued to collect data until the Summer 2015, while coding new and old data. This allowed us to do preliminary analyses and return to the study participants with follow-up questions, as needed. Our first task was to input all interview transcripts collected by January 2011 in Nvivo, along with other documents such as the pilot's November and December Newsletters and other details (including the notes that we had taken). This was the starting point for the creation of a broad narrative (some 8,000 words) describing the events that we were able to capture retrospectively (2008 – 2010) and longitudinally (2010-2011).

In Spring 2011, with several additional interviews being transcribed and loaded into Nvivo, two of the coauthors of this paper independently coded the interview data. In line with Orlikowski (2002), we chose "social and material practice" as the unit of analysis, defined as "recurrent, materially bounded, and situated social action engaged in by members of a community" (Orlikowski, 2002) – in this case, the doctors, nurses, social workers, independent pediatricians, staff, and families of the children involved in the pilot project. Most codes were exchanged (double blind review of each others' codes) to ensure reliability (Lombad et al. 2002; Tyler and Gnyawali 2009). During the period 2013 – 2015 (telephone and face-to-face interviews and observations), we further expanded our Nvivo database with new transcripts and analysis. We are aware that in order to capture ongoing and evolving practices it is important to observe rather than ask people about "what they did". However, following Giddens and Pierson (1998), we believe that people are knowledgeable and reflexive, and that they often know more about what they do than researchers give them credit for (Orlikowski 2002), or can observe/interpret. Therefore, our findings are the result (triangulation) of different accounts – those drawing on formal "sit-in" interviews, non participant observations, retrospective data (documents), recollections from participants (informal stories and chats) most of which have been audio-recorded – yet the formal data collection has been enriched with the long-term exposure of the authors to the events unfolding at Canada-care.

THE CANADA-CARE JOURNEY (2008-2015)

From Conception to the Start of the Pilot Project (2008-2010)

Since 2000, Canada-care has been hosting a family forum, giving parents the opportunity to share their experiences and feelings about their child's care. Families used the forum to highlight coordination problems they had experienced both within the hospital and between the hospital and other agencies. Examples (e.g., blood tests being taken multiple times by different

specialists) of the lack of coordination proliferated. Moreover, the parents needed to tell each specialist about what other physicians had been doing in relation to prescriptions, tests and the like. Healthcare workers were relatively sympathetic to the families' complaints, and some initiatives followed. One such was a dissertation by a Master's student who was based at Canada-care and who had undertaken a research project examining how coordination in healthcare had been approached in other contexts and with what effects. This helped some of the hospital's doctors to gain the attention of Canada-care CEO. A nurse practitioner recalls that:

> *The coordination of the care project just came from an idea …[from] and really pushed by our family forum … And in a meeting I had with them they said that they were very concerned with the fact that the parents had to essentially be the case manager for the children who had very, very complex situations … So I then called a meeting with [the CEOs of external agencies] and a few other people and we started to discuss what type of model we could think of to relieve the families from the burden of coordinating the care. And it took us months [laughs] to arrive at a model. We looked … at literature … [based on the dissertation] reviewed what was being done elsewhere.*

In an interview with the Master's student in 2010, she highlighted how important it had been to identify literature and collect data on how other coordination initiatives were managed in similar settings (children with complex care needs):

> *They are two different sources. I'm doing both. Doing a literature review and calling other centers and doing sort of an environmental scan of other centers to see what they're doing. Mostly Canada and the US.*

Another activity that emerged was the formation of a "core team". The core team (six in total) included a doctor and two middle management individuals from the hospital and middle managers from the three external agencies; none of these individuals had decision-making power in the hospital/agencies. These people, all involved in the care of the children (professionally and emotionally), began to meet informally (including dinners) to discuss how to support families.

In these discussions, they identified how they would need additional resources to improve coordination and started drafting a proposal addressed to the Ministry of Health to bid for resources. They informally approached the hospital's CEO who initially was not supportive, especially since resources were tight. In July 2008, the core team put together an eight-page letter addressed to the CEO in which they formally asked him to co-sign a bid to obtain funds to start a pilot project. The document was backed up using evidence from the literature and clinical evidence gathered from Canadian and US initiatives aimed at improving coordination (based on the dissertation). This time the CEO agreed to advocate for the project and a year and a half later (April 2010) the bid was accepted.

During the conception of the pilot project four meaningful practices emerged that reflect the relevance of creating and sharing written documents that can become powerful tools in promoting change. Two practices – *undertaking research and writing a literature review* and *examining clinical research and producing a dissertation* – were mainly undertaken by the Master's student. The practices – *holding informal meetings to draft documents* and *bottom-up document sharing* – involve representatives of the hospital and the external agencies (the "core" team). Table 1 provides an overview of all these practices.

Table 1. Project conception

Practices involving materiality	**Description of the activities related to the practice**
Researching and writing literature review	Writing up a literature review on healthcare coordination and sharing the results was undertaken by the master's student as a requirement for graduation. The materiality involved (document containing the literature review) is a synthesis of past academic studies and illustrates what worked (or did not work) in a number of healthcare settings where attempts to change processes and practices to improve coordination were made.
Examining clinical research and producing a dissertation	This practice, undertaken by the master's student, is about triangulating "academic" sources with current clinical evidence and more practitioner-oriented research. The material artifact (dissertation) is a document that includes the literature review now combined with practical evidence related to coordination initiatives in the US and Canada – this evidence showing the correlation between coordination and the improvement of healthcare delivery (quality/efficiency).

Holding informal meetings to draft documents	This practice involves informal activities (e.g., lunches and dinners) during which the core team created a document that was to be used to convince the CEO to let them pilot a project with a focus on coordination of care. The document draws on the literature review and the clinical research identified by the Master's student.
Bottom-up document sharing	This practice reflects *how* those who do not have financial decision-making power (the core team) attempted to convince powerful individuals (CEO) that a change should be made to improve coordination. They did so by sending the finalized document which drew upon the literature review and the clinical evidence produced by the Master's student. This document is shared as "evidence" of the relevance of improving the coordination of care of very sick children.

The First Phase of the Pilot Project (April 1st 2010 – April 1st 2014)

The pilot had its official start on April 1st 2010, and the parents soon perceived the benefits of improved coordination. The coordinating physician arranged formal meetings to present to her colleagues (specialists) about why improving coordination was important. This involved a Powerpoint presentation, which included evidence about improved coordination (e.g., taken from the Master's dissertation) as well as more personal anecdotes from families including quotes from several parents experiencing personal and social challenges associated with their children's symptoms. In this presentation, the coordinating physician highlighted the relevance of sharing knowledge and provided examples of the benefits that such sharing could make. The pilot project manager highlighted the key role of the coordinating physician as follows:

> *Because her job now is to look at the child as a whole. No other physician [can do that work], unless they [the children] are in the community, so pediatrician or a family doctor would kind of do that work. But in a hospital setting you wouldn't have that. [The coordinating physician] does that. And she will then communicate the information to all of the specialists internally as well as externally.*

The start of the project involved the hiring of a full-time nurse coordinator, who reported directly to the coordinating physician, and from whom she received the most recent updates about each of the 20 children enrolled in the pilot. The nurse coordinator calls, on average, each family at least once a week – often just to check to see how the child is doing, sometimes to share a lab result or to ask families to take the child to the hospital. The parents tended to contact

the nurse coordinator about once a week too. Most often contact is made via email, the main reason being to order a refill prescription.

Aside from these new staff roles and processes, the main ambition of the pilot project had been to create an Electronic Medical Record (EMR) to allow the sharing of the children's medical records across the network of organizations involved. This is because evidence (e.g., arising from the dissertation) had suggested that such systems were vital components of improved coordination. In fact, in 2010 the hospital already had electronic records where clinical information about patients was stored. However, different units had their own systems, representing a barrier to coordination even within the hospital, and the external agencies did not have any type of EMR. Once the pilot project team started to look at implementing something to allow electronic sharing of medical records across the network, they soon realized that it was infeasible, being "too expensive and too time consuming", according to the Project Manager. After some deliberation, the advisory board developed a short (two page) medical sheet that would synthesize the most relevant information about each child and would be updated regularly, including deleting information no longer relevant. This idea was initially suggested by a parent who had developed his own "cheat sheet"' to help him remember details when visiting specialists with his sick child. Once implemented, the nurse coordinator would update the medical sheet when notified of a change in a child's condition or treatments. The medical sheet would then be handed or emailed to the parents (so they could bring it with them to different specialists, and if needed, to ER – even in other hospitals), and it would be sent via fax or email to relevant external agencies.

While the designed purpose of the medical sheet was to share information amongst those involved in the care of a child, in practice it also provided relief to parents who no longer needed

to understand complicated medical terms from very long clinical reports. It was designed to include only relevant (e.g., life-threatening) information about the child, and in a way that is specific enough to be meaningful for doctors, but easily understandable by non-clinicians (other non-medical agencies like schools but also families). While as we already pointed out the idea of the medical sheet was originally suggested by a father during a family forum session, then the document was further developed by the core team (involving the hospital and the external agencies) and including several parents, in particular, two who sit on the advisory board. A brief description of the medical sheet is provided below (nurse coordinator):

> *So it would have a brief history, all the medications that they're on, all the surgeries they've had, all the testing's that they've had, and a brief description of what their normal physical findings were. So really you would take this page and you'd be able to read it and have a really good synopsis of the patient. And that document is actually what took the longest time to develop. Because we wanted to make sure we were as accurate as possible. So going through all those medical records was a big undertaking but it was certainly very necessary because you would see as you went back to the first medical record all the diagnosis were listed, everything, and then as you progressed through medical records, whoops, this diagnosis was left off. Things got lost along the way so it was a really good retrospective look at the patient.*

Over time, the medical sheet has been modified. For example, social services suggested adding fields related to behavioral issues (the medical sheet started as a "clinical" sheet, then some non-necessary clinical details were replaced by more psychological data). Also, in the last couple of years, a lot of work has been done that is related to the circulation of the document. Initially (2010-2011) the medical sheet was sent to the external agencies only via fax (for security/privacy reasons). In 2012, encryption was implemented and the medical sheet could be distributed using email. In 2014, a web portal was created where an electronic version of the medical sheet could be accessed (including by the families).

Overall, having the nurse coordinator managing the updates and distribution of the medical sheet across the Canada-care network was very helpful for coordination purposes. Prior to the start of the pilot, there was little communication between the hospital and external agencies, and most of the decisions about a child's treatment (even those involving socio-psychological aspects) were made by Canada-care doctors and nurses, in isolation. Likewise, knowledge of the psychological condition of the children was seldom shared with the hospital, and many decisions that were made locally (by social services, schools, etc.) were not shared, even though there were general guidelines that required such communications to occur.

The introduction of the medical sheet was associated with changes to many existing practices. For instance, the introduction of the medical sheet in 2010 was associated with substantial changes in how often the children were taken to ER since the nurse coordinator could rely on an updated medical sheet and could answer most of the families' questions without having them rush to the hospital. Moreover, even the (fewer) emergency visits went more smoothly because the medical sheet was shared with ER personnel. For instance a father pointed out that:

> *[The medical sheet] is good because it's written by a doctor, right, so then the doctor can read it and go boom, boom, okay, we understand what the basic interventions are and that sort of thing. Which is great. And it's signed by a doctor. And it's on file at the Emergency, right, so it's on file there.*

Another example of a practice that changed because of the medical sheet is related to the possibility for families to travel with their children. This dramatically changed the quality of family life. For example, one mother told us she had been able to travel to Florida for a short vacation – the first time the family had been able to go away with their sick child. Along with other arrangements, the medical sheet was sent to three hospitals in Orlando, where the family was planning to stay for a week. As the nurse coordinator explained:

> *I spoke to the 911 responders for that area, we got them all the documentation, saying this child is going to be here these three days so you know she's in the area, this is how you treat it, this is what you do. Got fax confirmation from the hospital that they'd received the information, from 911 operators that they'd received the information. And then called the family and said you know what, it's done, you don't have to worry, you can just go […]. There was a big thing for them to know I dealt with it, it's done, they can go, they don't need to worry…. And so that's a big thing for families.*

An additional example of a practice that changed over time through the use of the medical sheet relates to the number of meetings between the coordinating physician and the external agencies (psychologists, social services). Since more (up-to-date) information about the children was shared via the medical sheet, meetings reduced from up to twice a month to 3-4 times a year. More importantly, discussions in the meetings started to focus more on how to keep improving coordination rather than on the health of the children per se – since these aspects were dealt with mostly via on-going use of the medical sheet.

Overall, by 2013, the pilot project was seen to be an excellent network initiative – a partnership – capable of mobilizing knowledge within Canada-care, across different agencies and with the children's families. However, there were still concerns about whether or not the pilot could become a self-sustainable program, permanently funded by the Province.

The families themselves kept voicing their concerns very loudly in the family forum, advocating for the continuation of the pilot project, since it was making a considerable difference to their lives and to the health of their children, as highlighted below (mother of a children enrolled in the pilot):

> *Before the [Pilot Project] it was like if I was in a business, you know, I wouldn't be the only person having to do all that work. You would have a manager, and you would have secretaries, you would have clerks, you would have a whole system of people and I before the project didn't have that, you know, so what would happen before the project would only be related to how much energy I had or what his health is, and so that I could only advocate so far to make things happen, you know. But now all doctors work together to talk about how it's going*

to work and who's going to take responsibility for pieces of making it work. It's not just a nice touchy feely this is a good idea, see you all later, but it's more okay, who's going to be responsible for which pieces and for somebody took notes about it, you know, so each doctor has access to those notes and is accountable, and again it's not left to me to run to a doctor and say well, did you do that part, you didn't do that part.

Thus, during the first phase of the pilot project, we were able to identify the following practices – *creating Powerpoints and embedding quotes in documents,* and *discussing visual documents* (initiated by the "core" team and most specifically the coordinating physician, albeit subsequently involving other actors such as the hospital's specialists); and *the co-creation* and *use of a medical sheet* (undertaken by all those involved in the network). An overview of these practices is provided in Table 2.

Table 2. Pilot project phase I

Practice involving materiality	**Activities that describe the practice**
Creating Powerpoints, including embedding quotes in presentations	The practice associated with including a variety of quotes in presentations, reflects the knowledge broker role of the coordinating physician who on the one hand listens to the families and on the other hand embeds their "feelings" into documents.
Discussing "visual" documents (PPT slides)	This practice is about the use of an object (PPT slides) (with images, effects, and "emotional" quotes) aimed at sharing knowledge about the relevance of coordination initiatives.
Co-creation of a medical sheet	The design of the medical sheet is a key practice illustrative of how material objects can be created jointly, here in a bottom-up fashion since the idea originated from a father of a sick child and then the core team took over.
Use of a medical sheet	As the medical sheet is used in practice changes are made to it, with fields added/removed, and changes in how it is distributed across the network. The use of the medical sheet affords changes in practice, such as less ER visits (families) less meetings (core team), and opportunities for some families to travel (Florida example).

The Second Phase of the Pilot Project (April 1st 2014 – April 1st 2015)

At the end of 2014, the new Canada-care CEO was actively trying to convince the Provincial government that the pilot project should become a permanent program with funds being provided by the Province. There are, of course, several pilot projects in Canada that are

good candidates to become programs but funds are limited. Given this, the CEO was actively involved in trying to convince the Province of the merits of this pilot project. He was doing this by sending to the Province "'official" documents that reflect the success of the pilot. The CEO has drawn on an independent report based on research conducted by a university that shows that the pilot had substantially improved service delivery. This study had concluded that families had indicated that their workload in managing their child's heath is dramatically reduced, while their child receives better support. The study included quotes from the families that the CEO later drew on, several of which were very "emotional" – an example being the struggle of a foster mother who explains her situation before being involved in the pilot and then how things have changed as a result:

> *You know, my social economic situation had completely changed [since when the child started being sick, in 2007]. So that as a caregiver was my package for two years of oh, it was very intense. I have respite. I just automatically book it, you know, to have somebody here twice a week. Because I don't know which week [name of the child] is going to be sick so I ask people please come every Tuesday. And if I don't need you that means I'm free to do something, right. Maybe I'll go and have a sleep. Maybe I'll go and have a coffee with a friend if I can… [Now] It's helpful to have the space, the Pilot Project has given me the space to do that, to figure out for myself wow, like I am a caregiver and this is the impact it has on my health and what do I need to do to counter that and to make it different.*

The CEO also used other evidence (documents and managerial reports) of other successful pilot projects as he tried to persuade the Province's Ministry of Public Health to permanently fund the pilot project, as reported in a 2015 interview:

> *[In interacting with the Province] I'm using all sort of internal data, evidence from the community, families feelings, and our experience in a local program to make the case for promoting a kind of model on a wider scale….There's another [pilot project] at Sick Kids in [another large city in the same Province] that is very different but with the same goal. And so the Ministry has agreed to look at the two pilot projects and see if the outcomes are positive to potentially fund the projects.*

In this phase of the pilot, we were able to identify two distinct practices that show how materiality has supported the strategists at Canada-care. The first is *the creation of a research report* (performed by a third party independent organization – the university). The academic nature of the independent source gives legitimacy to what is in the documents and this is reflected by the second practice – *the circulation of evidence*. Both practices are described in Table 3, below.

Table 3. Pilot project phase II

Practice involving materiality	Activities that describe the practice
The creation of a research report	A university conducts extensive fieldwork to examine the pilot project and writes a report that concludes that it was extremely successful as it had substantially improved coordination of care at Canada-care and its network of partners.
The circulation of evidence (including from research report)	This practice illustrates how decision-makers (CEO and the Province) appropriate an existing document to legitimize an idea.

DISCUSSION

Above, we have identified a number of practices involving material objects. These practices led to durable changes. Examples of materiality include: 1) a Powerpoint presentation, created and used by the coordinating physician to persuade others; 2) the Master's student's dissertation, created by the student and later used by the core team to persuade others; 3) the university report, created by scholars and subsequently adopted by the Canada-care CEO in an effort to persuade the Province to provide funding; 4) the medical sheet, created by the core team and used by the specialists (within the hospital) and the external agencies, but just as importantly, by the families, affording various practice changes that could not have happened otherwise.

A summary of these practices with respect to creation and use is provided in Table 4.

Table 4. Creation and Use of Materiality with Respect to Power Aspects

Materiality	Practices	
	Creation	***Use***
PPT presentation (coherence and linearity between creation and use)	The coordinating physician purposely creates it to persuade the specialists that coordination is relevant for improving healthcare quality	The "visual" presentation with quotes from the struggling families along with medical evidence helps the coordinating physician to persuade others
Master's student's dissertation (creation diverges from use)	The master's student creates her dissertation for the purpose of graduating	The findings of the dissertation are used by the core team to obtain the support of the CEO while putting together a bid for piloting a project. This is a bottom-up practice
University research report (creation diverges from use)	Some university researchers create a report that is based on data collected with the purpose of writing and publishing academic papers	The results of the university report are used by the CEO to negotiate with the Province as the "independent" study legitimizes the success of the pilot project
Medical sheet (its use goes beyond the purpose for which it was created, affording new practices)	The advisory committee (with feedback from families) creates the medical sheet to easily communicate basic clinical information across the network; this is amended over time with the content and the method of distribution changed	Use involves changes in practices: the families become more independent (trip to Florida); the meetings of the core team become less frequent; ER admissions are reduced.

Creation and Use of Materiality: Tools, Objects, and Powerful Agents

Table 4 makes it clear that the term "materiality" (column 1), can involve a variety of nuances, as we showcase below.

Strategic tools

Materiality can be seen as a strategic tool, which, based on our findings, we define as materiality created by strategists and used by strategists in line with their intended purpose at creation. This definition is consistent with the general understanding of strategic tools proposed by the strategy-as-practice literature (Jarzabkowski et al. 2015). At Canada-care, a good example of a strategic tool is the Powerpoint presentation created and used by the coordinating physician. She was able to use the tool in line with her strategic aims – these involving trying to convince the specialists' to engage with the project and commit to change their practices to improve

coordination. The power gained by the presentation relates to meanings and interpretations that are given to it by the coordinating physician who then uses it to try to persuade others. The tool can be said to be effective to the extent that it leads to a convergence around a specific strategic frame that here relates to the relevance of information sharing (therefore, coordination). Moreover, the aim of the presentation did not imply coercive actions (e.g., punishment for those who would not comply). Instead, the presentation gains power that helped to create consensus because of the discursive practices of the coordinating physician, which emerged through the practice *discussing "visual" documents (PPT slides)*. Material objects, from this perspective then, are tools that strategists create and use to embed messages that they want to convey. The tool is designed and then used in a way that is entirely consistent with this design.

An important part of the message embedded in the presentation tool by the coordinating physician related to how the families were affected by poor coordination (here involving the practice *embedding quotes in presentations*). Thus, she included quotes from parents collected at family forum sessions in order to have emotional appeal. These quotes fed the narrative that coordination will positively affect the care of the sick children. Practices associated with the use of strategic tools have been mostly related to the interpretation that various actors give to an initiative (and how far different interpretations converge into one clear framing – see Gopal and Prasad 2000; Hsiao et al. 2008). In the case of the coordinating physician's presentation, this helped her to communicate to the audience "her view" (Orlikowski and Gash 1994) of the status quo (lack of coordination) and helped her persuade the specialists that the change project should be embraced. The practices associated with the creation and use of this tool are based on cognitive efforts (Barley 1988) – in this case related to persuading others with the help of "pre-made" tools that are *ad hoc* created for this purpose. In addition, the tools are used to produce an

emotional response that makes the persuasive effort more powerful.

Appropriated Tools

The Master's student dissertation and the university research report (Table 4) both played a relevant role in the pilot project, because they were able to legitimize ideas (proposal to pilot a project and possibility to establish a stable on-going program for children with complex care needs). In this paper, we define such objects as appropriated tools. Here, the difference between strategic tools and appropriated tools is that the latter were created with intentions not related to a "strategic plan"; strategists, however, used these objects for strategic purposes. Material objects are used in unpredictable ways, often not consistent with the purpose for which they were designed (Poole and Desanctis 1990; Orlikowski 2000). In the case of the Master's student's dissertation, the practices underpinning its creation are *literature review* and *examination of clinical research*. These practices were undertaken with no strategic intent, other than to gain a degree. The core team used the dissertation through the practices *informal meetings to draft documents* and *bottom-up document sharing*. These practices of materiality in use show how strategists may appropriate an existing object (the Master's dissertation) and use it in a way that deviates from what the creator (the student) had in mind. Similarly, the university study was created through the practice *creation of a research report*, and was later appropriated by the CEO with the practice *circulation of documents*. In both examples (dissertation and research report), objects have properties that came to life through their appropriation by people who did not contribute to the creation process and for objectives not envisaged in their creation.

The power of these objects can be explained in two ways. First, the sources (prior and current research) that were used during the creation processes are considered reliable in the

context in which these healthcare practitioners operate. Evidence-based practice is an important ideal in the healthcare sector (Dopson et al. 2013). Second, the objects used by the strategists are documents that were created for one purpose but were used for a different one. This represents a powerful asset because those exposed to the object might be more convinced by its third-party nature and so assume that it is more neutral than objects created by the strategists themselves. As a result, these appropriated tools become more "credible", supporting and justifying arguments around the need to pilot a project (2008: dissertation, used to convince the CEO) and to create a program (2015: university report, used to convince the Province). It is important, therefore, in exploring materiality and power in strategic settings, to (also) account for such artifacts that gain legitimacy because of the sources they draw upon and because the purpose of their creator(s) does not necessarily align with that of the users, with this adding to the credibility of the object.

Material Actors

We define the medical sheet (Table 4) as a "material actor." The medical sheet was created in a bottom-up fashion, as the idea to include all (and only) the relevant pieces of information about a sick child arose from a father, during a family forum session. The medical sheet was then reviewed by the doctors and nurses at Canada-care, as well as by colleagues from the external agencies. This practice of *co-creation of a medical sheet* speeded up its adoption across the network, as everybody felt empowered to influence its design (Avolio et al. 2004). The *use of the medical sheet* practice, however, deserves particular attention because its use in practice gains agency in ways that were not foreseen by the creators themselves. More specifically, once the medical sheet is "unleashed" into the network it is no longer under the control of those who created it; while a tool (appropriated or created as such) remains much more "in the hands of", and so in the control of, the user. Of course, this is a relative not absolute

distinction. The physician using Powerpoint cannot control in any absolute sense how her presentation will be understood, and the CEO taking evidence to the Province cannot directly determine how people will respond to his text. However, a tool and its user(s) remain connected so that, for example, the physician may be able to see where her presentation has not had the intended impact and so change her use of the tool accordingly. On the other hand, an object that is let loose from its initial creator(s) and user(s), that we have defined as a material actor, has emergent properties that are more unpredictable but also potentially more powerful setting off, as they do, a set of imbrications that can lead to new, initially unforeseen, practice changes.

In our case, for example, the agency afforded by the medical sheet includes allowing the families to spend a vacation away from home (Florida) as well as giving parents authority when they turn up in the ER, with the medical sheet in hand. Previously, they may have had their own notes, but these would most likely have been ignored. Now the medical sheet is "signed by a doctor, not by a mom", and this piece of paper then means that they are listened to. Also, parents are always kept up-to-date on a child's treatment and prognosis (they are always provided with the most up-to-date version of the medical sheet) and this impacts their own lives (e.g., the foster mother who regained control of her life). In addition, the medical sheet allows those not in the hospital (members of the external agencies) to feel part of a network supporting a child, rather than acting as an independent practitioner. This impacts on their practice.

IMPLICATIONS

Our analysis of practices illustrative of the creation and use of strategic tools, appropriated tools and material actors shows that materiality plays a relevant role in networked strategic change projects. Using power "over" others (i.e., hierarchical power) is not sufficient to make durable changes in such settings. Instead, those involved must be convinced of the "rightness" of the change and the change is likely to emerge gradually over time. Thus, in this

type of change process, strategic tools can be particularly helpful to reinforce the "message" and engage a larger audience – this is the case of the Powerpoint presentation given by the coordinating physician. Moreover, other material objects appropriated as tools, such as the Master's student's dissertation and the university report, represent "hard" documented evidence (in healthcare, medical evidence – and, more generally, clinical research – influences practitioners, who take it very seriously). This gives these objects a symbolic value (Paroutis et al. 2015). To this end, both types of tools can be considered to be boundary objects (Star and Griesemer 1989), having the ability to produce sufficient shared understanding to create momentum for the change – here, involving knowledge about how to improve coordination across a network.

While tools such as the Powerpoint presentation have been discussed by prior strategy-as-practice studies, even the most recent literature (see Jarzabkowski et al. 2015 and Le and Spee 2015) does not specifically account for objects that are appropriated by strategists but created by others, for different purposes. Our study suggests that these appropriated tools can be particularly powerful precisely because they are created for other purposes and so may be seen to have a neutrality that adds to their legitimacy. While the Powerpoint presentation given by the coordinating physician was able to persuade the specialists, one might argue that people could be even more convinced by evidence from a literature review or a third party report, as here the intent of the creators was directed elsewhere, and hence the legitimacy embedded in these objects is stronger. This represents an important implication for future theorizing on "objects" that are used as tools in everyday strategizing practices.

A second relevant implication arising from these findings is about the emotional component that can be embedded in a tool. Tools as boundary objects may be particularly

persuasive where they produce an emotional as well as instrumental appeal – the coordinating physician's Powerpoint and the third party report both relied heavily on quotes from family members. Emotions are generally seen as individual reactions to a specific situation (e.g., a thief who points a gun at somebody, aims to make the victim feel afraid). However, from a practice perspective, emotions are produced relationally (Thrift 2008; Stein et al. 2014). This means that not only do relations between actors (material as well as human) produce emergent task-related outcomes (i.e., 'knowings') they also produce emotions, that can result in a particular felt quality or mood, that characterizes our being-in-the-world (Ciborra 2006). Thus, emotions are not simply experienced as an afterthought of action that is produced by an individual's interpretation of the situation, but rather emotions are a psychosocial phenomenon that emerges from collective action, and emotions are performative, themselves generating emergent outcomes (Solomon and Flores 2003). Indeed, Dreyfus (1991) argues that a mood is always present, shaping and being shaped by our collective actions, and this mood can generate a collective energy (or its opposite – apathy, for example). This can be found in our case, and is related for instance to the family forum, with those present "whooshed up" (Dreyfus and Kelly 2011) by the family accounts of their struggles, leading to increased determination to enact change by those present. Another example refers to the sense of relief that the families experienced as the medical sheet afforded them greater flexibility. Interestingly, the strategy-as-practice literature has not delved into issues associated with how far emotions can be "change agents" and/or associated for instance with material objects. Thus, we argue that more research should be addressed to understanding how emotions embedded in tools can have power in change initiatives, especially at the network level.

The medical sheet is the other relevant material object that we have identified in our study. To some extent the medical sheet can also "simply" be considered a boundary object (Star

and Griesemer 1989), with "plasticity" (in that it can be interpreted differently by, e.g., clinicians, social workers, families etc.) and "robustness" (besides the various meanings given to the document, its main properties such as that it is an official medical document, signed by a doctor, are stable). And indeed, this fits with the strategy-as-practice literature that has examined material tools in strategic settings as boundary objects (Belmondo and Sargi-Roussel 2015; Jarzabkowski and Kaplan 2015; Spee and Jarzabkowski 2000). However, most of this literature has treated these boundary objects as intentionally managed by executives to bring different stakeholders together (e.g. related to a specific change at a certain moment in time). This is different to the medical sheet that becomes part of the change process itself and does not just represent a tool of change (created or appropriated for the purpose of convincing others or creating some common ground). Instead, the medical sheet is a powerful actor, playing a major role changing practices and transforming roles and relationships as it is used across the network. Here, a material object is an actor in its own right since the object is not controlled by those leading the project because once it is released into the scene it then becomes imbricated (Leonardi 2011) in the ongoing social dynamics. Thus, the properties of the material actor (the medical sheet) are modified by those who adopt it, but at the same time, the adopters change their practices to meet the new properties of the material actor. Examples in our study of these new practices involve reduced ER admissions, fewer meetings between core team members, and the possibility for the families to travel abroad. This recalls the Latourian idea of the translation model of power. Latour (1986) relates power to social processes where changes are constantly negotiated, rather than "executed", as may be the case in a hierarchical setting. He also emphasizes the role of material actors (actants) as the medical sheet could be described.

In our case, the changes produced by the medical sheet in practice were consistent with

what the strategists were seeking (improving coordination), even if they did not anticipate all the specific practice changes that emerged over time. Potentially, practice changes afforded by a powerful material actor unleashed into a network can also produce changes that are not intended and that are at variance with the initial intent. Thus, Nicolini and colleagues (2012, p. 627) warn us that materiality might unfold opportunities to collaborate but can also "create obstacles to successful cross-disciplinary collaboration. Objects can, in fact, create misunderstandings and tensions." Here, we suggest that misunderstandings around the meanings and use of a material actor in practice may be reduced by practices involving its "co-creation." Moreover, we can speculate that where material tools have been previously effectively used as boundary objects to create some consensus and commitment around a change, the resulting imbrication of a material actor, is more likely to be in-line with the stated purpose of the strategic change initiative, even where specific practice changes were not a-priori envisaged. In other words, the use of strategic tools can influence the ways that material actors are subsequently enacted in a (network) change initiative. Of course, based on a single case, this will have to be determined and tested by subsequent research.

In conclusion, our study provides important theoretical insights on how changes occur in networked settings (our initial research question). First, power cannot be used "over" others, as in networks it cannot be accessed as a resource (unlike in hierarchical structure). Instead, power needs to be seen as a social and material accomplishment. This involves the use of strategic tools but also other material actors that gain power in their own right. To this end, we contribute to the literature in several ways. First, we claim that we should not take for granted that materiality is always created by strategists – for instance, this is not the case of appropriated tools (the Master's student's dissertation and the university research report). Second, the literature on

power discourses related to "stories" that can support change (Mantere and Vaara 2008; Spee and Jarzabkowski 2011; Vaara 2010) does not fully consider how far emotions might affect the responsiveness of the audience to these stories. Third, in networked contexts, material actors should be seen not "just" as a boundary object (as much of the literature emphasizes), but we should also focus on the *emerging* properties related to its creation and use as part of a strategy of change. The properties of material actors act as constraints and affordances that are constantly negotiated among human agents, but also *between human and material actors*, thus reflecting an imbrication of the two (Leonardi 2011). Thus, we call for more theory building on the strategic role of power and materiality in network settings, and more theorizing around the agentic role of material artifacts that emerge through strategizing practices.

Our study also has practical implications. First, this paper brings to the surface a challenge associated with managing large initiatives involving changes in networks. While, at least sometimes, power can be managed within an organizational boundary in a somewhat "coercive" way, in networks this is just not possible and our fieldwork shows that physical artifacts play an important role in promoting changes. A Latin proverb says "Verba Volant, Scripta Manent", which literally translated means "spoken words fly away, written words remain." In the context of our study on network changes, this proverb addresses the need to provide "concrete" evidence of a decision that should be made. And here we refer to "written proofs" (third party documents, which can appear more objective), audio-visual documents (such as Powerpoint presentations, which have an impact that goes beyond a verbal recommendation), and artifacts that *carry* power in the sense of affording new types of practice, not necessarily previously envisaged. These written documents have the ability to gain power that helps support ideas associated with change – and these artifacts do a better job than just "talk" – and actual

changes in practice.

Second, strategists operating in network contexts should move away from the idea that everything concerning change can be carefully designed and managed, and should be aware that often the means to obtain certain outcomes (change) might not be set up *ex-ante*. No matter how much effort is put into carefully planning, at the network level emergent practices often "take over." This means that strategists need to be flexible enough to accept that important objectives are having people onboard, committed, and keen on achieving results in the long term – never mind how these objectives may be achieved. This is exemplified in our paper by the introduction of the medical sheet, that was a bottom-up idea coming from a father of a sick child, but then it was rethought by the core team and ultimately deployed across the whole network. This example is illustrative of the strategy that emerges while practices unfold, and if strategists are aware that this it as a natural process of co-creation of artifacts that lead to change, they will not try to stop this process. Instead, they will "let it go" and give all the participants in a networked changes strategy the opportunity to have a say and a "try out", which is really what keeps people engaged and makes changes durable.

Finally, even if we suggested that examining the role of emotions in network changes might represent an opportunity for scholars/theorizing, we also believe that strategists should not underplay the role of emotions in convincing people. While we do not want to suggest that network changes can be made by "playing with emotions", we certainly propose that emotions do play a role in elaborating thoughts (associated with change) and "whooshing up" an audience and these can potentially be more powerful (as with other elements of communication) if they are embedded in material artifacts such as documents, presentations, and the like.

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