Toward a Theory of Coordinating: Creating Coordinating Mechanisms in Practice[1]

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ABSTRACT

This paper uses a practice perspective to study coordinating as dynamic activities that are continuously created and modified in order to enact organizational relationships and activities. It is based on the case of Servico, an organization undergoing a major restructuring of its value chain in response to a change in government regulation. In our case, actors iterate between the abstract concept of a coordinating mechanism referred to as end-to-end management and its performance in practice. They do this via five performative-ostensive cycles: (1) enacting disruption, (2) orienting to absence, (3) creating elements, (4) forming new patterns, and (5) stabilizing new patterns. These cycles and the relationships between them constitute a process model of coordinating. This model highlights the importance of absence in the coordinating process and demonstrates how experiencing absence shapes subsequent coordinating activity.

Keywords: Organizing, practice, performative, ostensive, coordination, coordinating

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INTRODUCTION

This paper is about the process of coordinating. We show that coordinating mechanisms are dynamic social practices that are under continuous construction. Despite some preoccupation in the literature with specifying the standards, rules and schedules that comprise coordinating mechanisms, organization theorists have long noted that these mechanisms are not stable entities (e.g. Galbraith 1977; Lawrence and Lorsch, 1967; March and Simon 1958; Thompson 1967). Indeed, scholars have shown that they fluctuate to adapt to conditions of uncertainty, novelty and change, when existing ways of organizing activities are disrupted and must be accomplished in new ways (Adler, 1995; Argote, 1982; Crowston, 1997; Feldman, 2000, 2003; Pentland, 1992). There are thus increasing calls for research to examine the dynamic nature of coordinating mechanisms as they are constructed within the activities of interdependent actors as they perform organizational tasks over time (Adler, 1995; Ching et al, 1992; Jarzabkowski, 2004; Malone and Crowston, 1994; Okhuysen and Bechky, 2009). By shifting the analytic focus from coordinating mechanisms as reified standards, rules and procedures to coordinating as a dynamic social practice, our research provides insight into the micro-processes involved in coordinating.

We study the coordinating of a major structural change at Servico, a Financial Times Stock Exchange (FTSE) 100 company, through the performance of a specific coordinating mechanism, end-to-end management (E2E). Drawing on performative and ostensive concepts as developed in the literature on organizational routines (e.g. Feldman, 2000; Feldman & Pentland, 2003; Pentland & Feldman, 2005; Howard-Grenville, 2005; Levinthal & Rerup, 2006; Rerup & Feldman, in press; Zbaracki & Bergen, in press) we examine how actors iterate between the abstract concept of end-to-end management and their performance of it in practice. We explain how these performances enact what the actors come to identify as end-to-end management and how they employ it as part of accomplishing a major coordinating task: restructuring the core wholesale product Connectif. We then develop an empirically-grounded process model that shows five performative-ostensive cycles that underpin coordinating. This forms the basis of our contribution to a theory of coordinating.

Our study develops three key insights. First, we show that coordinating mechanisms do not arise prior to coordinating, but are constituted through coordinating. Second, we identify five overlapping

cycles that actors enact to create a coordinating mechanism: *enacting disruption of coordinating, orienting to absences in coordinating, creating elements of coordinating, forming patterns of coordinating,* and *stabilizing patterns of coordinating*. Third, our study emphasizes the significance of enacting disruption and orienting to absences as part of coordinating. We thus advance a way of understanding coordinating that shows how the actions of people doing the coordinating enact coordinating mechanisms.

THEORETICAL BACKGROUND: FROM COORDINATION TO COORDINATING

The concept of coordination mechanism has long been the focus of organizations theorists concerned with the alignment of interdependent organizational activities in order to accomplish collective organizational tasks (e.g. Barnard, 1938; Galbraith 1977; Lawrence and Lorsch, 1967; March and Simon 1958; Thompson 1967). In their recent review of the literature, Okhuysen & Bechky (2009: 469) summarize the role of coordination mechanisms within organizations; "*The multiple definitions ... embody evident commonalities: (1) people work collectively; (2) the work is interdependent; and (3) a goal, task, or piece of work is achieved*." Despite a tendency in this literature to focus on coordination mechanisms as the standards, rules, schedules and procedures through which interdependent tasks are achieved (Okhuysen & Bechky, 2009), it has been recognized that there is no one best way to organize (Adler, 1995; Malone and Crowston, 1994; Thompson, 1967). Indeed, coordination mechanisms need to have sufficient flexibility to cope with the uncertainty (Argote, 1982; Thompson, 1967), novelty (Adler, 1995) and problem complexity (Adler, 1995; Ching et al, 1992; Crowston, 1997) of the organizational activities and outputs that they are intended to organize. In recognition of the dynamic nature of these coordination mechanisms, we refer to them from this point on as *coordinating* mechanisms.

Dynamic Nature of Coordinating Mechanisms

Because coordinating mechanisms are not a single way to organize, but rather have to adapt to the interdependent working of actors, there is a tension in the coordination literature between their reification as standardized procedures and the way that they are enacted in practice. For example, various typologies identify both structural and enacted dimensions of coordinating mechanisms. This includes programmed versus non-programmed means of coordinating, which examines the extent to which activities can be specified in advance (Argote, 1982; Georgopoulos & Mann, 1962; Georgopoulos & Cooke, 1979), and

bureaucratic versus less bureaucratic task assignment, in which less bureaucracy requires greater flexibility in coordinating mechanisms (Ching et al, 1992). This suggests tension between the standardized nature of tasks with rules to govern each activity, and the mutual adjustment, informal communication and improvisation that occurs between actors to achieve tasks (Adler, 1995; Malone and Crowston, 1994; Orlikowski, 1996; Thompson, 1967). The enacted nature of coordinating mechanisms is also referenced by research focusing on how novelty and change reconfigure standardized rules and procedures (Ching et al, 1992). For instance, Adler's (1995) typology of coordinating mechanisms based on the novelty of fit between interdependent departments and the analyzability of the problem that they are solving is explicitly processual. He proposes that when actors in organizations face low analyzability problems, their mental schema of coordinating and how it works is challenged by the empirical reality of their tasks, prompting them to enact richer schema for coordinating activities.

The rather static view of coordinating mechanisms adopted in much research thus has a number of limitations (Adler, 1995; Bate et al., 2000; Okhuysen & Bechky, 2009). First, hierarchy and rule-based systems have been found less useful in uncertain situations, such as those encountered during major change, where people rely more on informal, interpersonal communication in order to coordinate collective organizational outputs (Argote, 1982; Ching et al, 1992; Crowston, 1997). Second, this problem with coordinating mechanisms is exacerbated in service-based and technological organizations, because the way that a service or technology is delivered through task coordinating is uncertain and hard to define and formalize (Faraj & Xiao, 2006). Rather, people experiment in order to find a way to coordinate a technology or service and provide it as a collective organizational output (Faraj & Sproull, 2000; Orlikowski, 1996). Third, the literature on coordination has tended to overlook the processual way that people perform activities on an ongoing basis in order to cope with the challenges of coordinating tasks that may change over time (Adler, 1995; Bate et al, 2000; Thompson, 1967). Research has focused on those activities that can be measured and formalized at a point in time, rather than examining how such activities emerge as actors attempt to perform coordinated organizational outputs over time (Okhuysen & Bechky, 2009). Hence, coordinating remains a problematic topic in terms of establishing what activities

constitute coordinating and how actors accomplish the interdependence of tasks necessary for collective organizational outputs, particularly under conditions of uncertainty, novelty or change.

Just as Weick (1979) emphasized the use of verbs and gerunds to shift focus from organization to organizing, so do many authors note the dynamic nature of coordinating mechanisms, using verbs and gerunds to describe them. For example, Argote (1982: 423) proposes that coordinating involves "fitting together the activities of organization members," while Ching et al (1992) suggest that coordinating occurs in a context of ongoing and concurrent problem-solving tasks. Okhuysen and Bechky (2009) suggest that coordinating mechanisms are not fixed entities but emerge through the accomplishment of three conceptually discrete but practically intertwined characteristics of interdependent organizational activity: accountability, predictability and common understanding. Accountability emerges from people's efforts to identify who is responsible for what task within the organizational output. Predictability emerges as actors anticipate the elements of an output and know when they are likely to occur within a pattern or sequence of tasks. Finally, common understanding is accomplished when actors develop some shared perspective on the goals and outputs of work. Adler (1995: 164) goes further in advocating a research agenda to "address the complex organizational processes through which in practice the nature of interdepartmental interdependence is identified and coordination mechanisms adopted."

We respond to this call by using a practice theory approach to shift attention to the question of how stabilized coordinating mechanisms are created through coordinating. Our theory of coordinating reveals the practices through which coordinating mechanisms are socially accomplished over time and examines the reciprocal relationship between the structural properties of something that is recognized and designated as a coordinating mechanism (Jarzabkowski, 2004; Seidl, 2007), and the way that actors construct and reconstruct that mechanism through the activities of coordinating.

Practice Theory and Coordinating

A practice theory perspective constitutes an ontological reversal from an understanding of coordinating mechanisms as largely stable entities, comprising specified roles and relationships between actors and activities that change from time to time, to an understanding of the continuous process through which these mechanisms emerge through their use in ongoing interactions

(Jarzabkowski, 2005; Seidl, 2007; Feldman and Orlikowski, in press). These interactions bring coordinating mechanisms into being and give them validity and meaning within a given context (Zbaracki, 1998). Through repetition of particular patterns of interaction, actors attribute a factual quality to their actions that gives them a taken-for-granted structural status as a set of rules and procedures (Giddens, 1984). Such ostensive patterns may appear to be explanations (Latour, 1986, 2005). From a practice theory perspective, however, the appearance of a stabilized pattern is what needs to be explained. Though patterns for performing actions assume a relative stability that is recognized as a coordinating mechanism, these patterns are socially produced and reproduced through interaction (Garfinkel, 1967). Coordinating is thus an active accomplishment between actors, which is also potentially subject to endogenous change because of the infinite variations through which actors can interact (Feldman, 2000). For example, traffic lights[2], a mechanism for coordinating drivers with one another and with pedestrians, are socially enacted, as people must attend to and enact the color code. Even such widely understood coordinating mechanisms are far from being rigid in their production, as shown by the occurrence of drivers running red lights late at night when intersections appear to be deserted, and by the gradual changes in North America such as turning right on red lights and more recently turning left on red onto one-way streets. Thus even relatively structured coordinating mechanisms are continuously produced as they coordinate activity and expectations.

Coordinating mechanisms and routines: The association between the ongoing activities of coordinating and the way that they come to attain apparently stable patterns of coordinating has caused some authors to liken coordinating mechanisms to routines. For example, Stene (1940) argues that routines are fundamental to organizations because they represent the continuity of coordination required for organizing. While Stene associates routines with regular and recurring activities, without the need for continuous conscious effort, he does not infer stasis. Rather, he states that, "*an organization may adjust itself to certain irregularities with the result that a new sequence of interaction becomes routine*" (ibid: 1130). More recently, Okhuysen and Bechky (2009) suggest that routines are one category of

[2] We thank the anonymous reviewer who inspired this example.

coordinating mechanism that enables us to conceptualize how interdependent parties accomplish a task. Consistent with a common definition of organizational routine as "*a repetitive, recognizable pattern of interdependent actions, involving multiple actors*" (Feldman & Pentland, 2003: 96), coordinating mechanisms are processes for accomplishing work that are constituted of interdependent actions taken by multiple actors (Okhuysen & Bechky, 2009). Thus, the theory of organizational routines as generative systems (Feldman & Pentland, 2003; Pentland & Feldman, 2005), based in practice theories, provides a conceptual apparatus for analyzing how coordinating mechanisms are constituted as they are enacted. Drawing upon practice theories of the mutually constitutive relationship between structure and action (Bourdieu, 1977; 1990; Giddens, 1984; Orlikowski, 1992; Ortner, 1984), Feldman and Pentland (2003) conceptualize organizational routines as practices that are continuously generated and modified as they are enacted. As practices, routines are constituted of actions that are carried out against a background of rules and expectations, but the particular courses of action actors choose are always, to some extent, novel. The empirical work of Feldman (2000), Hutchins (1995), Orlikowski (2000), Suchman (1983) and Weick and Roberts (1993) illustrates the inherently improvisatory nature of performing organizational routines.

Performative and ostensive: Routines are conceptualized as consisting of mutually constitutive parts that produce the potential for change as well as stability (Pentland & Feldman, 2005; Feldman & Pentland, 2008). Performances are the specific actions taken by specific people at specific times when they are engaged in accomplishing an organizational routine. The ostensive aspects of routines are abstract patterns created through these performances. The concept of the ostensive is drawn from work by Wittgenstein (1953) and Latour (Latour 1986, Sevon, 1996) who discuss the ostensive definition as constituted of 'things' to which we can refer (Wittgenstein, 1953: 30-31) and which can come to have a conceptual existence of their own (Latour, 1986). The ostensive aspect of routines includes the task that people are trying to accomplish as well as the abstract pattern of events enacted to accomplish that task. The ostensive aspects are multiple, in part, because they are different from different perspectives. Engaging in the task of hiring personnel, for example, may be substantially different for people in different organizational positions. Nonetheless, the performances of the routine create patterns that may be

recognized by these people as 'the way we do hiring'. Ostensive and performative aspects of routines are mutually constitutive: "*The ostensive aspect enables people to guide, account for, and refer to specific performances of a routine, and the performative aspect creates, maintains, and modifies the ostensive*" (Feldman & Pentland, 2003: 94). The ostensive aspects of coordinating mechanisms constitute abstract patterns that develop through the enactment of actions, many of which are performed in the name of a particular coordinating mechanism. While these patterns may be codified into mechanisms with specific metrics, activities and tasks, they are brought into being within specific organizational contexts in ways that may bear little resemblance to their formal codifications (Jarzabkowski & Wilson, 2006; Seidl, 2007; Zbaracki, 1998). One such example is end-to-end management, which arose as an important coordinating mechanism within our case organization.

End-to-End Coordinating Mechanism

End-to-end management is a term that originates in the supply chain literature and refers to the process of moving a service or product from its initiation in an organization to its delivery; that is, managing all aspects between end points (Cohen & Roussel, 2004). End-to-end management requires extensive coordinating, in order to connect the elements of a product or a service across the different divisions of an organization through to delivery to a customer (Cohen & Roussel, 2004; Foster, Fidler, Roy, Sander & Winkler, 2004). For example, in order for a car manufacturer to provide a customer with a new car, it is important to coordinate the assembly of components like airbags, doors and engine parts, and processes like quality control and customer sales between some initial 'end point' of organizational entry and a final 'end point' of a car in a showroom. End-to-end management is thus an abstract coordinating concept that must be populated with various performances that are enacted as the product or service is accomplished across different parts of an organization. The activities involved in coordinating a product or service end-to-end derive meaning in a particular context through the way they are performed.

One way to observe the association between coordinating and coordinating mechanism is to study a period of organizational restructuring, as relationships between people, processes and activities are reformed to accomplish new organizational configurations. During these periods, terms like "end-to-end management" are espoused categories yet to be enacted (Rerup and Feldman, in press). Restructuring thus

means simultaneously enacting the process of coordinating and the ostensive pattern of the coordinating mechanism. In other words, actors' performances enact the coordinating mechanism (the ostensive pattern) by doing coordinating in practice and, in the process, produce a restructured organization. Drawing upon these ideas, this paper addresses the following research questions: *1) how do actors iterate between the abstract concepts of coordinating mechanisms and their performance of those mechanisms in practice?; 2) what are the implications of those iterations for the way coordinating mechanisms are realized in new relationships and activities that accomplish restructuring?*

RESEARCH DESIGN

Case Selection

We chose a case suitable to the phenomena under investigation (Eisenhardt, 1989; Yin, 1994): Servico, a FTSE 100 company, undergoing major organizational restructuring as it implemented a new Regulatory Framework based on 'equivalence'. Equivalence was a regulatory term, meaning to treat all industry players in a fair and transparent way. Accomplishing this required Servico to place its distribution networks in a separate transparent business division. This new division, 'Distribution', would remain part of the corporate Servico structure but operate independently, providing equal access to the distribution network to all industry players without favoring downstream Servico businesses. Achieving equivalence had two critical points. First, Distribution should be independent, neither sharing any commercial information with downstream Servico businesses nor allowing its decision-making to be affected by Servico commercial objectives. This meant that an information-sharing barrier had to be established between Distribution and other Servico divisions, which required them to have different access codes, information systems and technological platforms. Second, Servico was to separate all the products/services that it currently offered in an integrated way, so that these could be traded on a transparent market basis between Distribution and other Servico divisions. Figure 1 provides a simple diagram of the restructuring within Servico.

--Insert Figure 1--

This major restructuring involved a total reformation of existing relationships and activities in order to enable existing products and services to be separated and traded across the barrier between divisions. One Servico senior manager summarized it as follows:

> "It wasn't like you were starting in a fresh Greenfield company… you adopted a lot of the baggage of the business that had been run. But at the same time, you had wrenched it away from a lot of the things that it was used to being close to. So we found we had quite a lot of broken processes. … Separating assets and products and people is fine, but if you don't at the same time understand how that fractures your processes and find a way of gluing them together in a transparent and appropriate way [that's a problem]. So I think we suffered quite a lot from process breakdown, in a way we didn't envisage."

This paper focuses upon this restructuring of the relationship between the Distribution and Wholesale divisions in order to deliver their major product, Connectif. Achieving equivalence required Distribution to provide Connectif, which was the basis of the wholesale market, to all industry players in the same way that it was provided to Wholesale. Failure to achieve this goal by a set date would result in potential legal action against the company. The restructuring was difficult because Servico's delivery of Connectif had always been vertically integrated. Further, Connectif is a complex technology, service and process bundle, which had grown historically, so that no one was quite sure how to separate Connectif or what aspects would be offered in which part of Servico after the separation.

Implementing an equivalent Connectif thus also constituted a major restructuring of Servico. Given the complexity of Connectif, Distribution developed serial releases of its technological platform (TP), each incorporating more features to meet industry needs. In order to ensure the timely use of these releases, it was important for Distribution and industry players, including Wholesale, to coordinate their design efforts. If industry players were unaware of changes Distribution was making to releases, they could not adjust their systems, processes and services in line with the changes. This was especially critical for Wholesale which, unlike the external industry players, had to meet two legally-binding regulatory deadlines; one to start using Connectif by month six and the other to service their entire customer base with the equivalent product by month 12. This meant moving several million customers by the final deadline.

Implementing this goal required coordinating the activity of people from product, technology, process, consumer and regulatory parts of the different business divisions. A project team was assembled in order to manage the process end-to-end. While E2E was conceptualized as a management process for coordinating activities to deliver tasks, it quickly became apparent that it was not a 'one size fits all' solution for restructuring activities. Rather, as unanticipated aspects emerged and perceptions of what might constitute an acceptable achievement of the Connectif goal kept changing, E2E itself had to be reconstructed continuously in response to the new challenges and recurrent problems with Connectif. In addition, the process was complicated by the fact that actors in the different divisions conceptualized and understood E2E in different ways. In particular, they struggled to understand how Connectif had been coordinated in the past and how to use E2E to restructure their relationships and activities to deliver Connectif on an equivalent basis.

Data Collection

Longitudinal qualitative data were collected over 24 months, tracing in real-time the restructuring of Connectif from inception to resolution. In order to avoid potential bias from a single data source or informant (Eisenhardt, 1989; Yin, 1994), we used a range of field methods. Specifically, we conducted 84 open-ended interviews with key operational, middle and senior managers in the Distribution and Wholesale divisions and at the Center. Of these, 44 were sequel interviews with 15 key actors, conducted over time to trace evolving perceptions of the Connectif process. These interviews, which were typically an hour long and transcribed verbatim, asked participants to recount their current experience of the restructuring. While participants' personal reflections on their experience are valuable and appropriate from a practice perspective (Alvesson, 2000; Balogun et al, 2003; Fontana & Frey, 1994), we used observation as the key data collection method to surmount some of the limitations of interviews for accessing practice (Alvesson, 2000). Non-participant observation was conducted in 137 audio-recorded meetings that dealt with Connectif as part or all of their agenda. The meetings were held weekly, fortnightly or monthly, and ranged from 20 minutes to three hours in length and occurred within and across the Distribution and Wholesale divisions and at the corporate Center. Extensive field notes were taken during meetings. These notes were supplemented with transcriptions of audio-recording segments

pertaining specifically to Connectif. See Appendix A for an overview of meeting and interview data. We also engaged in other interactions with participants, such as pre-and post-meeting observations, workplace observation, discussion, feedback sessions, and social functions. Detailed field notes were written up within 24 hours, as recommended by Yin (1994). Additionally, we made notes on pertinent documents associated with the restructuring of Connectif and incorporated them into the dataset. All data were imported into NVivo for coding.

Coding and analysis: In order to make sense of these mass data, analysis progressed in five stages. First, the authors who collected the data wrote a rich chronological case story of restructuring Connectif (Langley, 1999), employing a thick description mode of analysis (Geertz, 1973). We presented this story to the different groups working on Connectif in order to validate its veracity and enhance the trustworthiness of the analysis (Lincoln & Guba, 1985).

Second, the three authors discussed this rich story, noting that actors used the term 'end-to-end management' when discussing coordinating efforts. We thus began examining the thick description in light of the research questions. Specifically, we looked at how actors iterated between the abstract concept of E2E and their emerging performance of E2E in practice, and the implications of that performance for the restructuring of relationships and activities in order to deliver an equivalent Connectif. To support our analysis, we searched the meeting data for all references to E2E by actors during the restructuring of Connectif; extracting all data on the terms "end-to-end", "end to end", "end2end", "end-2-end", "E2E", "E-2-E", "end-to" and "end to". We chose meeting data to create a real-time chronological account of how E2E was accomplished because interviewees can obscure chronology. Once we had established the chronological account, we searched the entire database using the same terms to check our analysis and gain additional data on participants' experiences of E2E. Initially constraining the dataset to actors' references to E2E enabled us to explore how actors talked about and performed the concept of E2E, which we then placed in the wider context of the overall restructuring by referring to the case story written in stage 1.

Third, after reading and discussing these data, we iteratively devised and revised a coding scheme based on how people were using and defining the term E2E. As is customary in inductive coding, we

began with empirical codes. These categorized the specific aspects of coordinating that actors were enacting with things such as technologies, business processes and services as they endeavored to work E2E in delivering Connectif. We also coded the intended and unintended outcomes that they experienced as they tried different activities for coordinating these things E2E. At each revision of the codes the first two authors cross-checked and discussed the coding schema to ensure that data were particular to a specific code and that data were not taken out of context. The third author, who was not involved in data collection, acted as an 'outsider' in querying and challenging emerging codes (Evered & Louis, 1981). See Appendix B for descriptions and examples of our codes, including technology, external players, service, and business processes, and how they were identified in the data.

Fourth, based on these empirical codes and our first research question, we developed interpretive codes. In investigating the relationship between specific performances of E2E and its enactment as an abstract concept, we found the notions of performative and ostensive useful (see Feldman & Pentland, 2003; Pentland & Feldman, 2005). We thus identified performative and ostensive elements of E2E in our dataset (see Appendix B). Herein, we followed others who have examined the relationship between performative and ostensive (e.g. Feldman & Pentland, 2003; Howard-Grenville, 2005; Levinthal and Rerup, 2006; Pentland & Feldman, 2005; Rerup & Feldman, in press). We identified *performances* as specific actions that people engaged in as E2E; this linked to our empirical 'elements' code (see Appendix B). For example, we identified how people were performing activities associated with technology, even where these activities did not actually result in coordinating, but rather made actors aware that they had no E2E technologies for coordinating Connectif. The consistent patterns enacted within Servico were coded as *ostensive*; these were patterns of performing activities through which actors arrived at particular coordinating outcomes, such as disrupting links between technological platforms, or finding gaps in service provision or creating elements of new business processes. This linked to our 'elements' and 'outcomes' codes (see Appendix B).

Fifth, we analyzed the relationship between the performative and ostensive codes to understand how the abstract concept of E2E management developed as it was performed by actors. We found that repeated performances that were justified as important for achieving E2E indicated the emergence of an ostensive

pattern of doing E2E. Thus, as actors performed specific actions in their efforts to restructure coordinating throughout Servico, these performances began to be recognized by actors as E2E, thus developing a cyclic relationship between the performances aimed at creating E2E and the ostensive pattern that was eventually instantiated as E2E. This analysis uncovered a series of iterative cycles in the relationship between the performative and ostensive aspects of E2E, each progressively emerging another layer of activities for coordinating Connectif by coordinating the activities between Distribution and Wholesale. The five cycles were: (1) enacting disruption, (2) orienting to absence, (3) creating elements, (4) forming patterns, and (5) stabilizing patterns. In the first performative-ostensive cycle, actors enacted the disruption brought about by the imposition of the regulatory wall; a wall they enacted with their performances and which severed the existing E2E. In Cycle 2, they began to orient to the absence of E2E through their attempts to reorganize Connectif. Initially, performances showed actors those aspects that they used to rely upon, which were now absent. Recognizing specific absences, such as absences in technological connections, or service handovers, led them to focus on creating new elements to replace the old ways of enacting E2E. This third performative-ostensive cycle culminated in the presence of rudimentary building blocks of E2E, like ways to perform an element of technology or service. Cycle 4, forming patterns, was characterized by building upon these rudimentary elements and refining them as issues emerged. It included using the elements of end-to-end management and developing specific tools to strengthen the pattern that was being created through use. The final cycle, stabilizing E2E, was characterized by completing the Connectif task and creating specific governance patterns within Servico that embedded the restructured divisional relationships into recognized ways of working E2E. We present our findings around these cycles.

FINDINGS

As it is not possible to offer detailed examples of all performances we found, we use representative data and vignettes to illustrate the five cycles, explaining how specific performances enriched and further defined the ostensive patterns of E2E throughout these cycles. Although there is a temporal relationship between these processes, they should not be seen as having a simple linear relationship. This is particularly true for the first three cycles, enacting disruption, orienting to absences, and creating new elements of E2E, which are characterized by temporal overlap and mutual constitution.

Cycles 1-3: Enacting Disruption, Orienting to Absence, Creating New Elements

In our case, new regulatory guidelines mandated organizational members to enact an information-sharing barrier between the Distribution and Wholesale divisions; enacting this barrier disrupted existing ways of working end-to-end:

> "There was something in [the Framework] where we're not supposed to speak to Wholesale about certain things but the way it was written basically prevented us from talking to them about almost anything… The line has been drawn between Distribution and the rest of the business in a pretty hard place to administer… you end up in a few situations where… you're bouncing backwards and forwards between yourselves several times before you actually deliver something." *(Distribution Regulatory Lead, Interview).*

As members of the organization took action and tried to accomplish the task of creating Connectif in the context of the information-sharing barrier, specific absences emerged and helped to define the meaning of the disruption. Members of the organization altered their actions as they oriented to these absences and created new patterns of action to fill in what was missing. These actions created new elements of E2E and also enabled members to orient to additional absences that emerged through efforts by members to enact E2E. The following two vignettes illustrate these three interlinked cycles and demonstrate how actors iteratively began coordinating the delivery of old elements of E2E in new ways, as well as coordinating new elements of E2E. Text denoted in bold indicates particular elements that were identified as missing and created as new elements, such as technology, relationships with external parties, service, and business processes (see also Appendix B).

Vignette 1: Engineering Appointment Books. Allocating engineer appointments illustrates the process of coordinating in a new way something Servico used to do. Prior to the change, Wholesale customer advisors had access to the Servico electronic appointment books and could directly schedule engineering visits for their customers, whereas external industry players had to request appointments by contacting Servico. Under the old regime, "if you are a Servico customer, when you phone up the operator, he can go into all of the engineering appointment books, and say 'right, I am going to send an engineer out on this date, this time. Is it ok?' External players can't do that. We just give them slots"

(Distribution Delivery Manager, Interview). Under the new regulation, this inequity between Servico's Wholesale unit and other industry players was not permissible. The engineering fleet would now be in Distribution, which was required to provide the same service to all its customers. Distribution thus either had to remove the capability from Wholesale or provide it to all of industry. Tight deadlines meant there was no time to agree or design an industry-wide solution. The capability was thus removed and all industry players, including Wholesale, had to email Distribution to schedule engineering visits.

Enacting Disruption: When Distribution took away direct access, Wholesale could no longer easily schedule engineering visits for its customers. Wholesale staff initially tried to circumvent this condition by taking action, calling Distribution engineers directly to schedule appointments. However, engineers rebuffed these informal processes that had been widely accepted in the past. Their interpretation of the mandate was, "If one person's got a little black book with a name of an engineer in and they ring them up and get one person to do something for them, that's a breach… If they know they shouldn't have done it and they've done it, then they will get some kind of disciplinary action." *(Distribution Manager, Interview)*. Such interpretations of what it meant to erect an information barrier between two units were important to enacting the disruption, which occurred as people took or proposed action, and as others responded to these actions, in ways that did not coordinate activity. Through these acts participants thus identified absences in their ability to achieve E2E. As people tried to schedule appointments, they realized that certain features were missing that had previously been in place. In short, they experienced disruptions that meant they could no longer coordinate activity in expected ways.

Orienting to Absence: As part of their efforts at coordinating Connectif E2E, Distribution actors tried to surmount the disruption of their appointment scheduling capability. In so doing, they oriented to specific absences or missing elements of E2E that had become problematic because of the disruption to coordinating. That is, these absences arose as they enacted the disruption; as they experienced things that were no longer permitted or no longer coordinated in expected ways they oriented their activities specifically towards those things in their efforts at coordinating E2E.

The first such missing element, or absence, they noted was the **old technological system**: "You need something in place before taking away the systems!" (*Observation, Call Centre*). Actors noticed this

absent system because they could no longer access it. Losing system access meant that previous performances did not coordinate activity in expected ways; that is Wholesale operators could no longer schedule appointments via the system. A second absence followed on from this absence: Servico (Wholesale and Distribution) could no longer provide the same level of **service** to Servico customers. "Servico is about good customer service - I don't know how I can do my job anymore" (*Observation, Call Centre*). The inability to provide a scheduling capacity would lower Wholesale's service level and so oriented actors towards an absence in service. Because of the new mandate for equivalence, the inability to provide service oriented Servico actors towards a third specific absence, **relationships with external industry players**. As Distribution tried to reconnect with Wholesale, they noted that they had no way to interface with the rest of industry. This absence was different from the old technological system that had been removed, as the connections to other industry players had never existed in Servico systems. However, equivalence meant that in order to interact with Wholesale, Distribution would need to find a way to interact with other industry players. Distribution actors thus oriented towards an absence in their appointment scheduling capacity for external industry players. The fourth absence they identified was the lack of **processes** to support these systems, relationships and service requirements. There were no processes that linked into systems, no processes to support the new relationship with external industry players, and no processes to assess and ensure service levels. Actors' activities thus highlighted the absence of various aspects of coordinating Connectif E2E, including technology, relationships with industry players, service, and business processes.

Creating Elements: Orienting towards specific absences enabled organizational actors to direct their efforts towards filling these absences with new elements. Specific actions oriented people in the divisions to what was missing and linked their experience of the disruption to possible actions that could be taken to reconnect the broken E2E coordinating mechanism. They worked out ways of coordinating particular elements of the delivery through iterative performances targeted at the specific absences:

> "We have actually started to say the processes now have to be different. System access has got to be different, the way we pass information or how we interact with appointment books, etc; it's the process

things that are really significantly different… it's a major change, particularly on the systems fronts" *(Distribution Manager, Interview)*.

After much discussion with industry players and Wholesale, Distribution decided to provide the capability to book appointments to all of industry. Allowing all industry players to access the engineering appointment books, however, required significant work on **technological systems** to provide an equivalent platform that would be accessible by all of industry. Similarly, actors had to create new **relationships with external industry players** so that they could interface with Distribution in the same way as Wholesale. Further, Distribution needed to create new **processes** to ensure that systems and relationships with industry, including Wholesale, could be managed properly. This meant creating processes to underpin the appointments scheduling capacity by connecting systems and relationships seamlessly. All of these factors impacted the ability to provide **service**, which was an essential part of end-to-end product delivery, as engineering appointments formed an integral part of this service capacity. Absences thus influenced the creation of new elements as actions were taken to address gaps that actors experienced in E2E coordinating of Connectif.

Given the extent of technological work involved, the necessity to consult external industry players, and the tight deadlines, there were limits to what Distribution could provide. In consequence, the revised version of the electronic engineering appointment book made available to all Distribution customers had two daily appointment slots instead of four:

> "We did have a couple of meetings of 'it's got to be two hours', 'no, it's got to be four', 'it's got to be two', 'it's got to be four'… Let's find a way to resolve this; which was things such as write down exactly what you want, put it in a statement of requirement, in technical terms. And you respond with the true cost impact of delivering Connectif in two- rather than four-hour appointments." (*Center Manager, Interview*).

This compromise was part of the changes in processes that enabled all industry players to have access: "*Appointment books are now visible to all industry players*" (*Distribution Manager, Distribution Meeting)*. Creating elements was not only a response to but also a source of absences. As actors created new elements, they also oriented to emerging absences:

> "There are still several hundred bugs in the system… For example, Distribution might miss an appointment. If they send us an automated message, that then goes into a queue for somebody to contact the customer and rearrange the appointment… What we're finding is, because of the bugs, lots of information is not being passed on" (*Wholesale Manager, Center Meeting*).

Vignette 2: Legally Valid Internal Trading Models. The requirement of providing Connectif equally to all industry players meant that Servico had to show how Distribution traded with Wholesale. However, no explicit trading model had existed previously; as both divisions were part of Servico, they had traded in a vertically integrated way. Services had been exchanged without the need for formal trading accounts between divisions for years. This changed with the regulatory requirement of equivalence. Distribution had to prove that it traded with Wholesale in the same way that it traded with external industry players. Developing a legally valid internal trading model thus involved recognizing what had been traded and what would need to traded in future.

Enacting Disruption: The old trading relationship and its associated processes were disrupted by the creation of the information-sharing barrier. Under equivalence it was no longer permissible to interact in a vertically integrated way, yet no new trading relationship had been established or legally formalized. As actors did not know how to engage with each other to trade Connectif under the new Framework, they enacted disruption by avoiding most interaction.

> "We can no longer give Wholesale those components. The end game is for Distribution to supply everyone equivalently… we can't do something special for Wholesale. If it was another industry player, we'd say 'get your own components'" (*Distribution Manager, Interview*).

This disruption affected Servico's capacity to deliver Connectif E2E by hampering its ability to construct a functional business relationship. Without formulating and legally formalizing their trading relationship, Distribution and Wholesale would be unable to trade Connectif.

Orienting to Absence: Actors noticed the absence of a trading relationship and a formal working group was created to plan, write and deploy a new trading model. Through interaction, actors found that, because of their history of operating as part of a vertically integrated company, no one really knew *what* they had traded or *how* they had traded. As the trading relationship had evolved incrementally over many

years, there was no record of the relationship. The divisions neither knew which specific products or services they traded under the old structure, nor which specific systems were used to trade them. In order to identify *what* and *how* they would trade under the new Framework, they oriented to their historic relationship and requirements:

> "It is clearly a complete crock that we are attempting to sign up to a reciprocal trading arrangement when we haven't got a bloody clue what we buy from each other and what service levels we could theoretically or realistically commit to" *(Distribution Manager, Distribution-Wholesale Meeting)*.

In particular, they looked to **systems** for clues about the relationship. The removal of old systems meant that there was no system that could provide Connectif. This had disrupted the trading relationship between Wholesale and Distribution. If they could understand what was absent without these previous systems, they would be better able to understand and enact a new working relationship. This would also enable them to make the new trading relationship comparable to the relationship needed to provide for **external industry parties**. This was another absence because they had to define the relationship with external players in order to create an equivalent relationship with Wholesale. Similarly, there were no **processes** initially that would support any trading agreement, and even those that were developed were problematic: "There are process gaps in the E2E business process" *(Center Manager, Center Meeting)*.

As in the previous vignette, orienting to absences in the performance of systems, external industry, service, and processes helped to define the experience of the disruption. Similarly, disrupted elements highlighted absences and were singled out for additional attention and activity. Absences were thus identified through the efforts people took to enact E2E. Specifically, the divisions produced many versions of the trading model as they iteratively and interactively worked out the missing elements, which needed to be included in the Connectif contract in order to be an equivalent, commercially viable and legally acceptable agreement. They tried to fill these absences by creating elements that became part of the emerging E2E coordinating mechanism.

Creating elements: As the divisions had never had a trading agreement, they had to create new elements rather than just modifying existing ones. Divisional managers got together to work out the intricate details of their new working relationship, including how to trade Connectif across the new **technological**

interface: "We're negotiating the details of the E2E Connectif deal." *(Discussion, Distribution-Wholesale Meeting)*. This led to efforts to design an equivalent systems solution. Setting up the trading model was an iterative and complex process, during which different level managers and frontline staff were consulted about how parts of Connectif needed to work in order to trade the product operationally and commercially. Similarly, the relationship with **external industry players** was critical; Distribution had to figure out its relationship with all industry parties in order to engage equivalently with Wholesale. In real terms this meant Distribution trading managers working out costs, setting prices and charging parties, which required them to create elements of E2E that had not been necessary in the former organizing of Connectif:

> "This is actually commercial pricing. And of course that's the point when there's a sharp intake of breath because I have to charge Wholesale exactly the same as I would charge any other operators." *(Distribution Manager, Interview)*.

Such elements emerged out of multiple performances, as actors worked iteratively upon the trading model:

> "This is crap and it needs to be improved in these areas, keeping in mind it isn't EVER an agreement that we would sign with an outside industry player… I want something that is commercially viable. I would never sign this; we would be a laughing stock!" *(Distribution Regulatory Manager, Distribution-Wholesale Meeting)*.

In enacting these performances, actors sought to fill absences and create a working trading agreement. Much time was spent iteratively drafting versions of a trading agreement by sending documents back and forth between divisions. Drafts were disputed on the basis of forecasting, modeling and trialing the effects of different versions, particularly with regard to agreed **service** levels**.** Trialing potential agreements helped to identify further absences in technological and business **processes**, as mismatches between the systems solutions and the trading model became apparent. For instance, regardless of trading model, certain systems solutions were not possible, others too expensive, and still others could not be delivered on time, necessitating contingencies and manual workarounds: "The current situation is still manual and, without this system, we cannot manage scale because we cannot automate" *(Wholesale Program Manager, Distribution-Wholesale Meeting)*. Eventually, Distribution managers worked out a commercial trading agreement that represented a significant increase in Wholesale's cost base: "[Wholesale] will cut

up rough about these costs" *(Discussion, Center Meeting)*. Although a working version was signed off by both parties in Month 8, the agreement remained fluid throughout the period of observation, with continuous alterations to adjust to changes in Connectif as new absences emerged; for example, wording was changed, contract managers employed and confidentiality agreements introduced as business processes, service levels, and technological specifications became clearer.

Cycle 4: Forming a Pattern of E2E

In the previous cycles, E2E performances were motivated by absence and focused upon coordinating specific elements of activity, such as technology, external players, service, and business processes into the emerging concept of E2E. By cycle 4, people had stopped querying what constituted E2E and began connecting its elements into a coordinating mechanism that could organize activity. That is, the various elements of E2E that had been introduced and developed in earlier cycles could now be connected to form an ostensive pattern of E2E as a way of organizing Connectif.

At this point in coordinating the delivery of Connectif, people in Servico had created parts of E2E but these were not yet well connected in a pattern of activities: "We were in a 2-hour meeting with [the Servico CEO] yesterday about E2E management of Connectif … we have been tearing apart the complaints that are landing in her inbox. It is the best E2E thing I have been involved in but it's pretty bloody too" *(Wholesale Manager, Distribution-Wholesale Meeting).* The processes and procedures created for coordinating elements of Connectif in an E2E manner were not always successful; "I'm not sure there's sufficiently strong E2E management still… things have improved on that front but they're not perfect" *(Divisional Manager, Interview)*. Actors coordinating Connectif felt that E2E remained problematic, referring to blockages in moving different parts of service, technology and processes between divisions; "Connectif looks like a snake that swallowed an elephant" *(Wholesale Manager, Distribution-Wholesale Meeting).*

One of the ways of moving the process of coordinating forward was to develop project management tools, such as interlocked work plans to integrate elements of E2E. These tools supported coordinating by making the patterns of connection among elements more visible, which in turn helped people further define disruption, identify absences and refine the actions that could be used to create E2E. Tools for

managing and monitoring the process brought visibility to areas that needed ongoing work; "Gradually people are realizing that you can't tackle this in any other way apart from looking at it in a coordinated E2E fashion. Otherwise it's not just sub-optimal – It just won't work and it won't get there" *(Center IT Manager, Interview)*.

One of the core tools that allowed them to see where connections between elements needed to be made to create E2E coordinating and increase accountability for the Connectif deadline was the transfer dashboard, a communicative planning tool used to track progress on different parts of the E2E program created in Cycle 3 (i.e. technology, relationship with external industry players, service, and process). "The program has a detailed dashboard of measures in place on which to agree each further step in the transfer plan" *(Senior Management Report)*. Frequent meetings between divisional managers and individuals on the program were held, using the dashboard and its system of 'traffic lights' to identify problem areas (red), areas that were progressing but needed work (amber), and areas that were on track for the deadline (green). The dashboard and its color coding made E2E visible, enabling team members to monitor the status of their activities and to coordinate the broader project and deadline; "The Connectif dashboard, it's getting greener but assurance performance remains a key area… especially the reliability and stability of the E2E technology platform" *(Discussion, Distribution-Wholesale meeting)*.

Based on their performances of E2E within the dashboard, managers in the two divisions recognized that they were unlikely to meet the regulatory deadline: "This ain't gonna work by [the deadline] guys, so wake up and smell the coffee" *(Senior Wholesale Manager, Distribution-Wholesale meeting)*. This information was used to report the problems to the Servico CEO and top management, and to prepare the regulator for a possible renegotiation of the date:

> "The current status of the high level criteria is shown below…Current performance is well below threshold…Resourcing: On track – Both Wholesale and Distribution are on plan…Systems: Some risk – Recent performance falls below service agreement and some functionality is outstanding…Achieving final deadline: Some risk" *(Senior Management Report)*.

Thus, even as the pattern of the E2E coordinating mechanism was becoming evident, new absences were identified and the nature of the disruption redefined. Indeed, actors felt that E2E could only be developed and improved by using it, or as the senior project manager below says, 'shoving volume through':

> "It really all evolved around the speed with which we restored the level and ability of the E2E process because it was broken not only in the Distribution space, it was broken in the Wholesale space. And it took us quite a long while to get down to the true underlying problems. And you only got there as we started to shove real volume through." *(Wholesale Connectif Manager, Interview)*.

Cycle 5: Stabilizing E2E

The last cycle took place as the transfer deadline was achieved and the Connectif restructuring was complete. All customers were transferred onto the new bundle of technology, product, service, and process that comprised Connectif. This restructuring was formalized with the development of an overarching governance program that subsumed the Connectif program and the relationship between Distribution and Wholesale. This program specified particular procedures, trading arrangements, modes of interaction, project tools, and metrics for relationships between divisions:

> "[The new governance program] allows us to pull program plans… across projects and also across the different divisions. I think in doing this we will drive out many of the assumptions, dependencies, problems, showstoppers - which we've been struggling with over a period of time… I guess we're working with some sweeping assumptions… At best we'll drive them forward and bring them in line with our program and at worst at least we'll know that other areas aren't going to progress those in a timely fashion." *(Program Manager, Divisional Meeting)*.

Embedding coordinating in specific procedures, roles and relationships marked the accomplishment of relative predictability in the E2E process. The evolution of new procedures and patterns for doing E2E activities within Servico had slowed to the point that they could be codified in specific tools, metrics, processes, roles, and authority relationships. Actors could thus anticipate the elements involved in performing Connectif E2E, knowing what activities were likely to occur, their relative interdependence with others involved in performing Connectif, and how these related to wider organizational processes. Managers were able to tie the Connectif delivery into the formalized governance structures of Servico and these structures were performed in ways that maintained 'known' ways of doing E2E. Specifically,

Distribution and Wholesale were performing their new customer-supplier relationship to deliver Connectif and this was no longer referred to as restructuring: "Connectif is business-as-usual – We've taken it out of the Framework projects and report" (*Wholesale manager*).

E2E continued to be invoked frequently and, as with any enacted feature of social life, evolved through its enactment. The most visible changes during this cycle, however, centered on the context surrounding E2E and were more oriented toward stabilizing and maintaining than toward creating or refining the coordinating mechanism. For example, in addition to the metrics, project tools and systems for interacting, actors were designated to have specific responsibilities for coordinating activities E2E. A Horizontal Team was responsible for using the tools, systems and metrics to enable business engagement and to deliver products and services across functional areas *within* divisions. A Vertical Team had the corresponding responsibility *across* divisions. These new responsibilities illustrate the process of embedding the E2E coordinating mechanism into a set of newly created governance structures, with specifically identified actors and business teams. This embedding both stabilized coordinating patterns and guided future modifications of E2E:

> "There's a kind of stabilization action, which is around bringing more people on board, making sure they're better trained…[looking at] the points of failure and what fixes do we need to make on both sides… such that the end-to-end journey works first time" *(Center Manager, Interview)*

These new E2E processes, roles and mechanisms reflected the taken-for-granted nature of the restructured relationship between Distribution and Wholesale, which people now accomplished as a predictable pattern of activities. For example, a Vertical Team member reflected on the way that project tools were incorporated into the everyday delivery of Servico products and services;

> "As a result of having an E2E program… and involving operational people at Servico, across Servico, as well as the systems people, there was a lot more transparency… So the [product/service delivery] graph that we saw today with the systems side going up and the impact that it would then have on the repair and the assurance process, was something; we're talking about it today as if it's natural that one would look at all of that" *(Wholesale Program Manager, Interview).*

Embedding E2E within formally specified roles and procedures thus signaled that the restructuring of Servico divisions into new relationships and activities had taken place, with the performing of E2E activities consolidated in particular patterns as a matter of everyday coordinating. E2E had been brought into being and was being used; specific procedures were enacted and incorporated into the norms that made the new organizational relationships, activities and tasks meaningful. There was a strong perception that most of the disruption brought about by the regulatory change had been surmounted and that Servico had emerged in a reorganized E2E form: "There is a particular cultural thing in terms of people's remits going true E2E… That's the only way you can do things like this; you need to have the real drive, you've got to have the desire to make it successful across the piece" *(Center IT Manager, Interview)*. Despite this relative stability, actors engaged continuously in modifying and refining E2E to ensure that the systems, service capability and business processes continued to coordinate Connectif in the required way.

This paper set out to address two research questions that were theoretically motivated by a practice perspective on organizing, and, particularly, the activities involved in restructuring existing organizational structures, relationships and activities: *1) how do actors iterate between the abstract concepts of coordinating mechanisms and their performance of those mechanisms in practice?; 2) what are the implications of those iterations for the way coordinating mechanisms are realized in new relationships and activities that accomplish restructuring?* In this discussion we summarize our findings with respect to the first question in the process summary, which we use to develop a process model of coordinating. We address the second question in the section on implications, where we discuss the contributions our process model makes to understanding coordinating and the creation of coordinating mechanisms.

DISCUSSION

Process Summary

Our findings identify performative-ostensive cycles that iteratively construct coordinating mechanisms. Performances create and recreate abstract patterns that we refer to as ostensive patterns because they come to be articulated and experienced as states of being. These ostensive patterns are recursively implicated in the performances that create them. The five cycles we identify are: (1) enacting

disruption, (2) orienting to absence, (3) creating elements, (4) forming new patterns, and (5) stabilizing new patterns. In this section we describe the cyclical interplay between actors' performances of coordinating and the ostensive patterns created through these performances. In this discussion we refer to our case as an illustrative example of coordinating. We regard each of the performative-ostensive cycles as a conceptual building block that we use as the basis to develop a model of the coordinating process, presented in Figure 2.

--Insert Figure 2--

The first cycle of *enacting disruption* consists of performances necessary for creating the disruption. These disruptive performances create an ostensive pattern that constitutes the breaking of previous patterns of end-to-end management so that coordinating is no longer possible. In our case, the performances enacted an information barrier between divisions that disrupted previous ways of coordinating Connectif. In other cases, these performances may enact disruptions caused by changes in technologies or distributions of authority. This cycle that enacts the disruption of coordinating is a critical building block in creating coordinating mechanisms because it breaks down existing interdependencies and highlights the need to find new ways of coordinating, even while it is unclear what actually constitutes effective coordinating.

The second cycle, *orienting to absences*, consists of performances by actors trying to coordinate and discovering that elements of coordinating are missing. Specific performances orient actors towards particular elements that they can no longer or cannot yet enact. These performances produce ostensive patterns of absences. The specifics of what is missing and the resulting patterns of absence will vary from one case to another. In our case, organizational members attempted to enact end-to-end management and found that systems for making service appointments and models for trading were some of the specifics that made up the pattern of absences. Orienting to absences is a critical building block in a process theory of coordinating because these areas of absence become the focus of activity to create or recreate elements of a coordinating mechanism in order to undertake interdependent organizational tasks.

The third cycle, *creating elements*, is characterized by performances that are efforts to produce coordinated activity. These performances produce patterns that constitute new elements of activity. Many

of the performances in this cycle are oriented to the patterns of absence created in the previous cycle. Thus, in our case, some of the elements were created in order to make service appointments and develop a way of trading products that were equivalent across all industry partners. In order to create these new ways of doing their work, they had to develop new functional systems, relationships, service levels, and business processes that were necessary for coordinating end to end. Creating elements of coordinating is an important building block in a process theory of coordinating because it orients the efforts that go into filling the specific absences that inhibit coordinating. Through this cycle, elements necessary for coordinating activity are enacted and form the bases of the coordinating mechanism.

As illustrated through the recursive connecting arrows in Figure 2, cycles 1-3 are mutually constitutive. That is, while enacting a pattern of disruption often helps to identify absences and orienting to absences influences what elements are created, this is not a linear process. Creating and enacting elements, for instance, is not only a reaction to orienting to absences but also produces new absences. Disruptions also can be enacted through the creation of new elements and creating new elements is often part of the process of enacting disruption. Similarly, absences are not simply waiting to be noticed but are enacted through the processes of enacting disruptions and creating elements. The iterative and interconnected relationship between cycles is demonstrated in our process model, Figure 2.

The fourth cycle, *forming patterns*, consists of performances that create links among different elements of the coordinating mechanism. Developing tools that make the links visible is a typical performance in this cycle. As elements of coordinating are created in the previous cycle, connections between these elements need to be enacted. The resulting ostensive pattern is a new, albeit still provisional, coordinating mechanism. Forming patterns is, thus, another core building block in a process theory of coordinating because it connects new elements (e.g., systems, relationships, service arrangements, and processes) into a working coordinating mechanism that can be used to deliver specific organizational tasks and outputs. Of course new patterns of coordinating also lead to new experiences of disruption, as shown by the dotted arrow in Figure 2, and so highlight new absences to orient toward. Actions taken when forming elements of coordinating mechanisms into a pattern thus also contribute to other cycles of the process, thereby impacting the restructuring in multiple ways.

The fifth cycle, *stabilizing patterns*, contains performances of connecting the emerging coordinating mechanism to overarching organizational governance mechanisms. These performances create an ostensive pattern that is the formal organizational governance structure. Typically, this might involve formally identifying roles and responsibilities. This building block of *stabilizing patterns of coordinating* is important because it enables actors to identify a coordinating mechanism and view it as a relatively stable set of interdependent activities that can be called upon in the process of coordinating. At the same time, however, stabilizing is an ongoing process in which actors continuously enact specific connections between people, activities and things, and continue modifying coordinating activity in response to challenges. Thus, as shown in Figure 2, this cycle also links to enacting disruption and orienting to absence.

These five cycles form the basis of our theory of coordinating as summarized in the process model in Figure 2. The model outlines how actors enact coordinating mechanisms in interactions as they perform new tasks and activities, and how this leads to the coordinating of important organizational activities such as organizational restructuring. Critically, the model demonstrates that these performances do not come ready-packaged as a coordinating mechanism, but are worked out in performing new relationships and activities. The coordinating mechanism thus both supports efforts to coordinate and is constituted through these efforts to coordinate. The new way of coordinating is not only a new way of interacting, but also is created in relation to the disruption and absence of a previous way of interacting. This view of coordinating provides a new set of conceptual tools to understand coordinating.

Implications

Our findings about the performative-ostensive cycles that underpin the coordinating process, summarized in Figure 2, make three important contributions to the literature: (1) they identify two important but previously unidentified parts of moving from an existing coordinating mechanism to a new coordinating mechanism, namely enacting disruption and orienting to absence; (2) they demonstrate the dynamic, processual and socially accomplished nature of coordinating mechanisms; and (3) they extend the use of the performative and ostensive concepts to the new contexts of coordinating mechanisms and exogenously motivated change. We now review these contributions in detail.

First, our detailed study identified parts of developing a coordinating process previously unacknowledged even in the process- and practice-based work on restructuring, coordinating mechanisms and routines. While many empirical studies based in practice theory have focused on the action involved in bringing new or altered structures into being (e.g. Barley, 1986; Feldman, 2000, 2004; Jarzabkowski, 2008; Orlikowski, 1992; 1996; Pentland, 1992; Rerup & Feldman, in press), few have looked at what happens in moving from an existing structure to a new structure. Specifically, our research highlights two phases of coordinating activity in this process that have been overlooked: enacting disruption and orienting to absences. These early cycles of coordinating may have been omitted from previous studies because of their focus on how practices or routines are established (see Okhuysen & Bechky, 2009; Feldman, 2000, 2003; Howard-Grenville, 2005; Zbaracki & Bergen, in press). Our findings, however, demonstrate that these cycles are of critical importance in the coordinating process. We show that the disruption of the previous structure is an active stage of restructuring. We also show the centrality of absence in shaping both *enacting disruption* and *creating new elements* that enact new patterns. The interplay between *enacting disruption*, *orienting to absences*, and the third cycle, *creating elements*, illustrates not only the iterative and mutually constituent nature of coordinating but also demonstrates the criticality of the first two cycles in creating the overarching coordinating mechanisms. How members of the organization enact disruption and orient to specific absences shapes the direction and focus of creating elements and vice versa. Our findings demonstrate the recursive nature of the relationships among these three cycles. Thus, disruptions, absences and elements are not just sequentially related but are mutually implicated in each others' creation. Over time disruption, absences and elements shape and form each other.

Second, our research makes the case for moving from a discussion of the characteristics or use of coordination mechanisms to a discussion of enacting coordinating in practice. For some time now, organization theorists have recognized that understanding the process of organizing opens up new avenues for our field. Coordinating is clearly a fundamental part of organizing and yet the ways we coordinate our efforts into organized output continue to be discussed as static phenomena. Despite calls for understanding coordinating mechanisms as processes (Adler, 1995; Okhuysen and Bechky, 2009), these tools for

producing coordinated actions have been conceptualized as if they are created independent of their use (Jarzabkowski and Wilson, 2006; Seidl, 2007). Our empirical study of a specific restructuring process shows a coordinating mechanism being created as it was performed. Moreover, due to the longitudinal nature of our study, we are able to theorize the process of enacting coordinating as a series of mutually constituting cycles. These dynamic cycles bring about coordinating through enacting disruption and orienting towards absence in the early stages, forming elements and patterns in the middle stages, and stabilizing these patterns in the later stages. Our process model thus provides a conceptual framework for the growing shift in research focus from coordination mechanisms as reified 'things' to coordinating mechanisms that are enacted in practice (e.g. Adler, 1995; Jarzabkowski, 2004; Jarzabkowski & Wilson, 2006; Seidl, 2007; Zbaracki, 1998).

Third, our research draws on and contributes to the literature that examines routines as generative systems. Using practice concepts and ethnographic observation, recent scholarship has shown that the routines we often use in coordinating action to accomplish tasks are neither static nor immutable, but rather, contain the possibilities for novelty, flexibility and change within their performance (Adler, Goldaftas & Levine, 1999; Pentland & Rueter, 1994; Feldman, 2000; Feldman & Pentland, 2003; Rerup & Feldman, in press). This work has proposed that the generativity of these systems is related to the recursive and mutually constitutive relationship between specific performances of routines and their ostensive patterns (Feldman & Pentland, 2003; Howard-Grenville, 2005; Zbaracki & Bergen, in press). Due to the similarity between routines and coordinating mechanisms, we employed these concepts in our analysis, thereby extending the use of the performative and ostensive concepts to a somewhat broader category of work practices. These, unlike organizational routines, do not perform a particular task like hiring or budgeting but rather enable many routines to work together to accomplish organizational goals. Our findings also extend the use of the performative-ostensive concepts in another way. While earlier work on the performative-ostensive cycle was developed to explain how change can occur through entirely internal or endogenous dynamics, we use these concepts to reveal the internal dynamics in a process that is motivated by external forces (see also Jarzabkowski, 2008). Thus, we show that even

exogenously motivated change is not simply accomplished. Rather, the change occurs through numerous iterations of the performative-ostensive cycles shown in Figure 2.

These theoretical contributions highlight areas for future research. As future studies deconstruct the transitions from an existing structure to a new structure, we will learn more about the cycles we have identified, particularly the cycles of *enacting disruption* and *orienting to absences* we introduce. The contribution of small actions in reconstructing structure is an important focus of much existing research (see Barley & Tolbert, 1997; Tsoukas & Chia, 2002; Farjoun, 2010), but the roles these actions play in the cycles of disrupting structure, orienting to absences, and shaping the actions that create a new structure are just beginning to emerge. Our study identifies these dynamics in the specific context of Servico as organizational members engaged in restructuring an E2E coordinating mechanism in order to accomplish the regulatory mandate imposed upon them. Further research in other contexts and in relation to other coordinating mechanisms will be helpful in elaborating these cycles and understanding more about their roles in disrupting old patterns and creating and stabilizing new ones.

CONCLUSION

Our research develops three key insights into the practice of coordinating and its relationship with the social accomplishment of coordinating mechanisms. First, we show that coordinating mechanisms do not arise as ready to use procedures but are constituted as actors go about the process of coordinating. Second, we identify five overlapping cycles that actors enact to create a coordinating mechanism: *enacting disruption of coordinating*, *orienting to absences in coordinating*, *creating elements of coordinating*, *forming patterns of coordinating,* and *stabilizing patterns of coordinating*. Based on the empirical details of our case, we developed a process model of coordinating consisting of these 5 performative-ostensive cycles in which specific performances are both cause and consequence of abstract patterns. Though conceptually sequential, we show that the first three cycles are strongly entwined and mutually constitutive and that the latter two cycles also interact with the previous cycles in a nonlinear relationship. Finally, our study emphasizes the significance of enacting disruption and orienting to absences as part of coordinating. These previously overlooked cycles play important roles in restructuring the coordinating process and, therefore, in creating and recreating coordinating mechanisms.

The case study approach taken in this paper provides a basis for theoretical generalizability (Eisenhardt, 1989; Geertz, 1973). The disruption of vertically-integrated organizations through the imposition of an information barrier between the distribution and wholesale businesses, observed in this case study, is a relatively typical regulatory solution for infrastructure firms (Baldwin & Cave, 1999). Such barriers also occur in financial service organizations and professional service firms that provide both audit and consulting services in order to guard against conflicts of interest between divisions. Our findings are, therefore, relevant to other organizations that face legislated barriers within their internal processes. Even beyond such organizations, restructuring may involve the reconfiguration of relationships between divisions that have worked together for long periods. The paper hence provides support for research into the way that the accomplishment of coordinating mechanisms enables the accomplishment of organizational restructuring.

REFERENCES

Adler, P.S. 1995. Interdepartmental interdependence and coordination: The Case of the design/ manufacturing interface. *Organization Science*. **6**(2) 147-167.

Adler, P. S., B. Goldoftas, and D. I. Levine. 1999. "Flexibility versus efficiency? A case study of model changeovers in the Toyota production system." *Organization Science*, 10: 43-68.

Alvesson, M. 2003. Beyond neopositivists, romantics, and localists: A reflexive approach to interviews in organizational research. *Academy of Management Review*. **28**(1) 13-33.

Argote, L. 1982. Input uncertainty and organizational coordination in hospital emergency units. *Administrative Science Quarterly*. **27**(3) 420–34.

Baldwin, R. and M. Cave. 1999. *Understanding Regulation: Theory, Strategy, and Practice*. Oxford: Oxford University Press.

Balogun, J., Huff, A.S. and Johnson, P. 2003. Three responses to the methodological challenges of studying strategizing. *Journal of Management Studies*. **40**(1) 197-224.

Barley, S.R. 1986. Technology as an occasion for structuring: Evidence from observations of CT scanners and the social order of radiology departments. *Administrative Science Quarterly*. **31**(1) 78-108.

Barley, S. and P. Tolbert. 1997. Institutionalization and Structuration: Studying the Links between Action and Institution. *Organization Studies*. **18**(1) 93-117.

Barnard, C.I. 1938. *The functions of the executive*. Harvard University Press: Cambridge, MA.

Bate, P., R. Khan, and A. Pye. 2000. Towards a culturally sensitive approach to organization structuring: Where organization design meets organization development. *Organization Science*. **11**(2) 197-211.

Bourdieu, P. 1977. *Outline of a theory of practice*. Cambridge University Press, Cambridge, UK.

Bourdieu, P. 1990. *The logic of practice*. Polity Press, Cambridge, UK.

Ching, C., Holsapple, C.W., & Whinston, A.B. 1992. Reputation, Learning and Coordination in Distributed Decision-Making Contexts. *Organization Science*. **3**(2) 275-297.

Cohen, S. and J. Roussel. 2004. *Strategic Supply Chain Management: The Five Disciplines for Top Performance*. McGraw-Hill, London, UK.

Crowston, K. 1997. A Coordination Theory Approach to Organizational Process Design. *Organization Science*. **8**(2) 157-175.

Cyert, R. and J. March. 1963. *A behavioral theory of the firm*. Prentice-Hall, New Jersey.

Eisenhardt, K. 1989. Building theories from case study research. *Academy of Management Review*. **14**(4) 532-50.

Evered, R. and M. Louis. 1981. Alternative perspectives in the organizational sciences: 'Inquiry from the inside' and 'inquiry from the outside'. *Academy of Management Review*. **6**(3) 385-96

Faraj, S. and L. Sproull. 2000. Coordinating expertise in software development teams. *Management Science*. **46**(12) 1554–1568.

Faraj, S. and Y. Xiao. 2006. Coordination in fast-response organizations. *Management Science*. **52** 1155–1189.

Farjoun, M. (2010). 'Beyond dualism: Stability and change as a duality'. *The Academy of Management Review,* **35**, 202-25.

Feldman, M.S. 2000. Organizational routines as a source of continuous change. *Organization Science*. **11**(6) 611-629.

Feldman, M.S. 2003. A performative perspective on stability and change in organizational routines. *Industrial and Corporate Change*. **12**(4) 727-752.

Feldman, M.S. 2004. Resources in Emerging Structures and Processes of Change. *Organization Science*, **15**(3) 295-309.

Feldman, M.S. and B.T. Pentland. 2003. Reconceptualizing organizational routines as a source of flexibility and change. *Administrative Science Quarterly*. **48**(1) 94-118.

Fontana, A. and J. Frey. 1994. Interviewing: The art of science. N. Denzin & Y. Lincoln, eds, *Handbook of qualitative research,* Sage, Thousand Oaks, CA, 361-376.

Foster, I., M. Fidler, A. Roy, V. Sander, L. Winkler. 2004. End-to-end quality of service for high-end applications. *Computer Communications*. **27**(14) 1375-1388.

Galbraith, J. (1977). *Organization design*. Reading, MA: Addison-Wesley.

Garfinkel, H. (1967). Studies in ethnomethodology. Englewood Cliffs, NJ: Prentice-Hall.

Geertz, C. 1973. *The interpretation of cultures*. Basic Books, New York.
Georgopoulos, B.S. & Mann, F.C. 1962. *The Community General Hospital*. New York: Macmillan.
Georgopoulos, B.S & Cooke, R.A. 1979. *Conceptual-Theoretical Framework for the Study of Hospital Emergency Services*. Ann Arbor, Ml: University of Michigan, Institute for Social Research.
Giddens, A. 1984. *The constitution of society*. Polity Press, Cambridge, UK.
Howard-Grenville, J. A. 2005. The persistence of flexible organizational routines: The role of agency and organizational context. *Organization Science*. **16**(6) 618-636.
Hutchins, E. 1995. *Cognition in the Wild*. Cambridge, MA: MIT Press.
Jarzabkowski, P. 2004. Strategy as practice: Recursiveness, adaptation and practices-in-use. *Organization Studies*. **25**(4) 529-560.
Jarzabkowski, P. 2005. *Strategy as practice: An activity-based view*. Sage, London, UK.
Jarzabkowski, P. 2008. Shaping strategy as a structuration process. *Academy of Management Journal*. **51**(3) 621-651.
Jarzabkowski, P. and D.C. Wilson 2006. Actionable strategy knowledge: A practice perspective. *European Management Journal*. **24**(5) 348-367.
Langley, A. 1999. Strategies for theorizing from process data. *Academy of Management Review*. **24**(4) 691-710.
Latour, B. 1986. The powers of association. J. Law, eds. *Power, action and belief*. Routledge and Kegan Paul, London, UK, 264-280.
Latour, B. 2005. Reassembling the social. Oxford: Oxford University Press.
Lawrence, P. R. and J.W. Lorsch. 1967. *Organization and environment: Managing differentiation and integration*. Harvard University Press, Boston, MA.
Levinthal, D.A., & Rerup, C. 2006. Crossing an apparent chasm: Bridging mindful and less mindful perspectives on organizational learning. *Organization Science*. **17**(4) 502-513.
Lincoln, Y. S. and E.G. Guba. 1985. *Naturalistic inquiry*. Sage, London, UK.
Malone, T.W. & Crowston, K. 1994. The Interdisciplinary Study of Coordination. *ACM Computing Surveys*. **26**(1) 87-119.
Okhuysen, G.A. & B.A. Bechky. 2009. Coordination in organizations: An integrative perspective. *Annals of Academy of Management*. **3**(1) 463-502.
Orlikowski, W. 1992. The duality of technology: Rethinking the concept of technology in organizations. *Organization Science*. **3**(3) 398-427.
Orlikowski, W. 1996. Improvising organizational transformation over time: A situated change perspective. *Information Systems Research*. **7**(1) 63-9.
Orlikowski, W. 2000. Using technology and constituting structures: A practice lens for studying technology in organizations. *Organization Science*. **11**(4) 404-428.
Ortner, S.B. 1984. Theory in anthropology since the Sixties. *Comparative Studies in Society and History*. **26**(1) 126-166.
Pentland, B.T. 1992. Organizing moves in software support hot lines. *Administrative Science Quarterly*. **37**(4) 527-548.
Pentland, B.T. and H.H. Rueter. 1994. Organizational routines as grammars of action. *Administrative Science Quarterly*. **39**(3) 484-510.
Pentland, B.T. and M.S. Feldman. 2005. Organizational routines as a unit of analysis. *Industrial and Corporate Change*. **14**(5) 793-815.
Pentland, B.T. and M.S. Feldman. 2007. Narrative networks: Patterns of technology and organization. *Organization Science*. **18**(5) 781-795.
Rerup, C., M. Feldman, M. *In Press*. Routines as a source of change in organizational schema: The role of trial-and-error learning. *Academy of Management Journal*.
Seidl, D. 2007. General strategy concepts and the ecology of strategy discourses: a systematic-discursive perspective. *Organization Studies*. **28**(2) 197-218.
Sevon, G. 1996. Organizational imitation in identity transformation. In Barbara Czarniawska, Guje Sevon, (eds.) *Translating Organizational Change*. Walter de Gryter, New York
Stene, E.O. 1940. An Approach to a Science of Administration. *American Political Science Review,* **34**(6) 1124-1137.

Suchman, L.A. 1983. Office procedure as practical action: Models of work and system design. *ACM Trans. Inf. Syst*. **1**(4) 320-328.
Thompson, J. (1967). Organizations in action. New York: McGraw-Hill.
Tsoukas, H. and R. Chia. 2002. On organizational becoming: rethinking organizational change. *Organization Science*. **13**(5) 567-582.
Volberda, H. 1996. Towards the flexible form: How to remain vital in hypercompetitive environments. *Organization Science*. **7**(4) 359-374.
Weick, K.E. 1979. *The social psychology of organizing*. McGraw-Hill, New York.
Weick, K.E. 1993. The collapse of sensemaking in organizations: The Mann Gulch disaster. *Administrative Science Quarterly*. **38**(4) 628-652.
Weick, K.E. and K.H. Roberts. 1993. Collective mind in organizations: Heedful interrelating on flight decks. *Administrative Science Quarterly* **38**(3) 357-381.
Wittgenstein, L. 1953/2001. *Philosophical Investigations*. Blackwell Publishing, London, UK.
Yin, R. K. 1994. *Case Study Research*. Sage, London, UK.
Zbaracki, M.J. 1998. The rhetoric and reality of total quality management. *Administrative Science Quarterly*. **43**(3) 602-636.
Zbaracki, M.J. and M. Bergen. 2010. When Truces Collapse: A longitudinal study of price adjustment routines. *Organization Science*, **21**(5): 955-972.

Figure 1: Servico restructuring

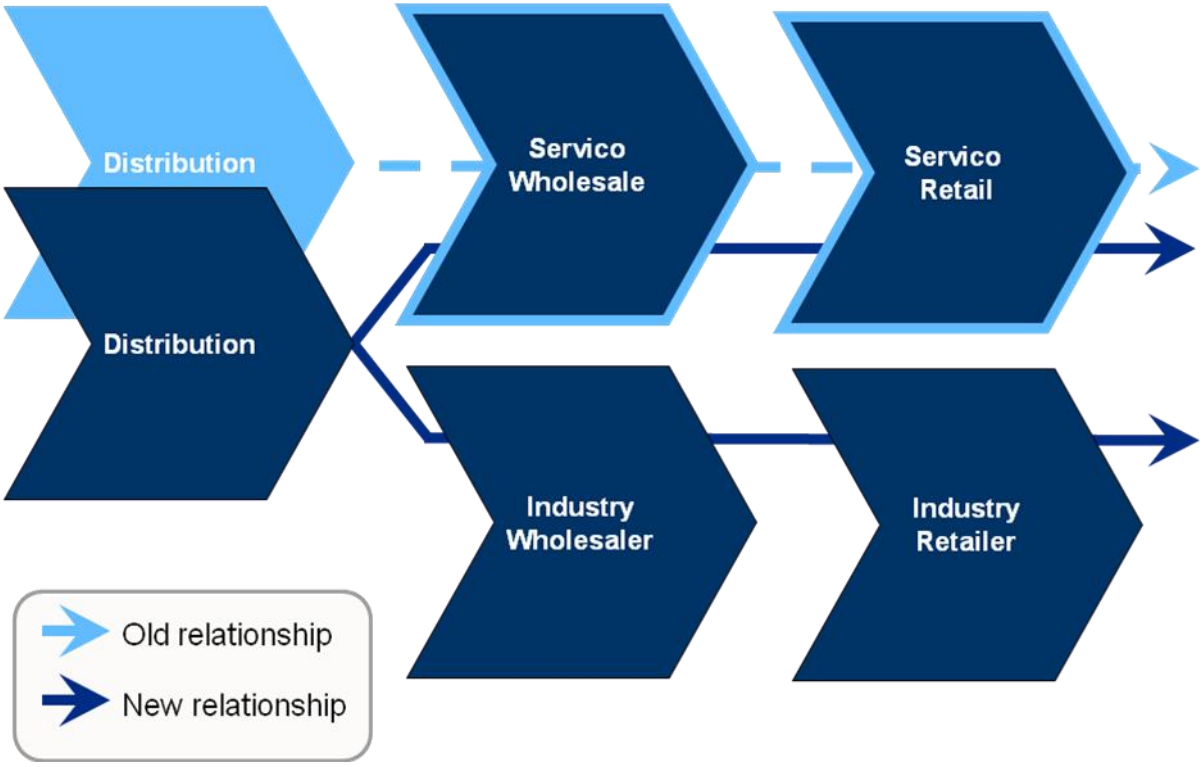
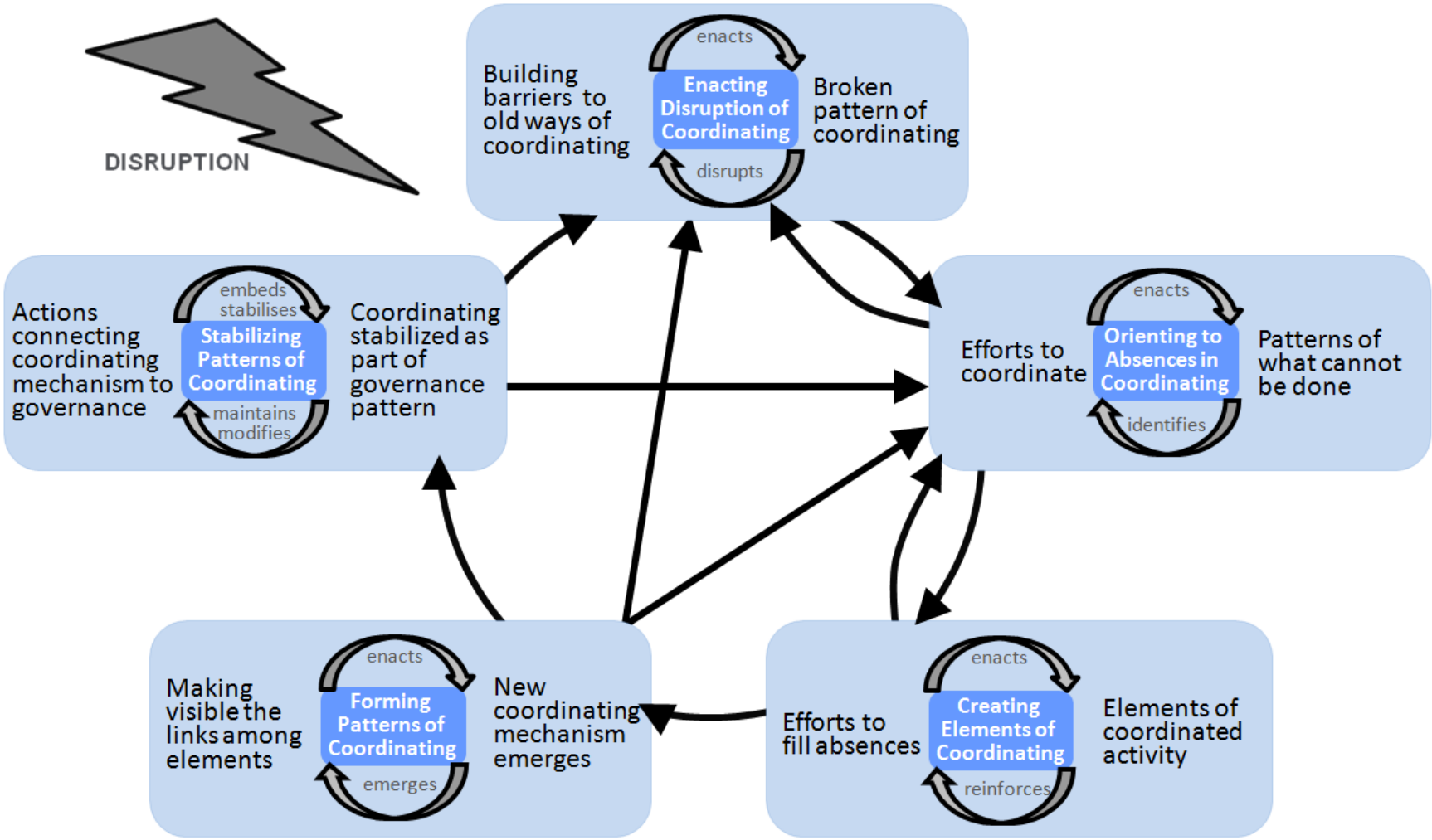


Figure 2: Creating a coordinating mechanism through coordinating



APPENDIX A: DATA SOURCES COLLECTED FOR THIS PAPER

Type	Title / Description	Division	Level	Date
Interview	CEO of Wholesale	Wholesale	High	Y1-M3
Interview	Change Program Manager (Distribution)	Distribution	Mid	Serial: Y1-M2, Y1-M11, Y2-M9, Y3-M5
Interview	Change Program Manager (Retail)	Retail	Mid	Serial: Y1-M3, Y1-M9, Y2-M9
Interview	Change Program Manager (Wholesale); Connectif Program Lead (Wholesale)	Wholesale	Mid	Serial: Y1-M3, Y1-M9, Y2-M4, Y2-M10, Y3-M5
Interview	Change Program Regulatory Advisor	Center	High	Y1-M5
Interview	Chief Counsel (Corporate Retail)	Retail	High	Y3-M7*
Interview	Chief Counsel for Distribution	Distribution	Mid	Y1-M3
Interview	CIO for Distribution	Distribution	Mid	Y1-M3
Interview	Connectif Director	Distribution	Mid	Serial: Y1-M10, Y2-M9
Interview	Connectif Finance Director	Center	Mid	Y1-M1
Interview	Consultant, Director of Program Management	Retail	Mid	Y2-M9*
Interview	Corporate Retail Product Lead	Retail	Mid	Y1-M3
Interview	Corporate Retail Systems Lead	Retail	Mid	Y1-M3
Interview	Customer Management Team Member 1	Distribution	Mid	Y1-M6
Interview	Customer Management Team Member 2	Distribution	Mid	Y1-M6
Interview	Director of Distribution Regulation	Distribution	Mid	Y1-M1
Interview	Director of Industry Products	Distribution	Mid	Y1-M3
Interview	Director, Customer Business Management	Distribution	Mid	Y1-M4
Interview	Director, Product Management	Wholesale	Mid	Y1-M3
Interview	Distribution General Manager	Distribution	Mid	Y1-M2
Interview	Equivalence Manager	Retail	Mid	Y1-M6
Interview	Equivalence Project Director	Wholesale	Mid	Y1-M7
Interview	General Counsel for Distribution	Distribution	Mid	Y1-M3
Interview	General Manager Upgrade Program	Wholesale	Mid	Y1-M3
Interview	Head of Change Program (Corporate Retail)	Retail	High	Serial: Y1-M9, Y1-M11, Y3-M4
Interview	Head of Change Program (Distribution)	Distribution	High	Serial: Y1-M8, Y3-M4
Interview	Head of Change Program (Group)	Center	High	Serial: Y1-M2, Y3-M5
Interview	Head of Change Program (Retail)	Retail	High	Serial: Y1-M2, Y1-M10, Y2-M10, Y3-M4
Interview	Head of Change Program (Wholesale)	Wholesale	High	Serial: Y1-M2, Y1-M3, Y1-M6, Y2-M9, Y2-M10
Interview	Head of Equivalent Products	Distribution	Mid	Serial: Y1-M3, Y1-M12, Y2-M10
Interview	Head of Product Equivalence	Center	Mid	Y1-M3
Interview	Head of Product Management	Wholesale	Mid	Y1-M5
Interview	Head of Regulatory Monitoring	Center	Mid	Y1-M3
Interview	Head of Separation & Equivalence	Center	High	Serial: Y1-M4, Y1-M11, Y2-M11, Y3-M2, Y3-M5
Interview	Head of Service Improvement	Center	High	Y1-M9
Interview	Head of Strategy (Distribution)	Distribution	High	Y1-M4
Interview	Macro Strategy Advisor (Distribution)	Distribution	High	Y1-M7
Interview	Head of Strategy (Retail)	Retail	High	Serial: Y1-M6, Y2-M11
Interview	Head of Strategy (Wholesale)	Wholesale	High	Y1-M7
Interview	Lead Designer	Wholesale	Mid	Y1-M4
Interview	Managing Director for Service	Distribution	High	Serial: Y1-M4, Y2-M9*

Type	Title / Description	Division	Level	Date
Interview	MD Operations	Distribution	High	Y1-M5*
Interview	MD, Service Management	Distribution	Mid	Y1-M2
Interview	Product Development Director, Distribution	Distribution	Mid	Serial: Y1-M3, Y1-M10, Y2-M9
Interview	Program Director, Regulated Products	Retail	Mid	Y1-M4
Interview	Regional Director	Retail	Mid	Y1-M3
Interview	Regulatory Monitoring & External Relations	Center	Mid	Y1-M4
Interview	Regulatory Monitoring, Activities Lead	Center	Mid	Y1-M6
Interview	Senior Legal Council	Center	High	Y1-M4
Interview	Service Improvement Officer	Distribution	High	Y1-M5*
Interview	Systems Program Director (Center)	Center	High	Serial: Y1-M12, Y2-M10
Interview	Systems Program Director (Distribution)	Distribution	Mid	Y1-M6
Interview	Vice President, Commercial	Retail	High	Y3-M7*
Interview	Wholesale Portfolio Director	Wholesale	Mid	Y1-M4
Meeting Observation	Senior Dissemination Meeting	Center	High	Y1-M1
Meeting Observation	Center Change Program Board: Representatives from all divisions meet to discuss and coordinate the change program	Center	High	Regular observations from Y1-M2 until Y2-M12 (N=41)
Meeting Observation	Distribution Change Program Board: Representatives from all functional areas meet to discuss and coordinate the change program	Distribution	Mid	Regular observations from Y1-M2 until Y3-M2 (N=31)
Meeting Observation	Wholesale - Distribution Meeting: Targeting meeting with key representatives in which critical change issues are raised and addressed.	Cross-divisional Meeting	Mid	Regular observations from Y1-M2 until Y2-M7 (N=23)
Meeting Observation	Product Planning Meeting: Representatives from all divisions met to discuss the implementation of Lineshare (including the implications of/on related deliveries like Connectif)	Cross-divisional Meeting	Mid	Y1-M3 Y1-M4
Meeting Observation	Corporate Retail Change Program Board: Representatives from all functional areas meet to discuss and coordinate the change program	Retail	Mid	Regular observations from Y1-M2 until Y1-M10 (N=11)
Meeting Observation	Corporate Retail Change Project Board: Representatives from all functional areas meet to discuss and coordinate specific parts of the change program	Retail	Mid	Regular observations from Y1-M10 until Y2-M4 (N=8)
Meeting Observation	Wholesale Change Program Board: Representatives from all functional areas meet to discuss and coordinate the change program	Wholesale	Mid	Regular observations from Y1-M2 until Y2-M2 (N=9)
Meeting Observation	Retail Change Program Board: Representatives from all functional areas meet to discuss and coordinate the change program	Retail	Mid	Regular observations from Y1-M2 until Y2-M6 (N=11)
Meeting Observation	Product Development Board: Board discussing specific elements of product development and how they like to the change program	Wholesale	Mid	Y1-M5
Meeting Observation	Meeting discussing the regulatory aspects and operational implications of the change	Distribution	Mid	Y1-M6
Meeting Observation	Meeting between regulator and senior managers discussing the implications of the new regulation	Center	High	Y1-M5
TOTAL **Interviews = 84 (joint interviews indicated by a * are counted as one)** **Meeting Observations = 137**				

APPENDIX B: ANALYTIC STRUCTURE EXEMPLIFIED

Type	Code	Aspects of coordinating that actors experienced in their endeavors to work E2E	Example
Empirical Codes	**Elements**	Elements of E2E that discussed and/or which their activity concentrated upon: technology, external players, service, business processes.	*See examples below*
	Technology	One element of E2E; the physical systems, its component parts and the software used in the delivery of Connectif	"It's not enough for end-to-end [systems] testing when we've got it all strung together." "The IT teams have agreed an end-to-end systems plan – There is an agreed end-to-end [systems] performance testing plan in place." "Our major concern is about end-to-end systems. The main worry is still about the volume of Connectif use. We may need to redesign the Wholesale [systems]."
	External players	One element of E2E; external companies providing the Connectif product to end-users via the Distribution infrastructure (Distribution customers; Wholesale competitors)	"Having an effective process for an external industry player to direct a Connectif trained engineer to an end user is at medium risk... the next critical step is automation to external players, but the end-to-end effectiveness of diagnosing and appointing this is yet to be proven" "If industry players don't want to get more involved, let's move on to the release so we can get some end-to-end management. Can that be given some priority?" **"**We have been going around the loop with Distribution defining which of these are going to be provided… But, we've also going around the loop about which of these are necessary for industry, as Distribution has to satisfy industry, not just us; as TP5 has to support industry."
	Service	One element of E2E; the functionality available to Distribution customers (external companies and other Service divisions) and the service levels available to their Connectif end-users	"All focus is on driving E2E repair performance up." "We need to think about E2E management of the customer experience. Distribution has been doing some similar work but nobody at this stage has done a Servico-wide E2E walkthrough of the process". "The only way to meet [final deadline] would be to move to volume migrations as planned. But in doing so, we would have to accept that the current end to end service levels in Retail, all external industry players, Wholesale and Distribution would deteriorate."
	Business Processes	One element of E2E; the formal and informal procedures, mechanisms and relationships that enable Distribution customers to access systems to provide service to their Connectif end-users	"I am flagging concerns about customer quality of service and timing… improvements, I hope, will be wrought by putting in end-to-end processes".

Type	Code	Aspects of coordinating that actors experienced in their endeavors to work E2E	Example
			"There is a lack of overall ownership of end-to-end processes, which gives rise to divisions discharging overall responsibility and there are process gaps in the E2E business process." "The E2E process is meant to be across Service but, because of the tight timescale, we have to start work before E2E is in place."
	Outcomes	The intended, expected or actual consequence of coordinating or not coordinating Connectif E2E	"We're not going to meet the [first deadline] if we don't start working E2E" "A lot of the problem is that there is still inadequate E2E management - it is still too much a matter of separate communities in Distribution and Wholesale - talking across bridges." "We need a business lead in Group running this end to end. Otherwise you get the systems people telling you how beautifully the systems are working, but everyone is on their knees." "We don't have an end-to-end CIO or a testable proposition of the new system…when you show this to [our CEO], he will say 'this is a big thing'"
Interpretive Codes	**Performative**	Specific activities that people engaged in as they endeavored to work E2E within Servico	*See examples below*
	Building the barrier	Performances that enact the information-sharing barrier	Not going to other divisional meetings; not sharing documents or information relating to Connectif originating in one division; not allowing direct access to engineers; removing systems access
	Efforts to enact E2E	Performances that try to invoke management between two end points (experimentation)	Trying to set up cross-divisional meetings; trying to agree a Connectif project plan that involves both divisions; trying to access other divisional systems; trying to get specification information
	Efforts to connect E2E	Performances that aim to link different parts of end-to-end	Building an interface to engage with systems now in other divisions; designing equivalence processes for Servico divisions and external players; ensuring service with manual workarounds
	Using tools to make links visible	Performances that invoke practical instrument to show links between E2E elements	Using workshops; meetings; plans; resource allocation mechanisms; information-sharing rules; management structures; different E2E project teams in order to achieve E2E
	Actions connecting to governance	Performances that embed E2E in the broader governance structure	Developing a governance structure that encompasses all parts of the end-to-end management program; linking existing structures into broader governance structure
	Ostensive	Pattern of performances; the consistent ways of doing E2E within Servico	*See examples below*
	Coordinating is broken	Performance pattern that indicate E2E management as desirable but absent	Not knowing how to coordinate activity between Distribution into Wholesale

Type	Code	Aspects of coordinating that actors experienced in their endeavors to work E2E	Example
	Pattern of what can't be done	Performance pattern that indicate E2E management can no longer be done or no longer coordinates activity in expected ways	Being unable to engage in performances that constituted the old way of doing E2E (e.g. not allowed to use existing cross-divisional systems to share information between Distribution and Wholesale)
	New coordinating element	Performance pattern that indicate what constitutes how E2E management may be done after the change; identifying what is needed to manage activity E2E now	Identifying systems, processes, external players, and service as critical parts of the end-to-end process and working to build them
	Pattern of what can be done	Performance pattern that indicate E2E management as ways that systems, processes, external players and service are connected	Identifying links between systems, processes, external players, and service as critical parts of the end-to-end process and working to connect them
	Part of governance pattern	E2E management patterns part of broader organizational governance structures	E2E as accepted part of organizational life; actors know how to invoke E2E and it is integrated in broader organizational structures
Cycles	Enacting disruption	Coordinating element brought about by the interplay between performative enacting of the information-sharing barrier and the ostensive pattern of being unable to coordinate activity E2E	Directing attention and activity to interruption in coordinating (e.g. E2E management activity is no longer permitted or no longer coordinates in expected ways)
	Orienting to absence	Coordinating element brought about by the interplay between performative efforts to invoke E2E and the ostensive pattern of what does not coordinate activity	Directing attention and activity to specific absences (e.g. a specific missing system needed to enable E2E) out of a range of possible absences
	Creating elements of coordinating	Coordinating element brought about by the interplay between performative efforts to link parts of E2E that have been identified and the ostensive pattern of which parts compose E2E	Directing attention and activity to identifying and creating new elements of coordinating (e.g. systems, processes, external players, service are part of E2E)
	Forming patterns of coordinating	Coordinating element brought about by the interplay between performative use of practical instruments to refine links between elements and the ostensive pattern how to link elements together to achieve E2E	Directing attention and activity to linking new elements of coordinating (e.g. systems, processes, external players, service need to be linked in E2E)
	Stabilizing patterns of coordinating	Coordinating element brought about by the interplay between performative efforts to tie E2E to broader governance structures and the ostensive pattern of seeing E2E as part of organizational governance	Directing attention and activity to reinforcing and embedding new way of doing E2E management (e.g. E2E means tying elements of E2E into overall governance processes by means of a new governance mechanism)